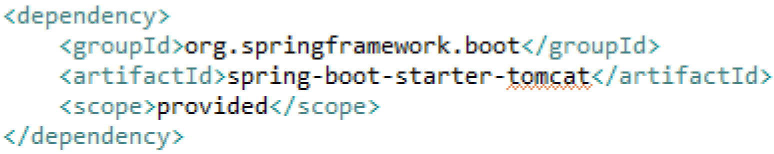
Deploy Spring Boot application on external Tomcat

In this document, we try to explain how to deploy a Spring Boot application on an external tomcat server. We are going to use Apache Tomcat 8 (i.e. apache-tomcat-8.5.75) for the deployment, with spring boot 2.7.4 release. We use .war file to deploy.

Steps to be follow to deploy the Spring Boot application on an external tomcat.

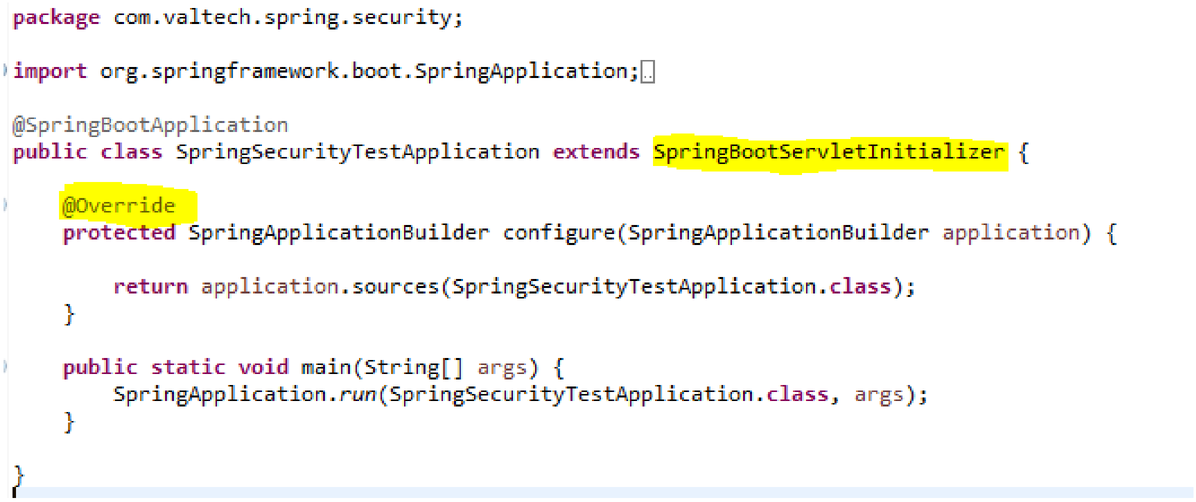
Steps:

1. Add dependency in **pom.xml** to exclude embedded tomcat so that we can further deploy our war file on external tomcat.



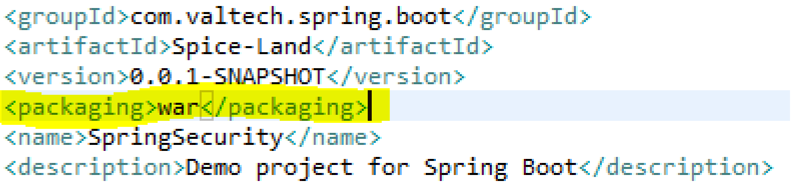
```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-tomcat</artifactId>
    <scope>provided</scope>
</dependency>
```

