

APUNTES PARA EXAMEN UD3

Contenido

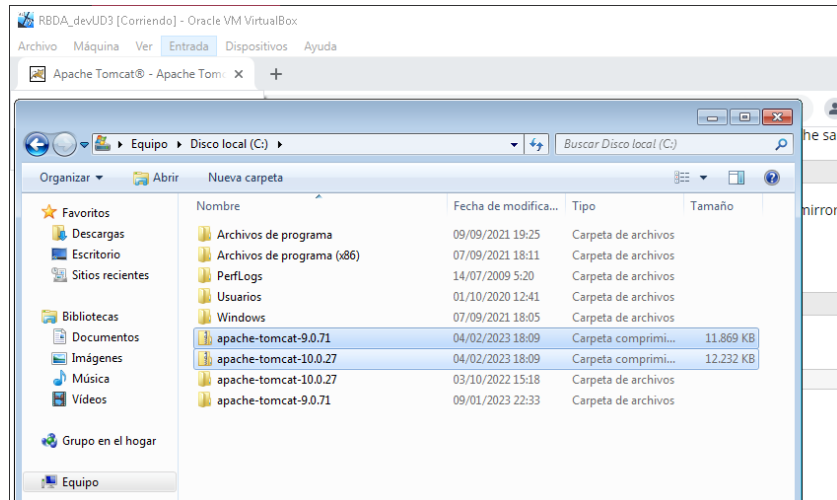
1.	Instalación Tomcat	2
1.1.	Windows	2
1.2.	Debian.....	3
2.	Desplegar app nun host.....	5
2.1.	Windows	5
2.1.1.	Autenticación Basic.....	5
2.1.2.	Listar archivos	6
2.1.3.	Creación de log específico	7
2.1.4.	Definir Host.....	9
2.1.5.	Cambio de puerto	10
2.1.6.	Funcionamiento.....	11
2.1.7.	Configuración SSL.....	13
2.2.	Debian.....	14
2.2.1.	Creación de un certificado.....	14
2.2.2.	Completo sin explicación en Debian (Solo capturas)	14
3.	Datasource.....	18

1. Instalación Tomcat

1.1. Windows

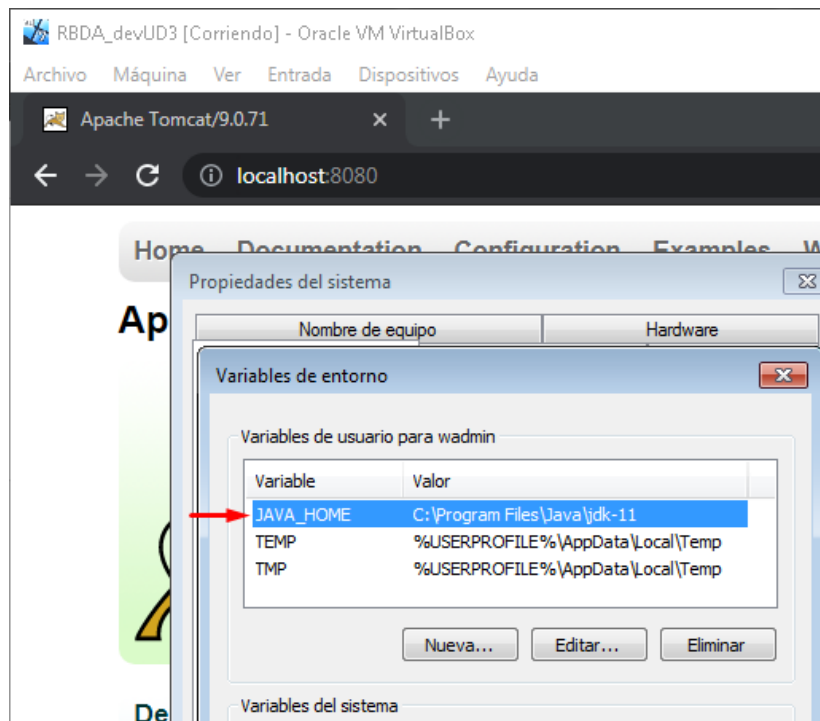
Descargamos los archivos comprimidos respectivos de tomcat 10 e 9.

Una vez descargados ubicamos los archivos comprimidos en la ubicación deseada y los descomprimos.



Instale Java™ Runtime Environment (JRE) o Java developer kit (JDK).

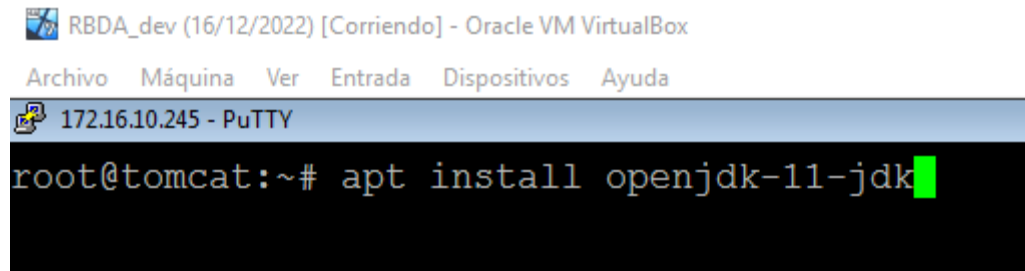
Establezca una variable de entorno con la vía de acceso al JRE o JDK.



1.2. Debian

Primeiro instalar java.

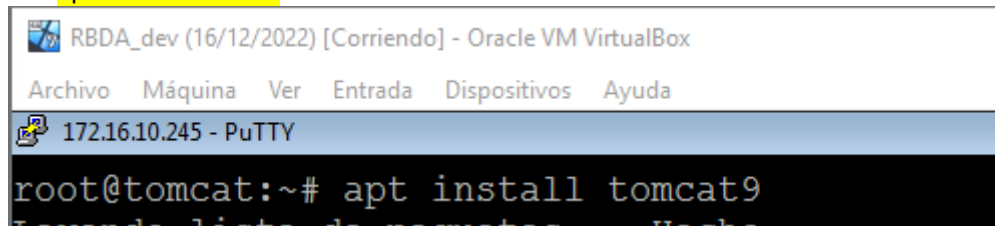
- `apt install openjdk-11-jdk`



```
RBDA_dev (16/12/2022) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY
root@tomcat:~# apt install openjdk-11-jdk
```

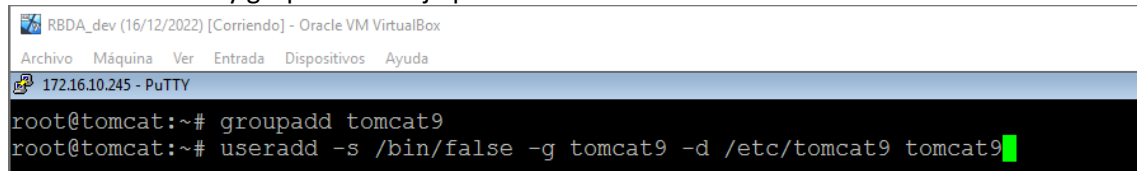
Instalar tomcat9.

- `apt install tomcat9`



```
RBDA_dev (16/12/2022) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY
root@tomcat:~# apt install tomcat9
```

Añadir un usuario y grupo de trabajo para tomcat



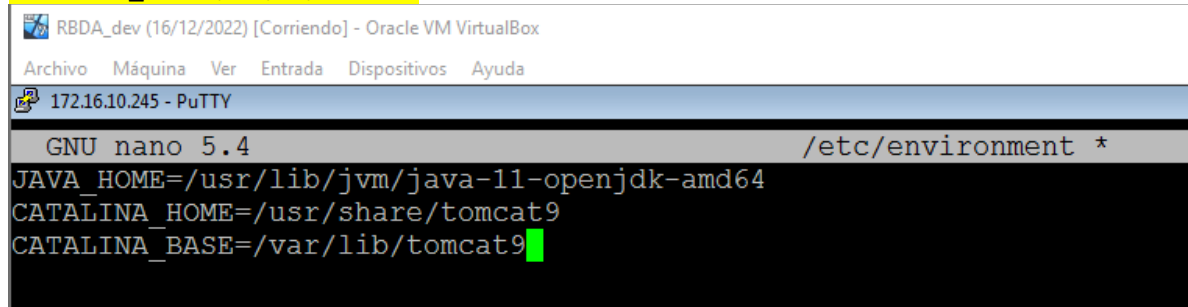
```
RBDA_dev (16/12/2022) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY
root@tomcat:~# groupadd tomcat9
root@tomcat:~# useradd -s /bin/false -g tomcat9 -d /etc/tomcat9 tomcat9
```

Crear variables de entorno:

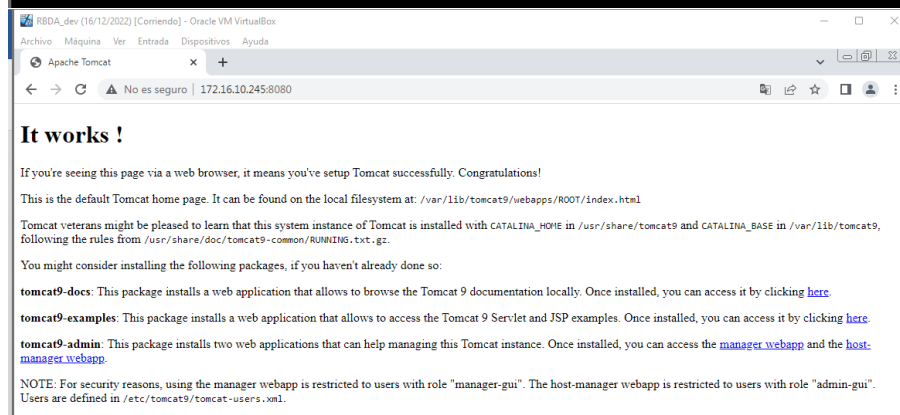
`JAVA_HOME=/usr/lib/jvm/java-11-openjdk-amd64`

`CATALINA_HOME=/usr/share/tomcat9`

`CATALINA_BASE=/var/lib/tomcat9`



```
RBDA_dev (16/12/2022) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY
GNU nano 5.4 /etc/environment *
JAVA_HOME=/usr/lib/jvm/java-11-openjdk-amd64
CATALINA_HOME=/usr/share/tomcat9
CATALINA_BASE=/var/lib/tomcat9
```



Apache Tomcat

It works !

