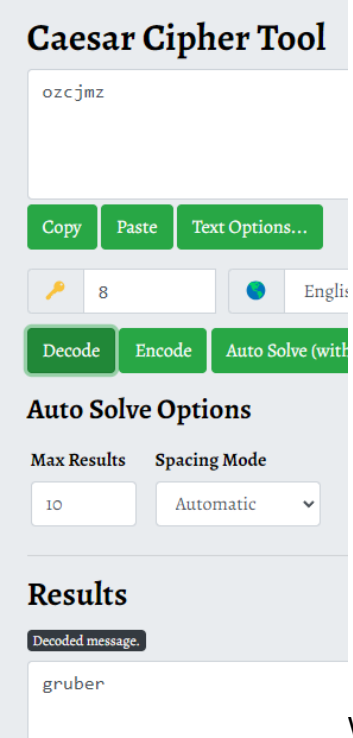
Module 10 Challenge ~ Ransomware Riddles

Riddle 1: Caesar decypher

Roses are Red Violets are Blue,
Caesar would be 8 is your first clue.

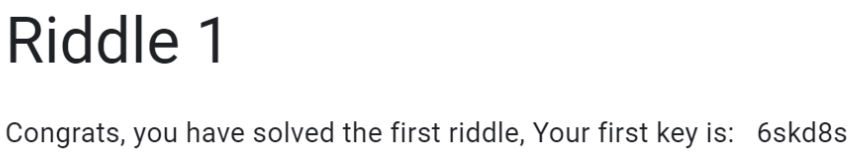
Decrypt ozcjmz and enter it below,
and maybe a key then might just show.

When I run the above encryped code through the Caesar Cipher Tool, it displays an answer of **gruber**



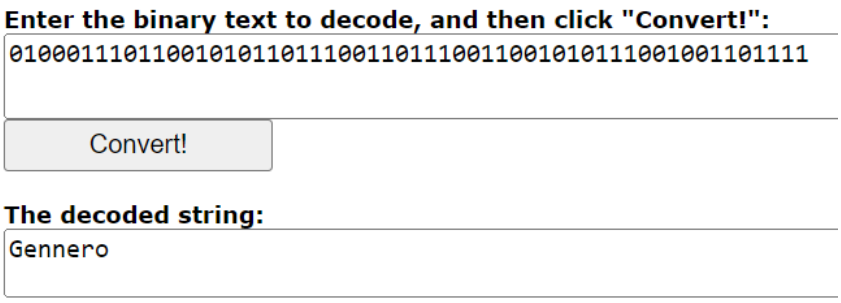
When gruber is entered into the answer field, the below key is:

key 1 = **6skd8s**



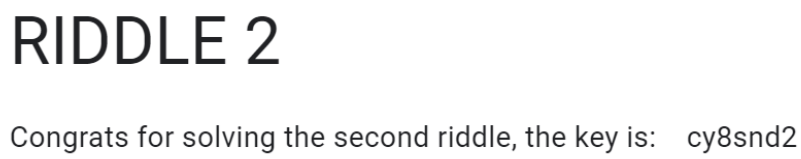
Riddle 2: Binary challenge

Let’s decode the binary.