2. Define SpringMain class by extending SpringBootServletInitializer class and override configure() method.

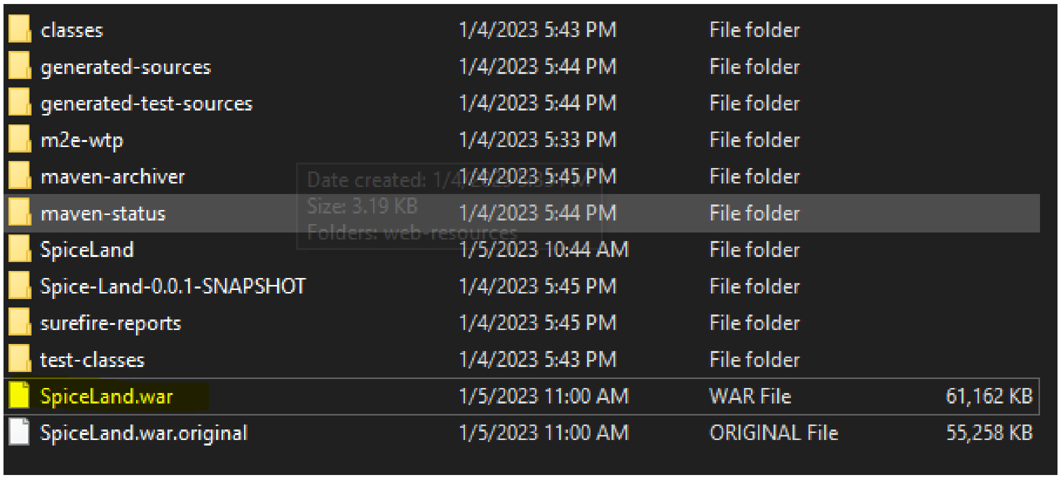


```
package com.valtech.spring.security;

import org.springframework.boot.SpringApplication;

@SpringBootApplication
public class SpringSecurityTestApplication extends SpringBootServletInitializer {

    @Override
    protected SpringApplicationBuilder configure(SpringApplicationBuilder application) {

        return application.sources(SpringSecurityTestApplication.class);
    }

    public static void main(String[] args) {
        SpringApplication.run(SpringSecurityTestApplication.class, args);
    }

}
```

3. Mention war as packaging and build the .war file application using maven build command.



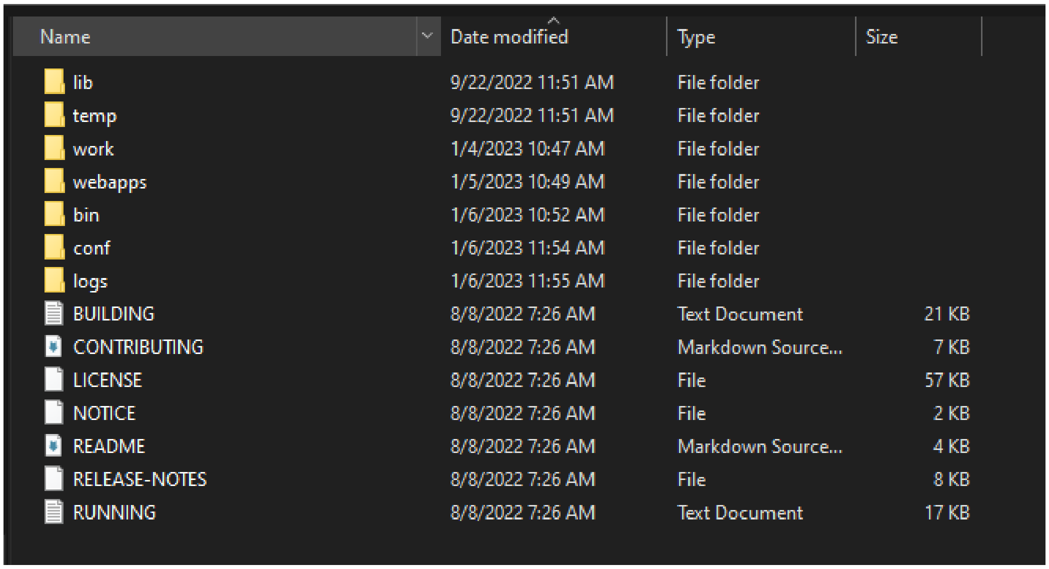
```
<groupId>com.valtech.spring.boot</groupId>
<artifactId>Spice-Land</artifactId>
<version>0.0.1-SNAPSHOT</version>
<packaging>war</packaging>
<name>SpringSecurity</name>
<description>Demo project for Spring Boot</description>
```



classes	1/4/2023 5:43 PM	File folder	
generated-sources	1/4/2023 5:44 PM	File folder	
generated-test-sources	1/4/2023 5:44 PM	File folder	
m2e-wtp	1/4/2023 5:33 PM	File folder	
maven-archiver	1/4/2023 5:45 PM	File folder	
maven-status	1/4/2023 5:44 PM	File folder	
SpiceLand	1/5/2023 10:44 AM	File folder	
Spice-Land-0.0.1-SNAPSHOT	1/4/2023 5:45 PM	File folder	
surefire-reports	1/4/2023 5:45 PM	File folder	
test-classes	1/4/2023 5:43 PM	File folder	
SpiceLand.war	1/5/2023 11:00 AM	WAR File	61,162 KB
SpiceLand.war.original	1/5/2023 11:00 AM	ORIGINAL File	55,258 KB