If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

This is the default Tomcat home page. It can be found on the local filesystem at: `/var/lib/tomcat9/webapps/ROOT/index.html`

Tomcat veterans might be pleased to learn that this system instance of Tomcat is installed with `CATALINA_HOME` in `/usr/share/tomcat9` and `CATALINA_BASE` in `/var/lib/tomcat9`, following the rules from `/usr/share/doc/tomcat9-common/RUNNING.txt.gz`.

You might consider installing the following packages, if you haven't already done so:

- tomcat9-docs**: This package installs a web application that allows to browse the Tomcat 9 documentation locally. Once installed, you can access it by clicking [here](#).
- tomcat9-examples**: This package installs a web application that allows to access the Tomcat 9 Servlet and JSP examples. Once installed, you can access it by clicking [here](#).
- tomcat9-admin**: This package installs two web applications that can help managing this Tomcat instance. Once installed, you can access the [manager webapp](#) and the [host-manager webapp](#).

NOTE: For security reasons, using the manager webapp is restricted to users with role "manager-gui". The host-manager webapp is restricted to users with role "admin-gui". Users are defined in `/etc/tomcat9/tomcat-users.xml`.

Creamos usuario en `/etc/tomcat9/tomcat-users.xml`

```
RBDA_dev (16/12/2022) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY

GNU nano 5.4 /etc/tomcat9/tomcat-users.xml

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
  version="1.0">
<!--
NOTE: By default, no user is included in the "manager-gui" role required
to operate the "/manager/html" web application.  If you wish to use this app,
you must define such a user - the username and password are arbitrary. It is
strongly recommended that you do NOT use one of the users in the commented out
section below since they are intended for use with the examples web
application.
-->
<!--
NOTE: The sample user and role entries below are intended for use with the
examples web application. They are wrapped in a comment and thus are ignored
when reading this file. If you wish to configure these users for use with the
examples web application, do not forget to remove the <!-- .. --> that surrounds
them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
<user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
<user username="role1" password="<must-be-changed>" roles="role1"/>
-->
  <user username="roberto" password="abc123." roles="manager-script, manager-gui, admin-gui"/>
</tomcat-users>

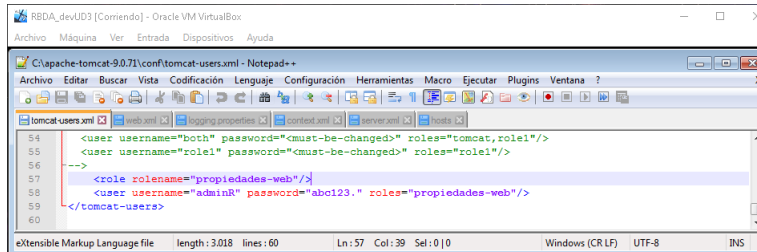
^G Ayuda      ^O Guardar    ^W Buscar     ^K Cortar     ^T Ejecutar   ^C Ubicación  M-U Deshacer
^X Salir      ^R Leer fich. ^\ Reemplazar ^U Pegar      ^J Justificar ^_ Ir a línea  M-E Rehacer
```

2. Desplegar app nun host

2.1. Windows

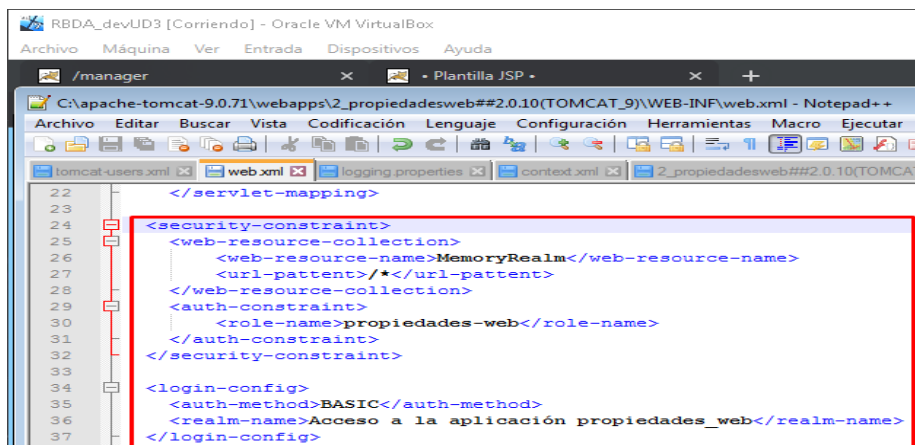
2.1.1. Autenticación Basic

Añadimos el usuario para acceder a la aplicación web.



A screenshot of a Notepad++ window titled 'C:\apache-tomcat-9.0.71\conf\tomcat-users.xml - Notepad++'. The window shows the contents of the tomcat-users.xml file. The XML code is as follows:

```
54 <user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
55 <user username="role1" password="<must-be-changed>" roles="role1"/>
56
57 <!--
58 <role rolename="propiedades-web"/>
59 <user username="adminR" password="abo123." roles="propiedades-web"/>
60 </tomcat-users>
```



A screenshot of a Notepad++ window titled 'C:\apache-tomcat-9.0.71\webapps\2_propiedadesweb\WEB-INF\web.xml - Notepad++'. The window shows the contents of the web.xml file. The XML code is as follows:

```
22 </servlet-mapping>
23
24 <!--
25 <security-constraint>
26 <web-resource-collection>
27 <web-resource-name>MemoryRealm</web-resource-name>
28 <url-pattern>/*</url-pattern>
29 </web-resource-collection>
30 <auth-constraint>
31 <role-name>propiedades-web</role-name>
32 </auth-constraint>
33 </security-constraint>
34
35 <login-config>
36 <auth-method>BASIC</auth-method>
37 <realm-name>Acceso a la aplicación propiedades_web</realm-name>
38 </login-config>
```

<security-constraint>

<web-resource-collection>

<web-resource-name>MemoryRealm</web-resource-name>

<url-pattern>/*</url-pattern>

</web-resource-collection>

<auth-constraint>

<role-name>propiedades-web</role-name>

</auth-constraint>

</security-constraint>

<login-config>

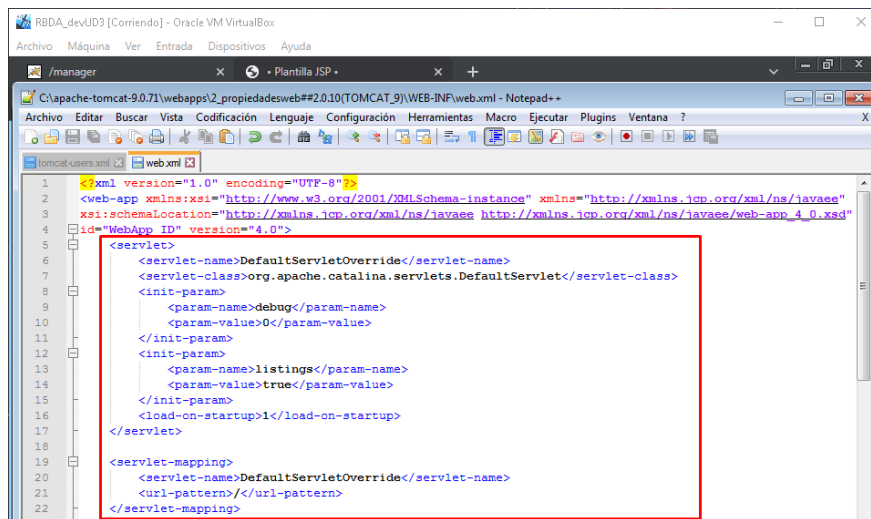
<auth-method>BASIC</auth-method>

<realm-name>Acceso a la aplicación propiedades_web</realm-name>

</login-config>

2.1.2. Listar archivos

Para listar archivos:



<servlet>

<servlet-name>DefaultServletOverride</servlet-name>

<servlet-class>org.apache.catalina.servlets.DefaultServlet</servlet-class>

<init-param>

<param-name>debug</param-name>

<param-value>0</param-value>

</init-param>

<init-param>

<param-name>listings</param-name>

<param-value>true</param-value>

</init-param>

<load-on-startup>1</load-on-startup>

</servlet>

<servlet-mapping>

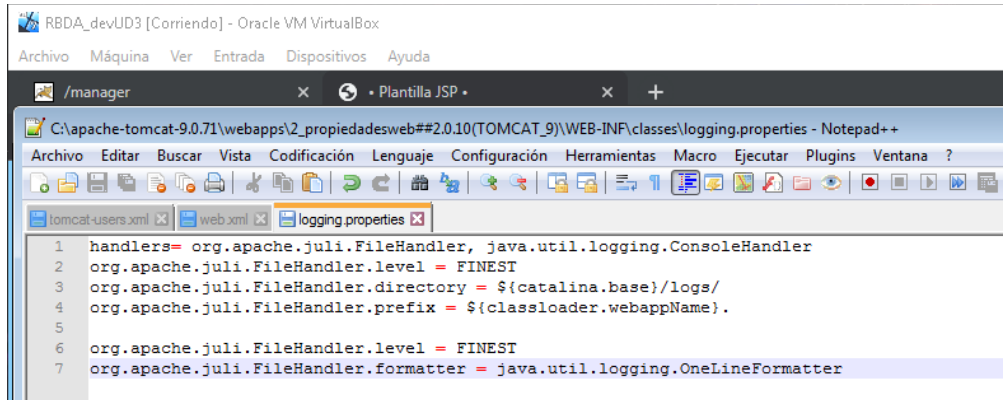
<servlet-name>DefaultServletOverride</servlet-name>

<url-pattern>/</url-pattern>

</servlet-mapping>

2.1.3. Creación de log específico

Creamos el archivo logging.properties en **C:\apache-tomcat-9.0.71\webapps\2_propiedadesweb##2.0.10(TOMCAT_9)\WEB-INF\classes**. Con esto se creará el archivo .log.



