

# Setup [Dude! Where's my Eclipse!?!]

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## 1 Setup [Dude! Where's my Eclipse]

### 1.1 Introduction

This document outlines how to prepare an environment that you can use to work on or give the presentation made available at <https://gitlab.com/eibhear/javaBootcampNoEclipse/>.

If you are unable to follow these instructions precisely, you could contact the author.

#### 1.1.1 Assumptions

1. You can easily create and destroy a basic Linux VM, such as is possible with an account on Amazon's AWS or Microsoft's Azure.
2. If the specific versions of packages or OS's mentioned below are not available to you, you are able to get and use appropriate alternatives.

### 1.1.2 Software

The following OS and package versions were used in the preparation and presentation of this module:

- Debian Linux 9.1 (installed using the image file `debian-9.1.0-amd64-netinst.iso`, as downloaded <https://cdimage.debian.org/>)
- Tomcat 8 (including the Tomcat 8 Manager (`tomcat8-admin`))
- OpenJDK-8 JDK
- `git` (any version) needed to interact with the code/presentation.

All other tools and utilities mentioned in this document were installed to support the preparation and presentation of the module. For each one, you may decide to use an alternative package or take a different approach.

`aptitude` The author prefers this to `apt-get`.

`sudo` To allow for administration actions on the VM.

`openssh-server` To facilitate inbound connections to the command-line.

`curl`, `wget`, `links` Useful, text-based, web client tools.

`emacs-nox`, `magit` Development tools. GNU/Emacs to edit files, `magit` to interact with the git repository through `emacs`.

### 1.1.3 Other Notes

- The package `tomcat8-docs` was *not* installed as it seemed to break tomcat in a way that the author hadn't time to investigate and fix.
- The author wanted to use the command-line to deploy the application into the tomcat instance, but, again, all attempts broke tomcat in a way that was going to be costly to investigate and fix, so therefore we conceded the `manager-gui` for this.

If you are aware of this behaviour in tomcat, you might contact the author with information on what may have been the problem(s).

## 1.2 Setup

### 1.2.1 OS

The VM was built as a Debian GNU/Linux server, release 9.1 (*Jessie*). The only note-worthy comment on the installation is that when asked for what software to install, none was selected (i.e. the default options were de-selected – debian installs mandatory packages to give you a working server; when you're asked to select software to install, these are to be *additional* packages). This resulted in a base, headless system, which was then configured according to the script below.

### 1.2.2 Configuration

The following shell script was executed by the user `root` once the VM build was completed to configure the environment for this presentation. Prior to running this script, you will need to make the following edits to the script:

- Replace the two instances of `%%normal_user%%` with the username of the user you provided during the installation. This will allow that user to perform admin actions.
- Replace `%%tomcat_manager_password%%` with a password to be used with the username `tomcat` to access the `/manager` application.

```
#!/bin/bash

# Needed to use aptitude
echo "apt-get install -y aptitude"
apt-get install -y aptitude

# Needed to give the normal admin access.
echo "aptitude install -y sudo "
aptitude install -y sudo

# Needed for basic inbound connectivity
echo "aptitude install -y openssh-server"
aptitude install -y openssh-server

# Needed for local and outbound connectivity testing
echo "aptitude install -y curl wget links"
aptitude install -y curl wget links
```

```

# Needed for simple development activity
echo "aptitude install -y git emacs-nox magit openjdk-8-jdk"
aptitude install -y git emacs-nox magit openjdk-8-jdk

# needed to test with tomcat
echo "aptitude install -y tomcat8 tomcat8-admin"
aptitude install -y tomcat8 tomcat8-admin

# Allow the user to perform admin actions.
echo "usermod -a -G sudo %%normal_user%"
usermod -a -G sudo %%normal_user%

# This allows access to the tomcat manager module. See
# http://tomcat.apache.org/tomcat-8.0-doc/manager-howto.html
# for further information.
echo "Building /var/lib/tomcat8/conf/tomcat-users.xml"
cat << EOF > /var/lib/tomcat8/conf/tomcat-users.xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
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  contributor license agreements.  See the NOTICE file distributed with
  this work for additional information regarding copyright ownership.
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  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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  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="manager-gui"/>
```

```
<user username="tomcat" password="%%tomcat_manager_password%%" roles="manager-gui"/>
```

<!--

```
<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"/>
```

-->

```
</tomcat-users>
```

EOF

```
# Needed to allow access to the tomcat manager module from outside the  
# local VM (so that you can connect from a different PC/server).
```

```
echo "Building /usr/share/tomcat8-admin/manager/META-INF/context.xml"
```

```
cat << EOF > /usr/share/tomcat8-admin/manager/META-INF/context.xml
```

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

<!--

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```
-->
<Context antiResourceLocking="false" privileged="true" >
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="*" />
</Context>
EOF

# Restarting tomcat, to be sure, to be sure.
echo "service tomcat8 restart"
service tomcat8 restart
```

### 1.2.3 Testing

To ensure all is set up correctly...

1. Review the output of the script above to see if there are any errors.
2. You should be able to connect to your VM using `ssh` as your configured user:

```
ssh <username>@<vmNameOrIP>
```

3. You should be able to run the `sudo` command to perform admin activities. For example, the following command will present your VM's network routing table. You should be logged in as your "normal user" and you will be required to provide its password (i.e. *not* root's password).

```
sudo route
```

4. You should be able to access the following URLs from within your VM (shown here as calls to the `links` utility):

- tomcat

```
links http://localhost:8080/
```

- tomcat manager

```
links http://localhost:8080/manager/html
```

5. You should be able to access these same URLs from a remote location (e.g. your desktop PC).

If this doesn't work, it may not be related to your VM configuration, but to the network access controls between the remote location and your VM. For example, if there is a firewall between the two machines, you'll have to get past it.

6. Test the module itself (these commands assume you are logged onto the VM as a normal user):

```
mkdir -pv ${HOME}/development
cd ${HOME}/development
git clone https://gitlab.com/eibhear/javaBootcampNoEclipse.git
cd ${HOME}/development/javaBootcampNoEclipse
git checkout all-lessons-in-one-shell-script
${HOME}/development/javaBootcampNoEclipse/source/scripts/allInOne.sh
```

If all is well, there will be two new files in `.../source/lib/`, `javaBootcampNoEclipse-up-to-less` and `javaBootcampNoEclipse-lesson-5.war`. Deploy one or both of these war files to tomcat using `http://<vmNameOrIP>:8080/manager/html` to test them they should both work without issue.

If all is well, you're in a position to work with the code provided in the module or even to present it.