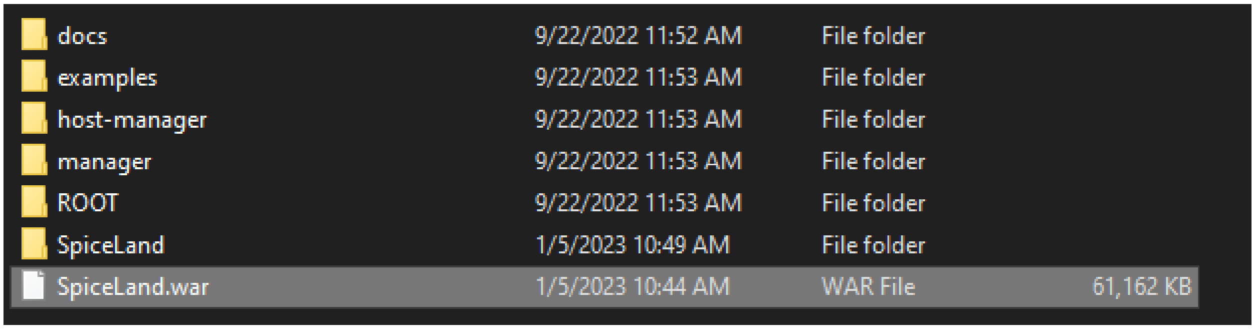
Note: .war file is located in target folder

4. Download the tomcat 8.5 and extract it.



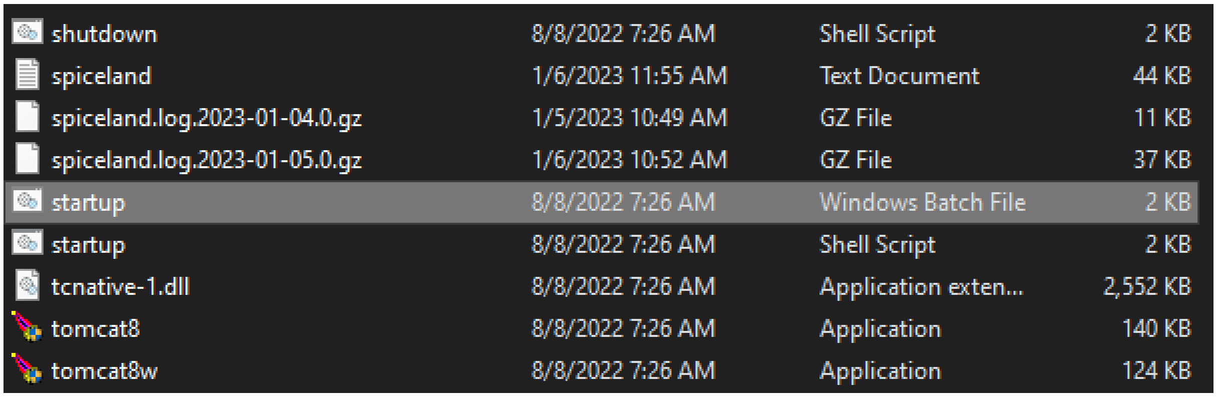
Name	Date modified	Type	Size
lib	9/22/2022 11:51 AM	File folder	
temp	9/22/2022 11:51 AM	File folder	
work	1/4/2023 10:47 AM	File folder	
webapps	1/5/2023 10:49 AM	File folder	
bin	1/6/2023 10:52 AM	File folder	
conf	1/6/2023 11:54 AM	File folder	
logs	1/6/2023 11:55 AM	File folder	
BUILDING	8/8/2022 7:26 AM	Text Document	21 KB
CONTRIBUTING	8/8/2022 7:26 AM	Markdown Source...	7 KB
LICENSE	8/8/2022 7:26 AM	File	57 KB
NOTICE	8/8/2022 7:26 AM	File	2 KB
README	8/8/2022 7:26 AM	Markdown Source...	4 KB
RELEASE-NOTES	8/8/2022 7:26 AM	File	8 KB
RUNNING	8/8/2022 7:26 AM	Text Document	17 KB