The screenshot shows a Notepad++ window titled 'C:\apache-tomcat-9.0.71\webapps\2_propiedadesweb##2.0.10(TOMCAT_9)\WEB-INF\classes\logging.properties - Notepad++'. The file content is as follows:

```
1 handlers= org.apache.juli.FileHandler, java.util.logging.ConsoleHandler
2 org.apache.juli.FileHandler.level = FINEST
3 org.apache.juli.FileHandler.directory = ${catalina.base}/logs/
4 org.apache.juli.FileHandler.prefix = ${classloader.webappName}.
5
6 org.apache.juli.FileHandler.level = FINEST
7 org.apache.juli.FileHandler.formatter = java.util.logging.OneLineFormatter
```

handlers= org.apache.juli.FileHandler, java.util.logging.ConsoleHandler

org.apache.juli.FileHandler.level = FINEST

org.apache.juli.FileHandler.directory = \${catalina.base}/logs/

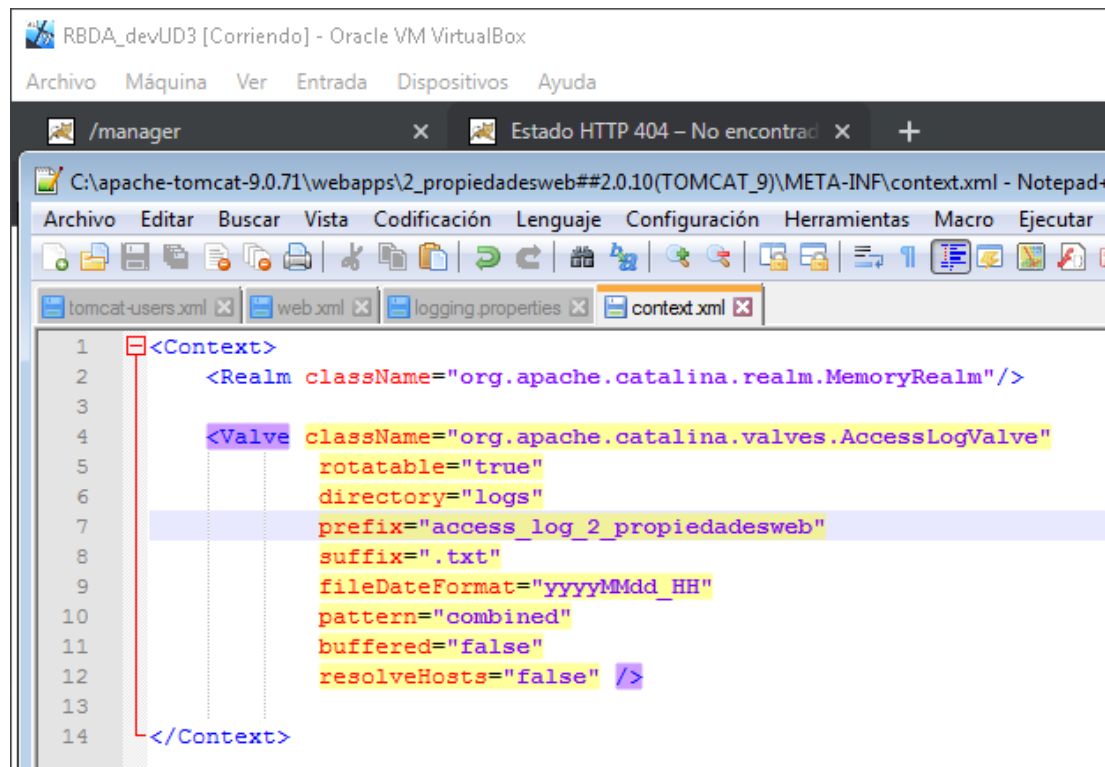
org.apache.juli.FileHandler.prefix = \${classloader.webappName}.

org.apache.juli.FileHandler.level = FINEST

org.apache.juli.FileHandler.formatter = java.util.logging.OneLineFormatter

Creamos el archivo context.xml en C:\apache-tomcat-

9.0.71\webapps\2_propiedadesweb##2.0.10(TOMCAT_9)\META-INF. Con esto se creará el archivo acces_log.txt.



The screenshot shows a Notepad++ window titled 'C:\apache-tomcat-9.0.71\webapps\2_propiedadesweb##2.0.10(TOMCAT_9)\META-INF\context.xml - Notepad+'. The window contains the following XML code:

```
1 <Context>
2     <Realm className="org.apache.catalina.realm.MemoryRealm"/>
3
4     <Valve className="org.apache.catalina.valves.AccessLogValve"
5           rotatable="true"
6           directory="logs"
7           prefix="access_log_2_propiedadesweb"
8           suffix=".txt"
9           fileDateFormat="yyyyMMdd_HH"
10          pattern="combined"
11          buffered="false"
12          resolveHosts="false" />
13
14 </Context>
```

<Context>

<Realm className="org.apache.catalina.realm.MemoryRealm"/>

<Valve className="org.apache.catalina.valves.AccessLogValve"

rotatable="true"

directory="logs"

prefix="access_log_2_propiedadesweb"

suffix=".txt"

fileDateFormat="yyyyMMdd_HH"

pattern="combined"

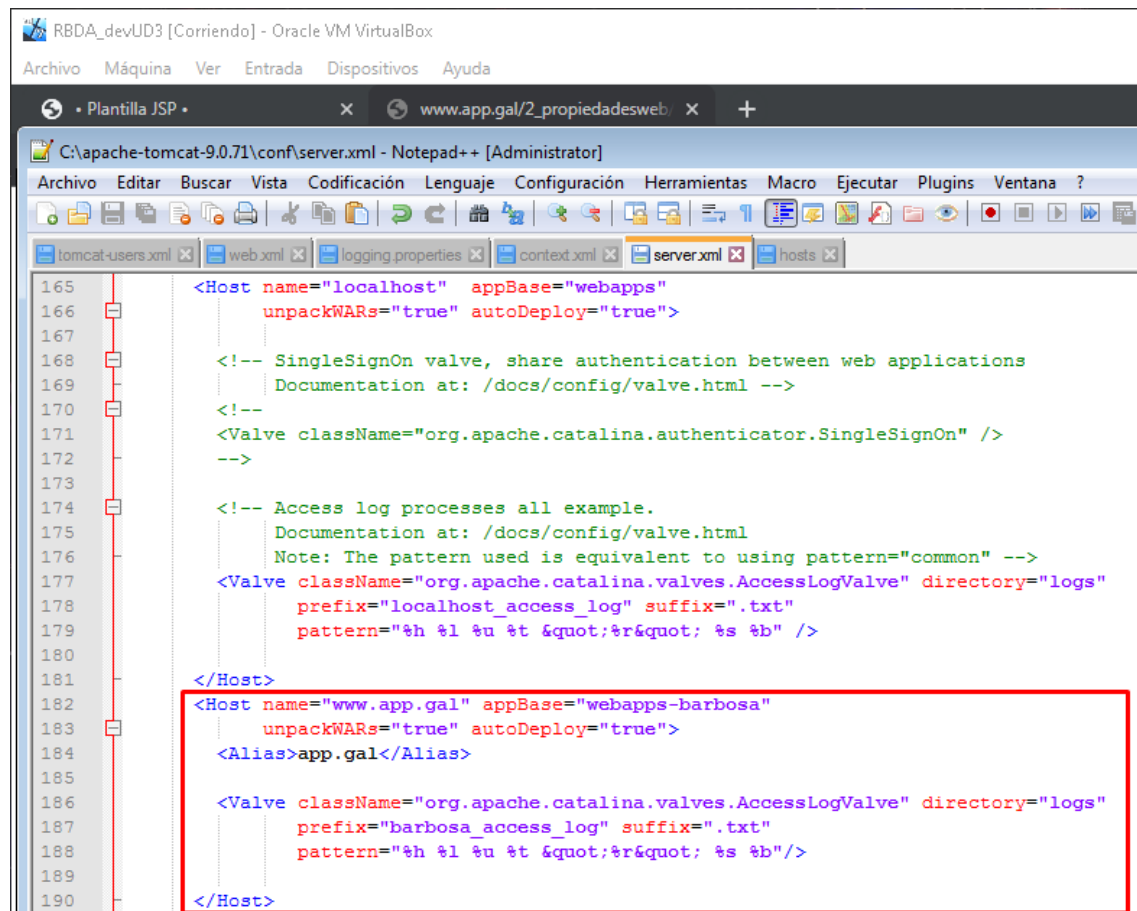
buffered="false"

