

Tomcat & Wildfly

1. A web application can be deployed on different web servers maintaining its functionality and without any modification in its code due to the servlet 2.2 specification, what is the directory structure it should have?

```
/ (Root directory)
| — index.jsp
| — WEB-INF/ (Mandatory directory)
|   | — web.xml (Application descriptor)
|   | — classes/ (Compiled classes)
|   | — lib/ (Additional libraries)
```

2. You have a machine that has the recently updated Ubuntu operating system, in which the network environment is configured, and, in addition, you have an Internet connection and you are working with the root user's account. Indicate each of the steps, and commands involved in them, (and add the necessary screenshots, in some of them, you must see the platform with your profile picture) to do the following:

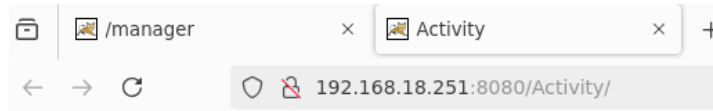
- a. Install the JDK.

```
root@server:/opt/tomcat/webapps# java --version
openjdk 17.0.14 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-122.04.1)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-122.04.1, mixed mode, sharing)
root@server:/opt/tomcat/webapps# javac --version
javac 17.0.14
root@server:/opt/tomcat/webapps#
```

- b. Create a web application, just create a index.html or index.jsp file, similar to what you see in section 2.1. of the topic, and that as the title of the window it puts your locality and in the body (Body) put your name and surname.

```
root@server:/opt/tomcat/webapps# mkdir /opt/tomcat/webapps/Activity
root@server:/opt/tomcat/webapps# mkdir /opt/tomcat/webapps/Activity/WEB-INF
root@server:/opt/tomcat/webapps# touch /opt/tomcat/webapps/Activity/index.jsp
root@server:/opt/tomcat/webapps# nano /opt/tomcat/webapps/Activity/index.jsp
root@server:/opt/tomcat/webapps# systemctl restart tomcat
```

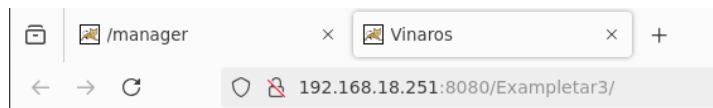
```
GNU nano 6.2 /opt/tomcat/webapps/Activity/index.jsp
<html>
<head><title>Activity</title></head>
<body>
  <h1>Ruben Ferrer</h1>
</body>
</html>
```



Ruben Ferrer

- c. The name of the application, instead of Web_App as in the example in the section, should be Exampletar3.

```
root@server:/opt/tomcat/webapps# mv Activity/ Exampletar3
root@server:/opt/tomcat/webapps# ls
Exampletar3 ROOT Web_App docs examples host-manager manager
root@server:/opt/tomcat/webapps# systemctl restart tomcat
```



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- d. Indicate the steps to follow to generate an access log, do not forget to attach the file or files that you have modified when sending the task (make a backup in case you make a mistake when modifying).

- Modify the `server.xml` file to enable access logs:

```
nano /opt/tomcat/conf/server.xml
```

- Find the `<Host>` section and add the following line inside `<Valve>` :

```
<Host name="localhost" appBase="webapps"
      unpackWARs="true" autoDeploy="true">

  <!-- SingleSignOn valve, share authentication between web applications
       Documentation at: /docs/config/valve.html -->
  <!--
  <Valve className="org.apache.catalina.authenticator.SingleSignOn" />
  -->

  <!-- Access log processes all example.
       Documentation at: /docs/config/valve.html
       Note: The pattern used is equivalent to using pattern="common" -->
  <Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs"
        prefix="exampletar3_access_log." suffix=".txt"
        pattern="%h %l %u %t &quot;%r&quot; %s %b" />
```

- Save the changes and restart Tomcat:

```
systemctl restart tomcat
```

- The log will be in `/opt/tomcat/logs/`

```
root@server:/opt/tomcat# cat logs/exampletar3_access_log..2025-02-10.txt
192.168.18.101 - manager [10/Feb/2025:15:57:54 +0000] "GET /manager/html HTTP/1.1" 200 20087
192.168.18.101 - - [10/Feb/2025:15:57:57 +0000] "GET /Exampletar3/ HTTP/1.1" 200 92
192.168.18.101 - - [10/Feb/2025:15:57:59 +0000] "GET /Exampletar3/ HTTP/1.1" 200 92
```

- e. **Download and install WildFly Application Server (do not install it with Synaptic).**

```
root@server:/opt/tomcat# systemctl status wildfly
● wildfly.service - The WildFly Application Server
   Loaded: loaded (/etc/systemd/system/wildfly.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2025-02-10 16:02:13 UTC; 12s ago
     Main PID: 3823 (launch.sh)
        Tasks: 55 (limit: 4540)
       Memory: 192.5M
          CPU: 17.496s
      CGroup: /system.slice/wildfly.service
              └─3823 /bin/bash /opt/wildfly/bin/launch.sh standalone standalone.xml 0.0.0.0
                 └─3824 /bin/sh /opt/wildfly/bin/standalone.sh -c standalone.xml -b 0.0.0.0
                    └─3957 java "-D[Standalone]" "-Djdk.serialFilter=maxbytes=10485760;maxdepth=128;maxarray=128"
Feb 10 16:02:13 server systemd[1]: Started The WildFly Application Server.
```

- f. **Create user for WildFly.**

```
root@server:/opt/tomcat# id wildfly
uid=998(wildfly) gid=998(wildfly) groups=998(wildfly)
root@server:/opt/tomcat#
```

- g. **Set the corresponding environment variables for Java and WildFly.**

- Edit the `/etc/profile` file:

```
nano /etc/profile
```

- Add to the end:

```
CATALINA_HOME=/opt/tomcat
JAVA_HOME=/usr/lib/jvm/java-1.11.0-openjdk-amd64/bin/java
PATH=$PATH:$JAVA_HOME/bin:$CATALINA_HOME
export PATH JAVA_HOME CATALINA_HOME
```

- Apply the changes:

```
source /etc/profile
```

h. Change the WildFly administrator password.

```
root@server:/home/user2# sudo /opt/wildfly/bin/add-user.sh

What type of user do you wish to add?
  a) Management User (mgmt-users.properties)
  b) Application User (application-users.properties)
(a): b

Enter the details of the new user to add.
Using realm 'ApplicationRealm' as discovered from the existing property files.
Username : user
Password recommendations are listed below. To modify these restrictions edit the add-user.properties configuration file.
- The password should be different from the username
- The password should not be one of the following restricted values {root, admin, administrator}
- The password should contain at least 8 characters, 1 alphabetic character(s), 1 digit(s), 1 non-alpha numeric symbol(s)
Password :
WFLYDM0098: The password should be different from the username
Are you sure you want to use the password entered yes/no? yes
Re-enter Password :
What groups do you want this user to belong to? (Please enter a comma separated list, or leave blank for none)[ ]: ManagerRealm
About to add user 'user' for realm 'ApplicationRealm'
Is this correct yes/no? yes
Added user 'user' to file '/opt/wildfly/standalone/configuration/application-users.properties'
Added user 'user' to file '/opt/wildfly/domain/configuration/application-users.properties'
Added user 'user' with groups ManagerRealm to file '/opt/wildfly/standalone/configuration/application-roles.properties'
Added user 'user' with groups ManagerRealm to file '/opt/wildfly/domain/configuration/application-roles.properties'
```