5. Keep the war file in webapps folder.



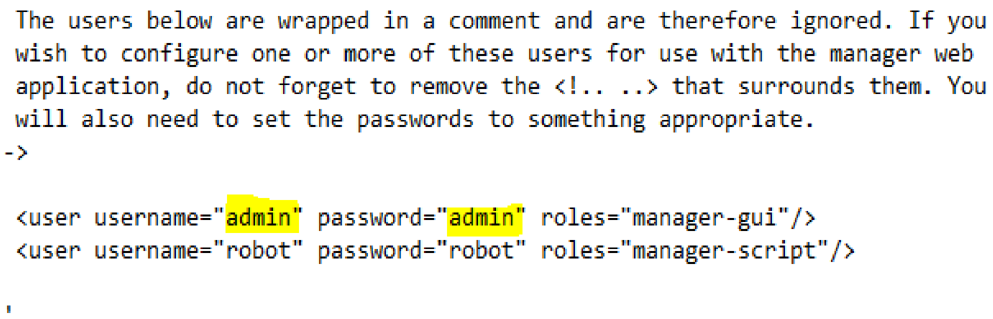
docs	9/22/2022 11:52 AM	File folder	
examples	9/22/2022 11:53 AM	File folder	
host-manager	9/22/2022 11:53 AM	File folder	
manager	9/22/2022 11:53 AM	File folder	
ROOT	9/22/2022 11:53 AM	File folder	
SpiceLand	1/5/2023 10:49 AM	File folder	
SpiceLand.war	1/5/2023 10:44 AM	WAR File	61,162 KB

6. Run the startup.bat file in bin folder.



shutdown	8/8/2022 7:26 AM	Shell Script	2 KB
spiceland	1/6/2023 11:55 AM	Text Document	44 KB
spiceland.log.2023-01-04.0.gz	1/5/2023 10:49 AM	GZ File	11 KB
spiceland.log.2023-01-05.0.gz	1/6/2023 10:52 AM	GZ File	37 KB
startup	8/8/2022 7:26 AM	Windows Batch File	2 KB
startup	8/8/2022 7:26 AM	Shell Script	2 KB
tcnative-1.dll	8/8/2022 7:26 AM	Application exten...	2,552 KB
tomcat8	8/8/2022 7:26 AM	Application	140 KB
tomcat8w	8/8/2022 7:26 AM	Application	124 KB

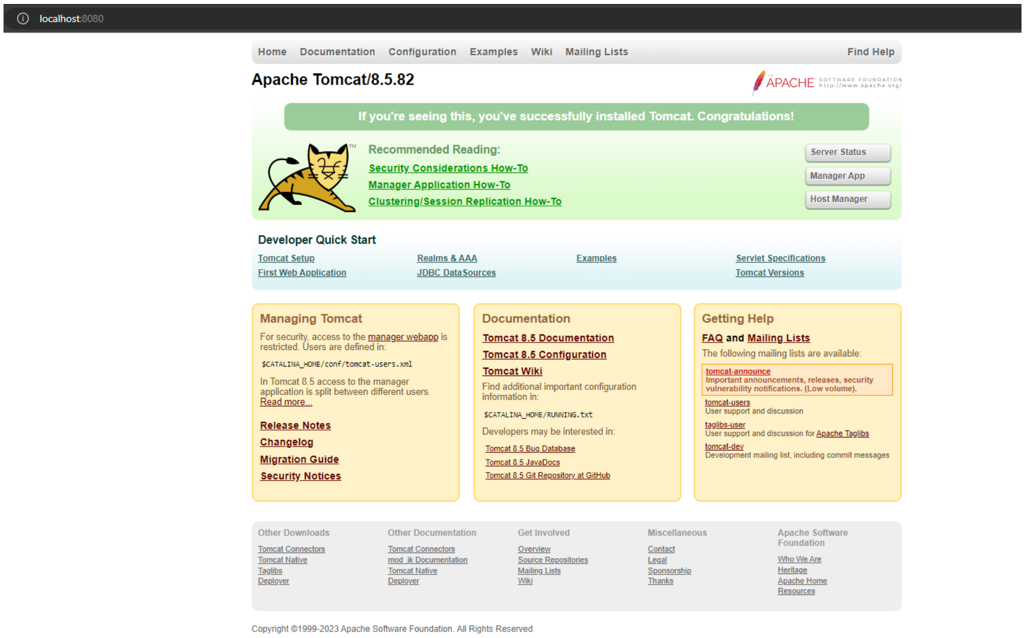
7. Configure the tomcat-user file, add the users to manage the deployment.



```
  The users below are wrapped in a comment and are therefore ignored. If you
  wish to configure one or more of these users for use with the manager web
  application, do not forget to remove the <!.. ..> that surrounds them. You
  will also need to set the passwords to something appropriate.
->

  <user username="admin" password="admin" roles="manager-gui"/>
  <user username="robot" password="robot" roles="manager-script"/>
```

8. Start tomcat server using command startup.bat, this will start tomcat server and also run the .war file present in webapps folder.