resolveHosts="false" />

</Context>

2.1.4. Definir Host

Definimos un host para a app e crearemos a carpeta que a conterá, neste caso webapps-barbosa.



```
165 <Host name="localhost" appBase="webapps"
166       unpackWARs="true" autoDeploy="true">
167
168     <!-- SingleSignOn valve, share authentication between web applications
169          Documentation at: /docs/config/valve.html -->
170     <!--
171     <Valve className="org.apache.catalina.authenticator.SingleSignOn" />
172     -->
173
174     <!-- Access log processes all example.
175          Documentation at: /docs/config/valve.html
176          Note: The pattern used is equivalent to using pattern="common" -->
177     <Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs"
178           prefix="localhost_access_log" suffix=".txt"
179           pattern="%h %l %u %t "%r" %s %b" />
180
181 </Host>
182 <Host name="www.app.gal" appBase="webapps-barbosa"
183       unpackWARs="true" autoDeploy="true">
184   <Alias>app.gal</Alias>
185
186   <Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs"
187         prefix="barbosa_access_log" suffix=".txt"
188         pattern="%h %l %u %t "%r" %s %b"/>
189
190 </Host>
```

```
<Host name="www.app.gal" appBase="webapps-barbosa"
```

```
    unpackWARs="true" autoDeploy="true">
```

```
    <Alias>app.gal</Alias>
```

```
    <Valve className="org.apache.catalina.valves.AccessLogValve"
    directory="logs"
```

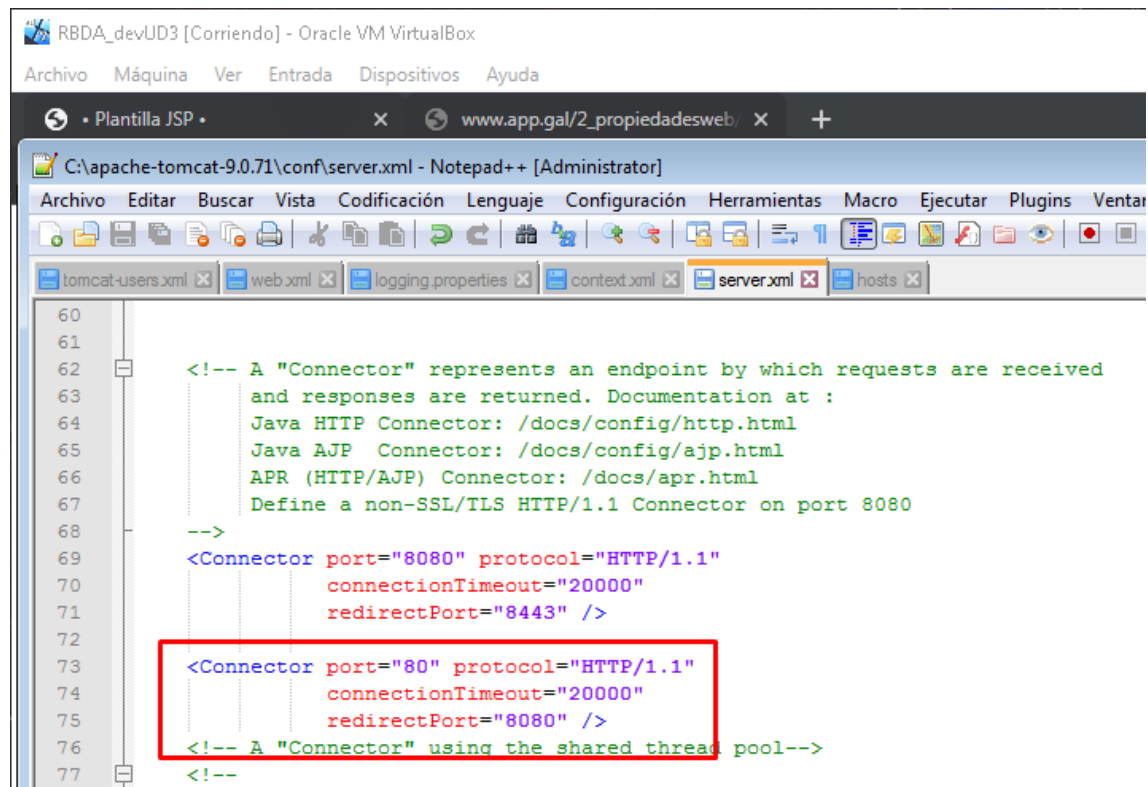
```
        prefix="barbosa_access_log" suffix=".txt"
```

```
        pattern="%h %l %u %t "%r" %s %b"/>
```

```
</Host>
```

2.1.5. Cambio de puerto

Para que pueda servir en el puerto 80.



```
60
61
62 <!-- A "Connector" represents an endpoint by which requests are received
63      and responses are returned. Documentation at :
64      Java HTTP Connector: /docs/config/http.html
65      Java AJP  Connector: /docs/config/ajp.html
66      APR (HTTP/AJP) Connector: /docs/apr.html
67      Define a non-SSL/TLS HTTP/1.1 Connector on port 8080
68      -->
69 <Connector port="8080" protocol="HTTP/1.1"
70           connectionTimeout="20000"
71           redirectPort="8443" />
72
73 <Connector port="80" protocol="HTTP/1.1"
74           connectionTimeout="20000"
75           redirectPort="8080" />
76 <!-- A "Connector" using the shared thread pool-->
77 <!--
```

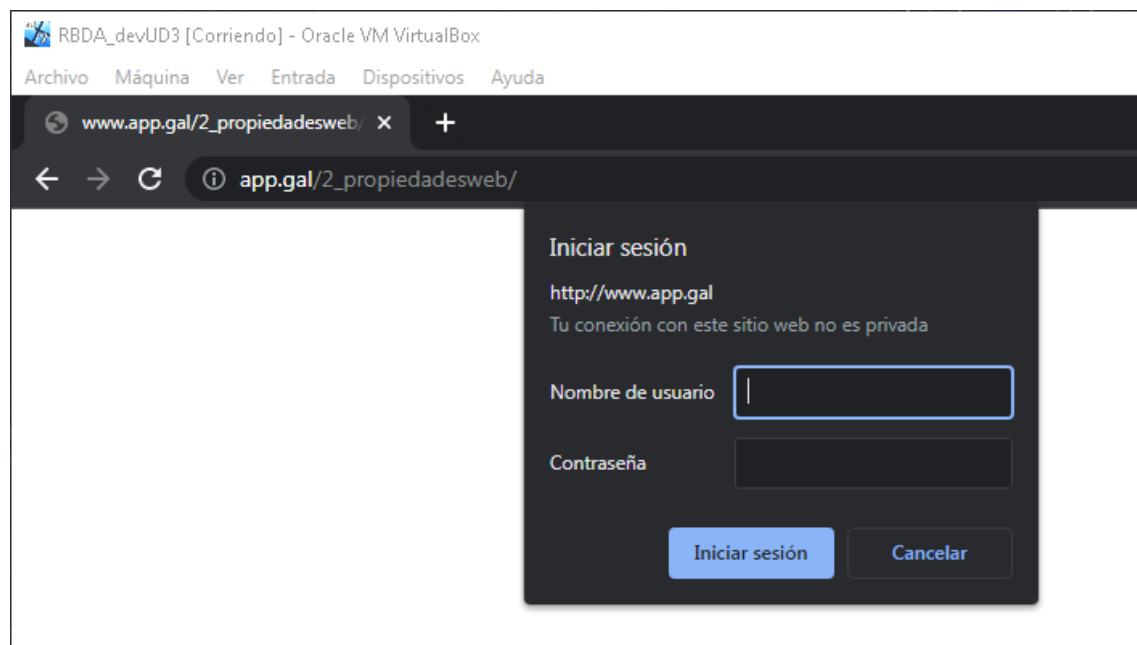
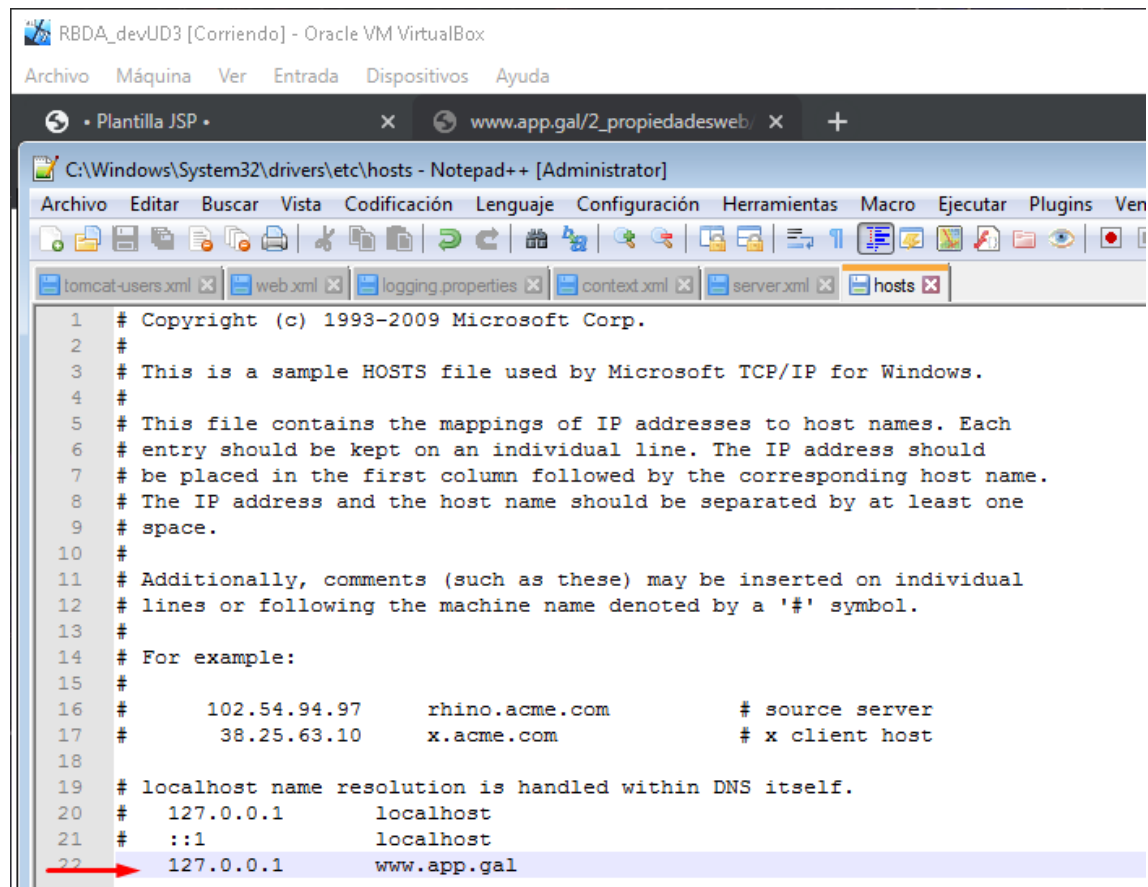
<Connector port="80" protocol="HTTP/1.1"

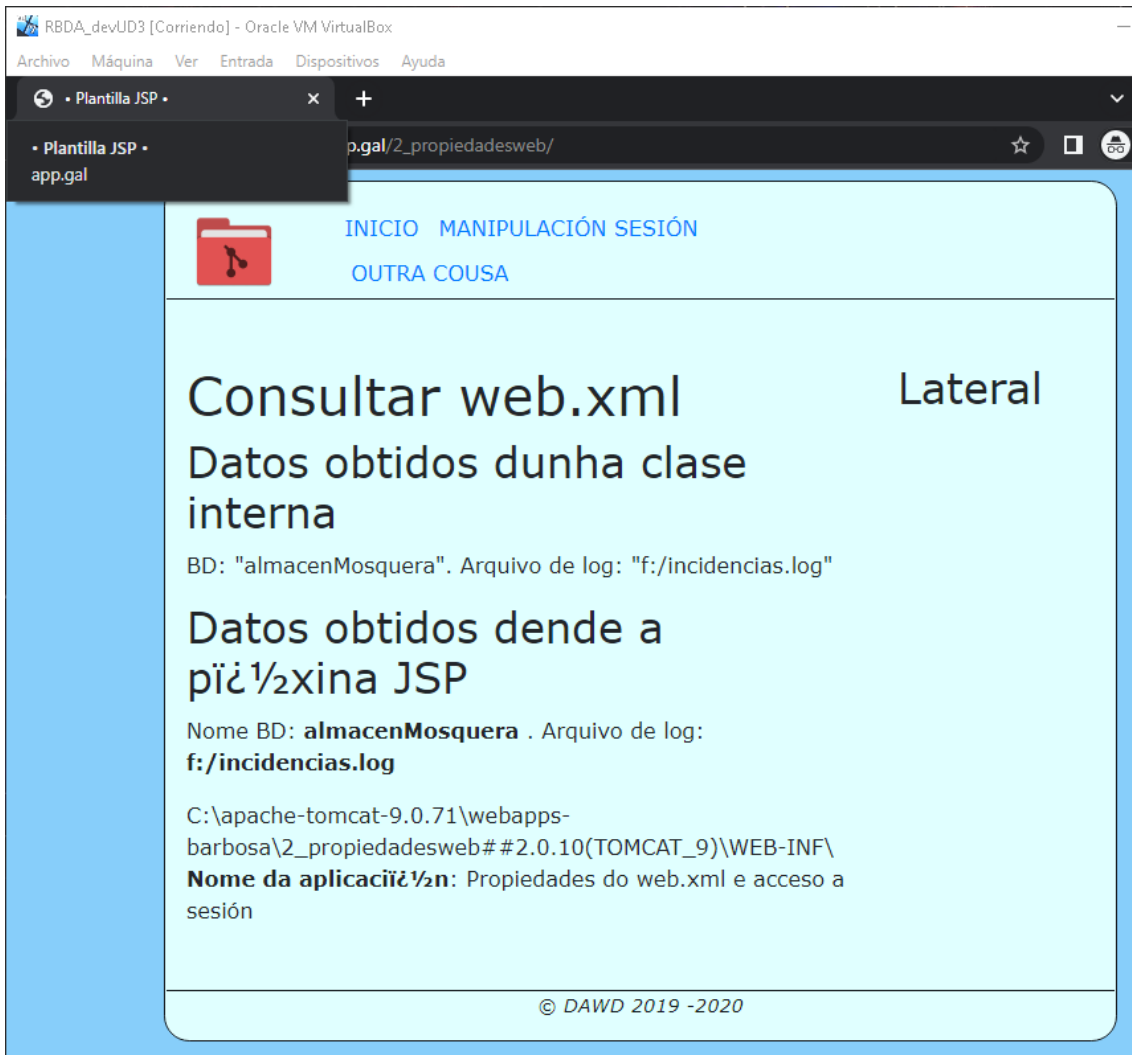
connectionTimeout="20000"

redirectPort="8080" />

2.1.6. Funcionamiento

Para que funcione editar el fichero hosts.

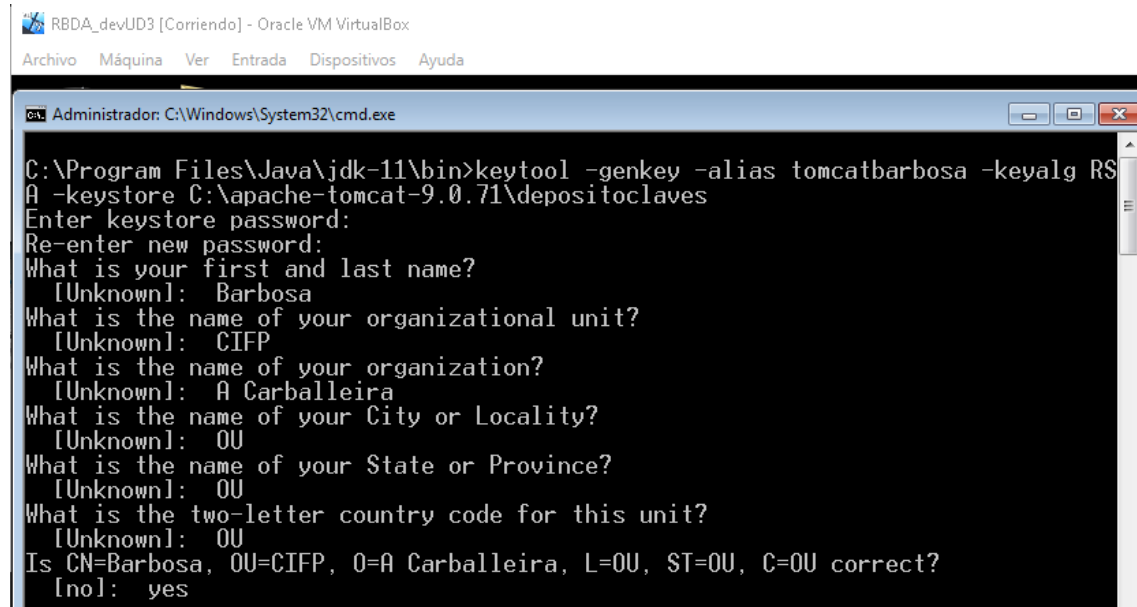




2.1.7. Configuración SSL

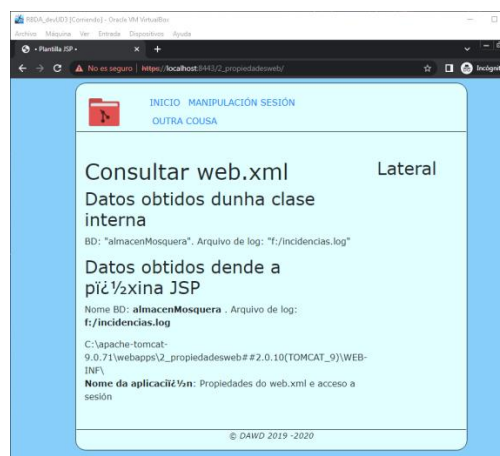
Crear certificado autofirmado en Windows.

```
keytool -genkey -alias tomcatbarbosa -keyalg RSA -keystore C:\apache-tomcat-9.0.71\depositoclaves
```



Configuramos https en `C:\apache-tomcat-9.0.71\conf\server.xml`.

```
<Connector port="8443" protocol="org.apache.coyote.http11.Http11NioProtocol"
    maxThreads="150" SSLEnabled="true"
    scheme="https"
    secure="true"
    clientAuth="false"
    sslProtocol="TLS"
    keystoreFile="c:\apache-tomcat-9.0.71\depositoclaves"
    keystorePass="abc123."
    keyAlias="tomcatbarbosa">
</Connector>
```