9. Open browser and type localhost:8080 to open Apache Tomcat/8.5.82 dashboard.



Apache Tomcat/8.5.82

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Recommended Reading:
Security Considerations How-To
Manager Application How-To
Clustering/Session Replication How-To

Developer Quick Start
Tomcat Setup
First Web Application
Realms & AAA
JDBC DataSources
Examples
Servlet Specifications
Tomcat Versions

Managing Tomcat

For security, access to the manager webapp is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 8.5 access to the manager application is split between different users. Read more...

Release Notes
Changelog
Migration Guide
Security Notices

Documentation

Tomcat 8.5 Documentation
Tomcat 8.5 Configuration
Tomcat Wiki

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

Tomcat 8.5 Bug Database
Tomcat 8.5 JavaDocs
Tomcat 8.5 Git Repository at GitHub

Getting Help

FAQ and Mailing Lists

The following mailing lists are available:

tomcat-announce
Important announcements, releases, security vulnerability notifications. (Low volume).

tomcat-users
User support and discussion

taglibs-user
User support and discussion for Apache Taglibs

tomcat-dev
Development mailing list, including commit messages

Other Downloads	Other Documentation	Get Involved	Miscellaneous	Apache Software Foundation
Tomcat Connectors	Tomcat Connectors	Overview	Contact	Who We Are
Tomcat Native	mod_jk Documentation	Source Repositories	Legal	Heritage
Taglibs	Tomcat Native	Mailing Lists	Sponsorship	Apache Home
Deployer	Deployer	Wiki	Thanks	Resources

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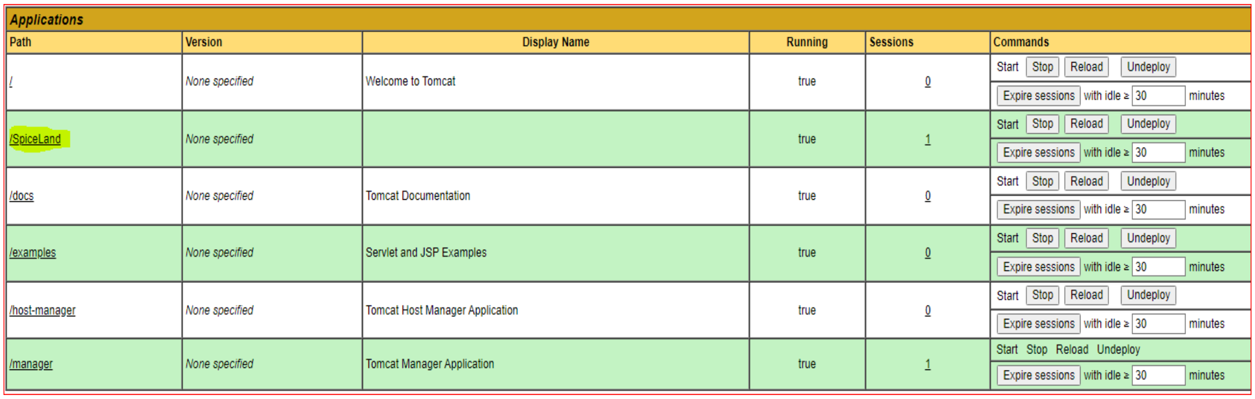
10. Click on manage apps and start the spring application on tomcat server.



Applications

Path	Version	Display Name	Running	Sessions	Commands
/	*None specified*	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/SpiceLand	*None specified*		true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	*None specified*	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	*None specified*	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	*None specified*	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	*None specified*	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

11. Click on the application URL /SpiceLand (i.e. war file name in webapps), mention application home URL http://192.168.141.36:8080/SpiceLand/index

Finally, the application is deployed on External Tomcat server.

Prerequisites to be followed to deploy in tomcat.

- Mention the external tomcat dependencies in pom.xml and mention <scope>provided</scope> this will stop internal tomcat during execution
- Build the .war file with all necessary dependencies use <finalName>SpiceLand</finalName> inside build tag to build .war file with custom name
- The URL http://192.168.141.36:8080/SpiceLand/index here SpiceLand is the .war file name, it will be the root URL for all other URL in the application. Initially this will cause 404 error, to resolve this error user ${pageContext.request.contextPath} in URL mentioned in JSP Pages.

Eg:

- ➢ <form th:action="${pageContext.request.contextPath}/login" method="post">
- ➢ href="${pageContext.request.contextPath}/products/prolist/${product.user.id}"