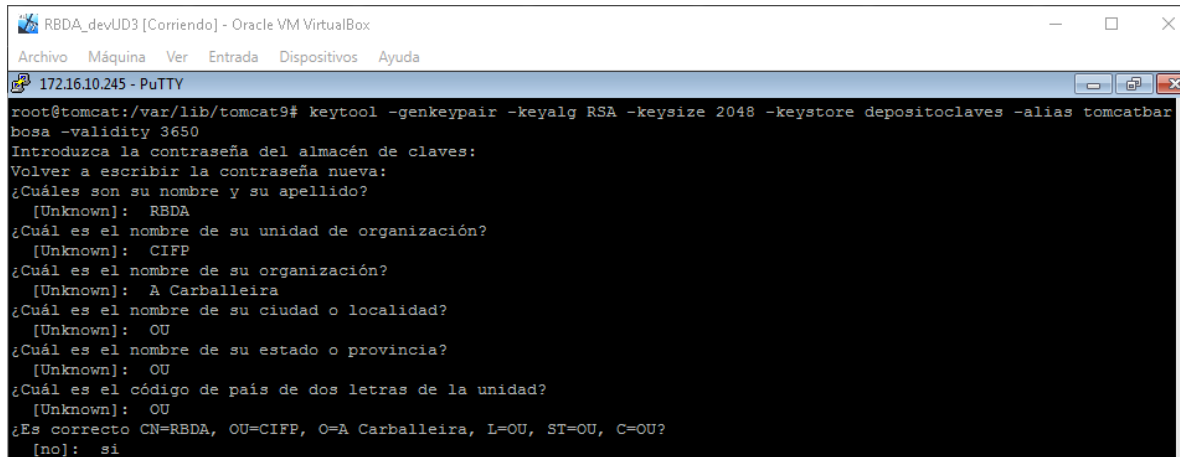
2.2. Debian

En Debian é igual que en Windows solo mostraremos as diferencias.

Cabe mencionar que hay que dar permisos a las carpetas para poder visualizar las apps.

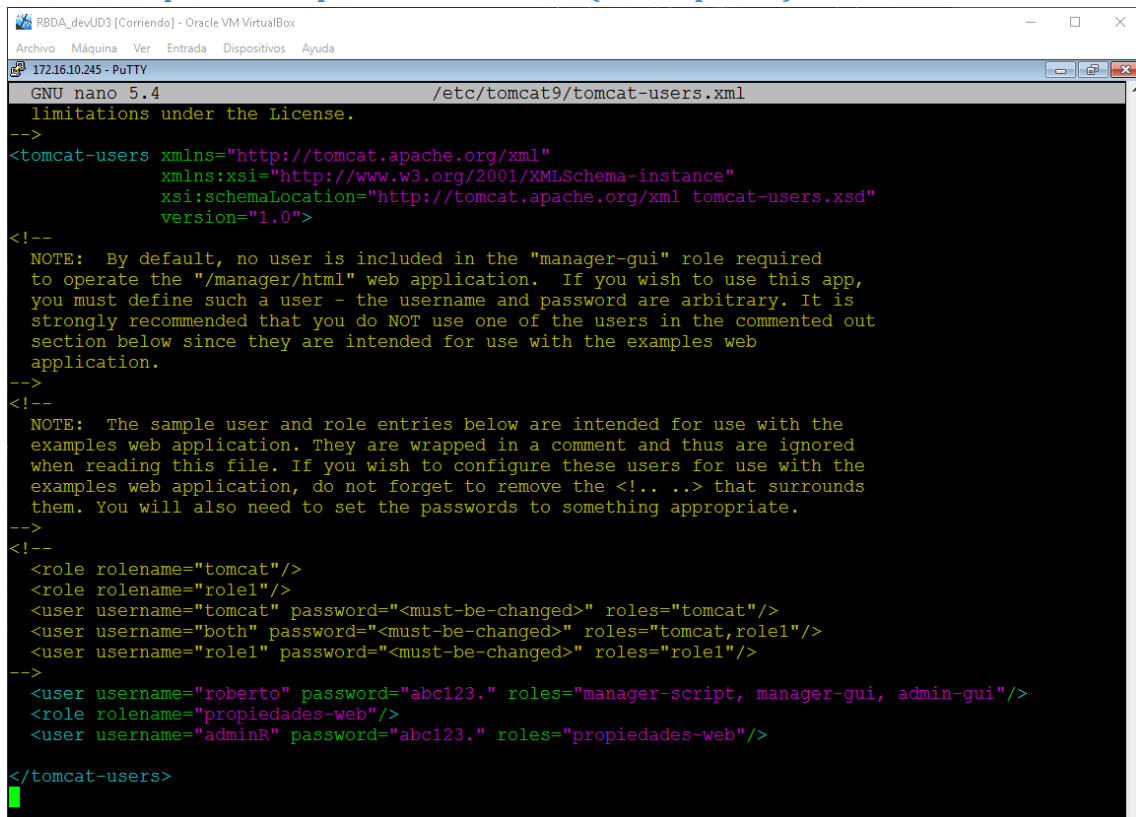
2.2.1. Creación de un certificado

```
keytool -genkeypair -keyalg RSA -keysize 2048 -keystore depositoclaves -alias tomcatbarbosa -validity 3650
```



```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
root@tomcat:/var/lib/tomcat9# keytool -genkeypair -keyalg RSA -keysize 2048 -keystore depositoclaves -alias tomcatbarbosa -validity 3650
Introduzca la contraseña del almacén de claves:
Volver a escribir la contraseña nueva:
¿Cuáles son su nombre y su apellido?
[Unknown]: RBDA
¿Cuál es el nombre de su unidad de organización?
[Unknown]: CIFP
¿Cuál es el nombre de su organización?
[Unknown]: A Carballeira
¿Cuál es el nombre de su ciudad o localidad?
[Unknown]: OU
¿Cuál es el nombre de su estado o provincia?
[Unknown]: OU
¿Cuál es el código de país de dos letras de la unidad?
[Unknown]: OU
¿Es correcto CN=RBDA, OU=CIFP, O=A Carballeira, L=OU, ST=OU, C=OU?
[no]: si
```

2.2.2. Completo sin explicación en Debian (Solo capturas)



```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
GNU nano 5.4 /etc/tomcat9/tomcat-users.xml
limitations under the License.
-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
  version="1.0">
<!--
NOTE: By default, no user is included in the "manager-gui" role required
to operate the "/manager/html" web application. If you wish to use this app,
you must define such a user - the username and password are arbitrary. It is
strongly recommended that you do NOT use one of the users in the commented out
section below since they are intended for use with the examples web
application.
-->
<!--
NOTE: The sample user and role entries below are intended for use with the
examples web application. They are wrapped in a comment and thus are ignored
when reading this file. If you wish to configure these users for use with the
examples web application, do not forget to remove the <!-- .. --> that surrounds
them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
<user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
<user username="role1" password="<must-be-changed>" roles="role1"/>
-->
<user username="roberto" password="abc123." roles="manager-script, manager-gui, admin-gui"/>
<role rolename="propiedades-web"/>
<user username="adminR" password="abc123." roles="propiedades-web"/>
</tomcat-users>
```

```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
/var/lib/tomcat9/webapps/2 propiedadesweb##2.0.10 (TOMCAT 9) /WEB-INF/web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://xmlns.j
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/j
id="WebApp_ID" version="4.0">

  <servlet>
    <servlet-name>DefaultServletOverride</servlet-name>
    <servlet-class>org.apache.catalina.servlets.DefaultServlet</servlet-class>
    <init-param>
      <param-name>debug</param-name>
      <param-value>0</param-value>
    </init-param>
    <init-param>
      <param-name>listings</param-name>
      <param-value>true</param-value>
    </init-param>
    <load-on-startup>1</load-on-startup>
  </servlet>

  <servlet-mapping>
    <servlet-name>DefaultServletOverride</servlet-name>
    <url-pattern>/</url-pattern>
  </servlet-mapping>
```

```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
/var/lib/tomcat9/webapps/2 propiedadesweb##2.0.10 (TOMCAT 9) /WEB-INF/web.xml
  </servlet-mapping>

  <security-constraint>
    <web-resource-collection>
      <web-resource-name>MemoryRealm</web-resource-name>
      <url-pattern>/*</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>propiedades-web</role-name>
    </auth-constraint>
  </security-constraint>

  <login-config>
    <auth-method>BASIC</auth-method>
    <realm-name>Acceso a la aplicación propiedades_web</realm-name>
  </login-config>

  <display-name>Propiedades do web.xml e acceso a sesión</display-name>
  <welcome-file-list>
    <welcome-file>index.html</welcome-file>
```

```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
...apps/2 propiedadesweb##2.0.10 (TOMCAT 9) /WEB-INF/classes/logging.properties *
handlers= org.apache.juli.FileHandler, java.util.logging.ConsoleHandler
org.apache.juli.FileHandler.level = FINEST
org.apache.juli.FileHandler.directory = ${catalina.base}/logs/
org.apache.juli.FileHandler.prefix = ${classloader.webappName}.

org.apache.juli.FileHandler.level = FINEST
org.apache.juli.FileHandler.formatter = java.util.logging.OneLineFormatter
```

```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
...ib/tomcat9/webapps/2_propiedadesweb##2.0.10 (TOMCAT 9) /META-INF/context.xml *
<Context>
  <Realm className="org.apache.catalina.realm.MemoryRealm"/>

  <Valve className="org.apache.catalina.valves.AccessLogValve"
    rotatable="true"
    directory="logs"
    prefix="access_log_2_propiedadesweb"
    suffix=".txt"
    fileDateFormat="yyyyMMdd_HH"
    pattern="combined"
    buffered="false"
    resolveHosts="false" />

</Context>
```

```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
172.16.10.245 - PuTTY
GNU nano 5.4 /var/lib/tomcat9/conf/server.xml *
<Realm className="org.apache.catalina.realm.LockOutRealm">
  <!-- This Realm uses the UserDatabase configured in the global JNDI
        resources under the key "UserDatabase". Any edits
        that are performed against this UserDatabase are immediately
        available for use by the Realm. -->
  <Realm className="org.apache.catalina.realm.UserDatabaseRealm"
    resourceName="UserDatabase"/>
</Realm>

<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="localhost_access_log" suffix=".txt"
    pattern="%h %l %u %t "%r" %s %b" />

</Host>
<Host name="www.app.gal" appBase="webapps-barbosa"
  unpackWARs="true" autoDeploy="true">
  <Alias>app.gal</Alias>

  <Valve className="org.apache.catalina.valves.AccessLogValve"
    directory="logs" prefix="barbosa_access_log" suffix=".txt"
    pattern="%h %l %u %t "%r" %s %b"/>

</Host>
</Engine>
</Service>
</Server>
```

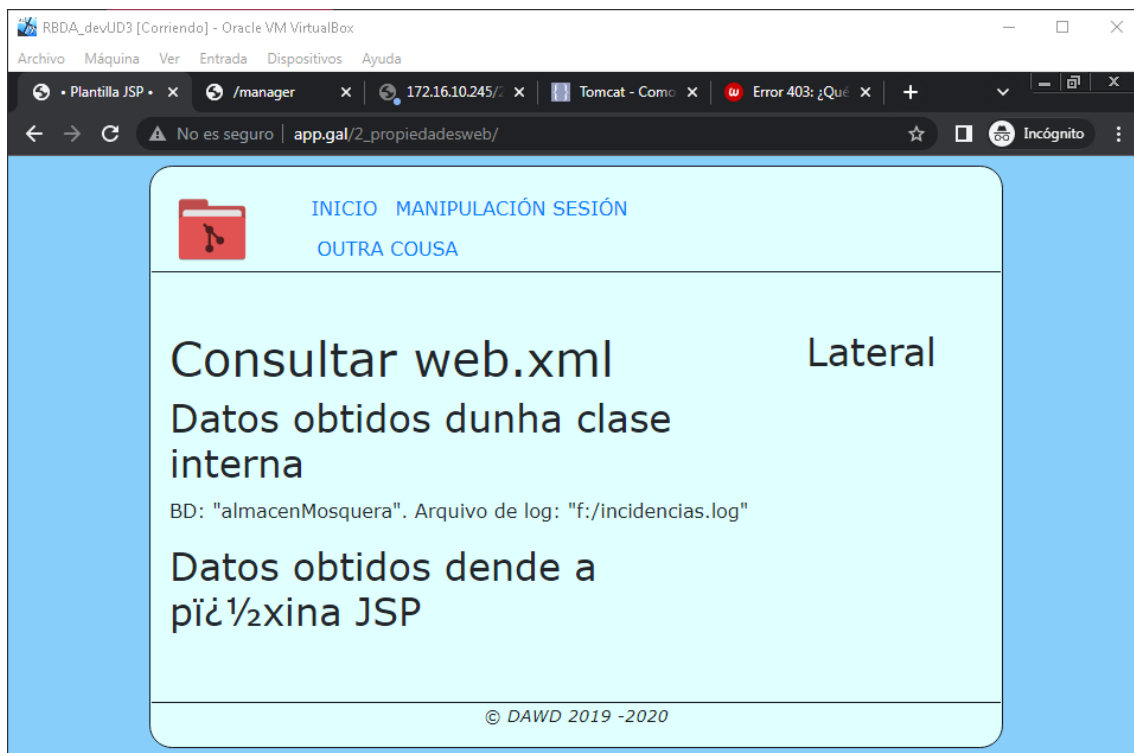


```
RBDA_devUD3 [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
172.16.10.245 - PuTTY
GNU nano 5.4 /var/lib/tomcat9/conf/server.xml *
maxThreads="150" minSpareThreads="4"/>
-->

<!-- A "Connector" represents an endpoint by which requests are received
and responses are returned. Documentation at :
Java HTTP Connector: /docs/config/http.html
Java AJP  Connector: /docs/config/ajp.html
APR (HTTP/AJP) Connector: /docs/apr.html
Define a non-SSL/TLS HTTP/1.1 Connector on port 8080
-->
<Connector port="8080" protocol="HTTP/1.1"
           connectionTimeout="20000"
           redirectPort="8443" />

<Connector port="80" protocol="HTTP/1.1"
           connectionTimeout="20000"
           redirectPort="8080" />
```

A parte de



3. Datasource

15. Configurar o acceso a datasources

É moi usual configurar o acceso ás bases de datos das aplicacións a través de JNDI dentro do contexto dunha aplicación no canto de empregar as clásicas conexións persistentes por JDBC. Para iso Tomcat ofrécenos dúas alternativas:

- Un datasource só accesible a través da propia aplicación.
 - Configurando o arquivo META-INF/context.xml definindo o datasource
 - Configurando o arquivo WEB-INF/web.xml accedendo ao datasource definido
- Un datasource ou varios compartidos por todas as aplicacións
 - Configurando o arquivo de Tomcat, \$CATALINA_BASE/conf/server.xml definindo o datasource
 - Configurando o arquivo META-INF/context.xml enlazando o datasource en cuestión co definido en server.xml
 - Configurando o arquivo WEB-INF/web.xml accedendo ao datasource definido en context.xml

Exemplo de anaco de web.xml

```
<resource-ref>

  <res-ref-name>jdbc/dwcsprodutos</res-ref-name>
  <res-type>java.sql.DataSource</res-type>
  <res-auth>Container</res-auth>
</resource-ref>
```

Exemplo do context.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<Context>
  <Resource name="jdbc/dwcsprodutos" type="javax.sql.DataSource"
    driverClassName="com.mysql.jdbc.Driver" url="jdbc:mysql://localhost:3306/dwcsprodutos?serverTimezone=UTC"
    username="root" password="" maxActive="20" maxIdle="10" maxWait="10000" />
</Context>
```

Se quixeramos definilos a nivel de servidor o web.xml quedaría como está, pero o server.xml tería que ter unha entrada similar a esta dentro de **GlobalNamingResources**

```
<GlobalNamingResources>
  <!-- Editable user database that can also be used by
        UserDatabaseRealm to authenticate users
  -->

  <Resource name="jdbc/dwcsprodutos"
    global="jdbc/dwcsprodutos"
    auth="Container"
    type="javax.sql.DataSource"
    driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost:3306/dwcsprodutos?serverTimeZone=UTC"
    username="root"
    password=""
    maxActive="100"
    maxIdle="20"
    minIdle="5"
    maxWait="10000"/>
```

E o context.xml correspondente debería ter algo similar a isto:

```
<?xml version="1.0" encoding="UTF-8"?>
<Context>

  <ResourceLink name="jdbc/dwcsprodutos"
    global="jdbc/dwcsprodutos"
    auth="Container"
    type="javax.sql.DataSource" />

</Context>
```

Dende unha clase Java o acceso a este recurso con Tomcat faríase:

```
try {
    Context ctx = new InitialContext();

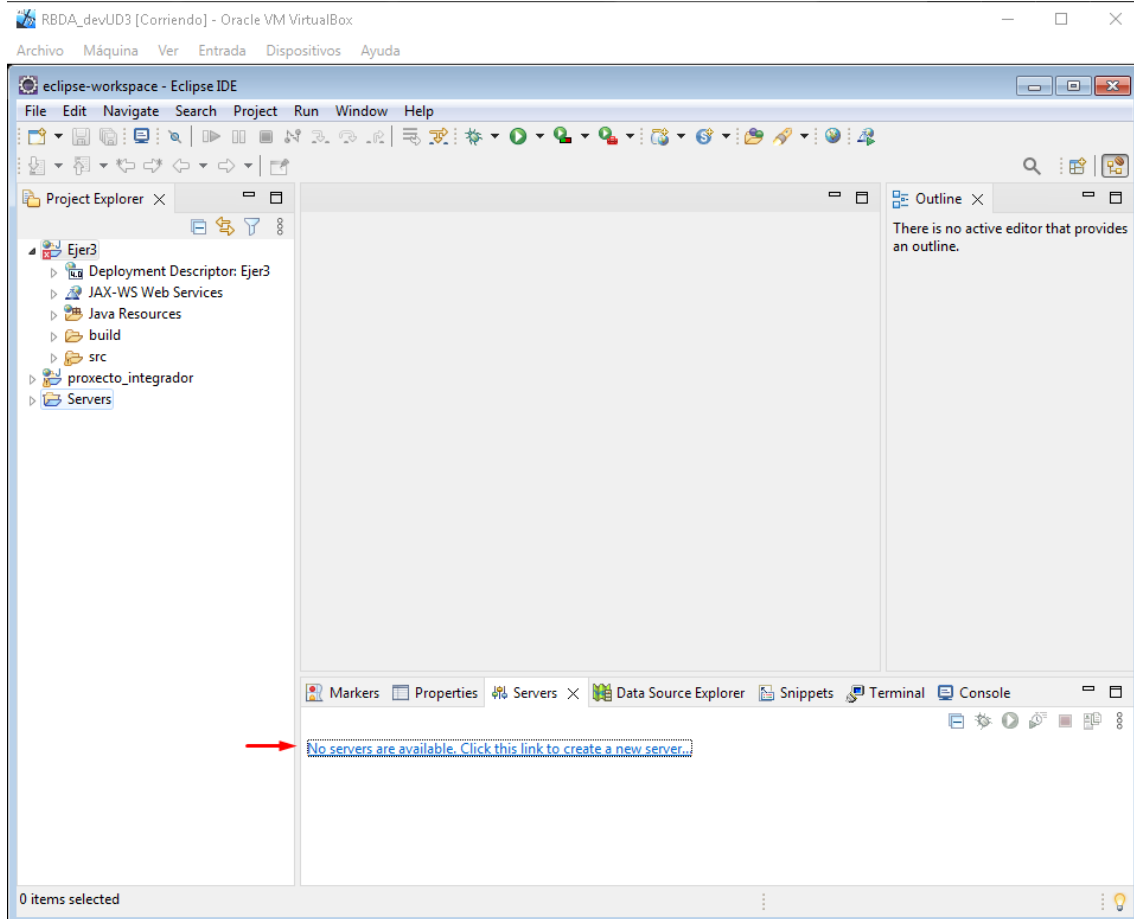
    String tipoAlmacen = (String) ctx.lookup("java:comp/env/tipoAlmacen");
    DataSource dataSource = (DataSource) ctx.lookup("java:comp/env/jdbc/dwcsprodutos");
    Connection con = dataSource.getConnection();

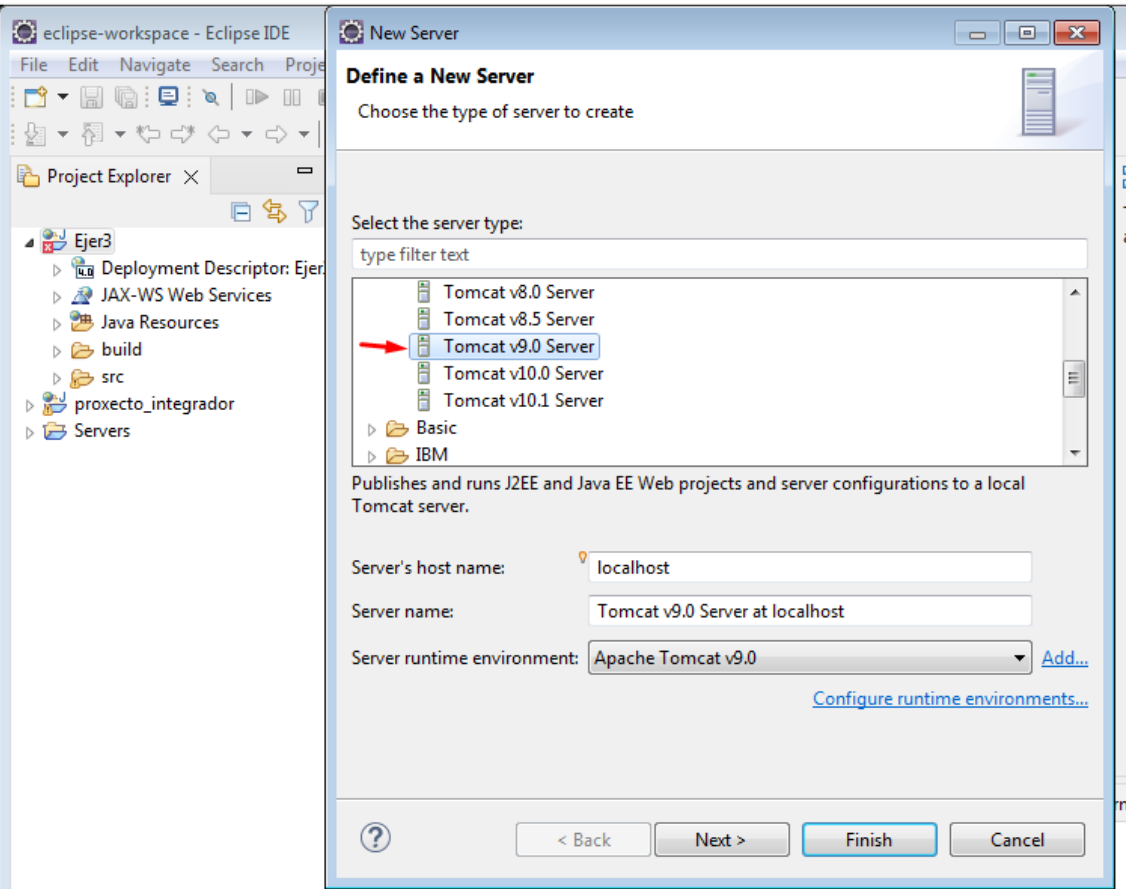
} catch (NamingException | SQLException e) {
    System.out.println(e.getMessage());
}
```

4. Configuración Eclipse

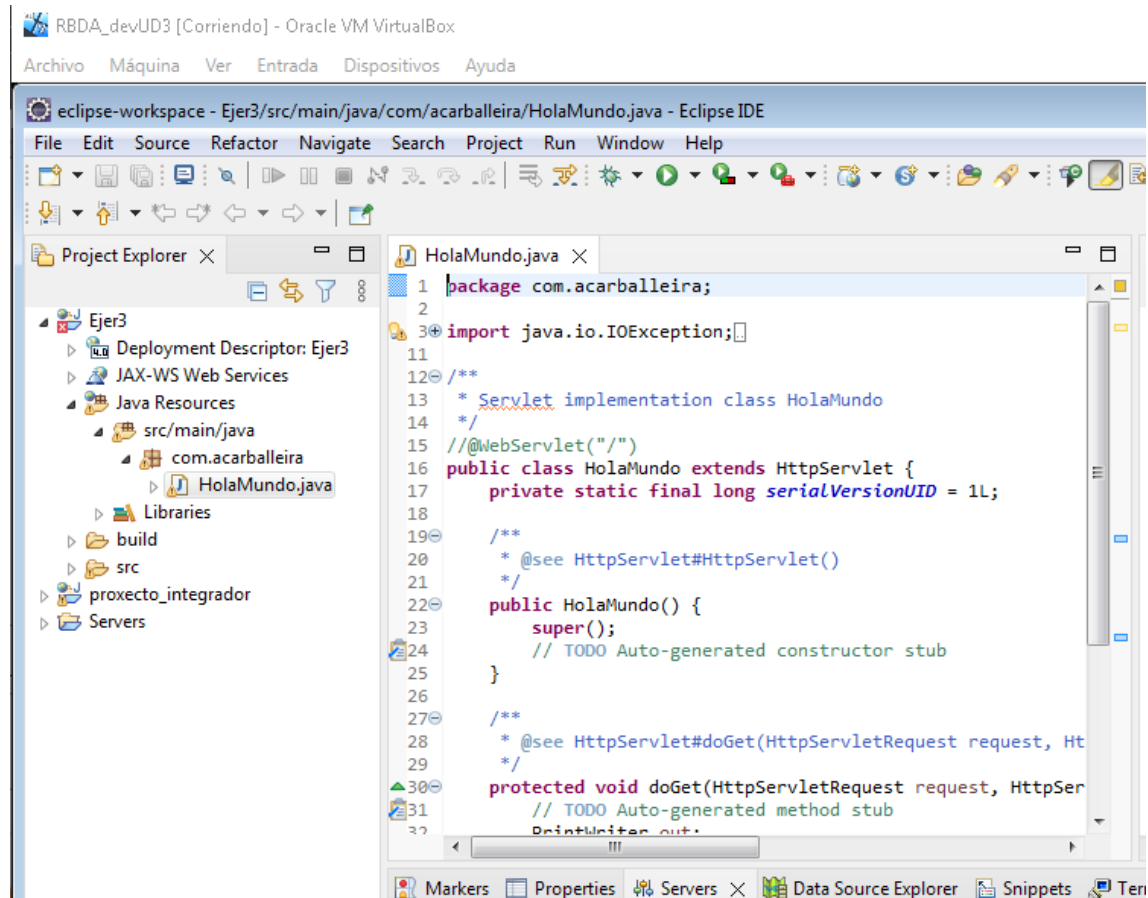
Descargamos Eclipse: <https://www.eclipse.org/downloads/packages/release/2022-12/r/eclipse-ide-enterprise-java-and-web-developers>

Lo descomprimos y listos para empezar a trabajar.





Creamos nuestro proyecto de web dinámico que estará en formato .war con la entrega y lo corremos en nuestro servidor Tomcat.



Creando dentro un servlet con el siguiente contenido:

```
package com.acarballeira;
```

```
import java.io.IOException;
```

```
import java.io.PrintWriter;
```

```
import javax.servlet.ServletException;
```

```
import javax.servlet.annotation.WebServlet;
```

```
import javax.servlet.http.HttpServlet;
```

```
import javax.servlet.http.HttpServletRequest;
```

```
import javax.servlet.http.HttpServletResponse;
```

```

/**
 * Servlet implementation class HolaMundo
 */
@WebServlet("/")
public class HolaMundo extends HttpServlet {

    private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public HolaMundo() {
        super();
        // TODO Auto-generated constructor stub
    }

    /**
     * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
    response)
     */
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
        // TODO Auto-generated method stub

        PrintWriter out;

        out = response.getWriter();

        response.setContentType("text/html");

        out.println("<html>");

        out.println("<head><title>Ejercicio3 UD3</title></head>");

        out.println("<body>");

```

```
out.println("<h1>Hola Mundo UD3 DAW</h1>");
```

```
out.println("</body></html>");
```

```
}
```

```
}
```

Para exportarlos, click derecho sobre nuestro proyecto **Exportar->Archivo WAR**, optimizado para tomcat 9 y elegimos la ubicación del archivo.