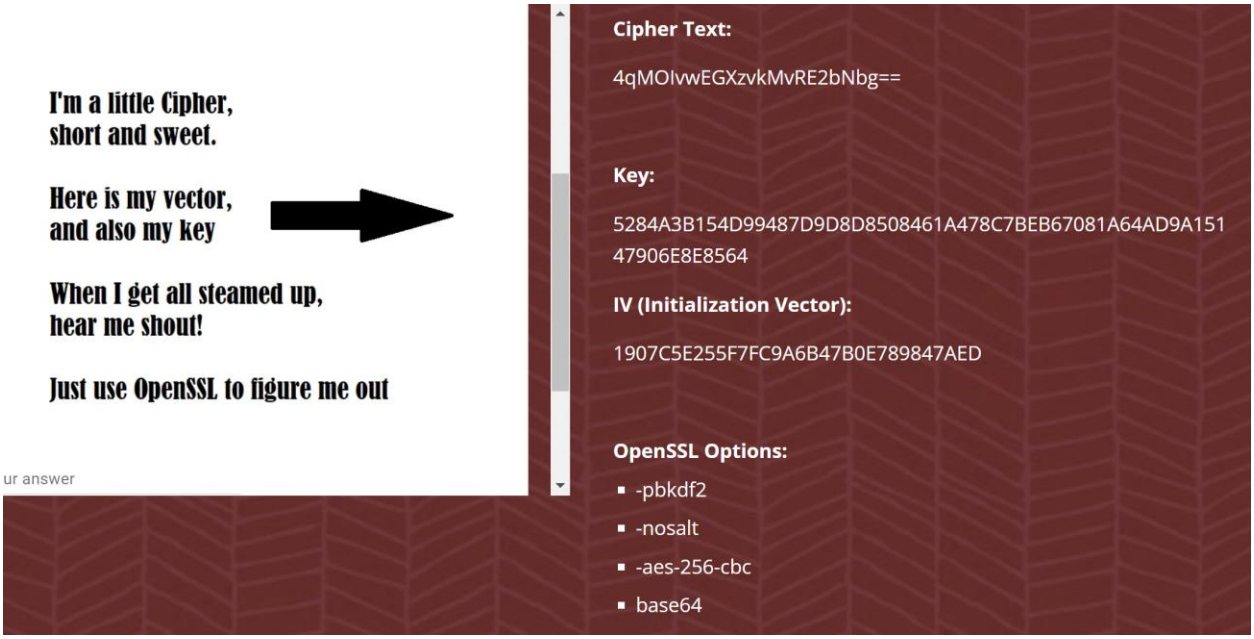


Gennero is entered into the answer field, and key is given:

key 2 = **cy8snd2**



Riddle 3: OpenSSL



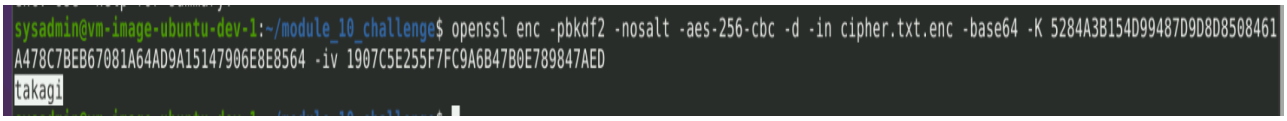
We are given some cipher text, a key, a IV and some OpenSSL options. I need to switch over to my VM Apache to run this and figure it out.

- Step 1: echo cipher text into a cipher.txt.enc text file
- Step 2: use openssl and options to decipher the text file.

Command:

openssl enc -pbkdf2 -nosalt -aes-256-cbc -d -in cipher.txt.enc -base64 -K 5284A3B154D99487D9D8D8508461A478C7BEB67081A64AD9A15147906E8E8564 -iv 1907C5E255F7FC9A6B47B0E789847AED

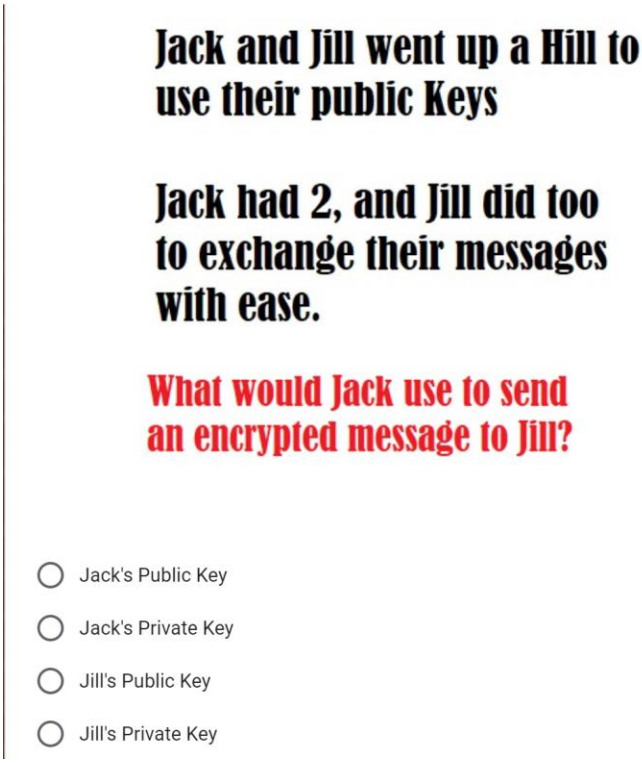
Displays output: takagi



When takagin entered into answer, key is given.

key 3 = **ud6s98n**

Riddle 4: Keys



- Part 1: Jill's public key
- Part 2: Jill's private key
- Part 3: 12 asym, 15 sym
    - *In asymmetric encryption, 12 keys would be needed because each of the six people needs a unique pair of keys (a public and a private key). For symmetric encryption, 15 keys are required for secure communication between every pair out of the six people*
- Part 4: Alice's public key

Upon hitting submit, key is given:

key 4 = **7gsn3nd2**

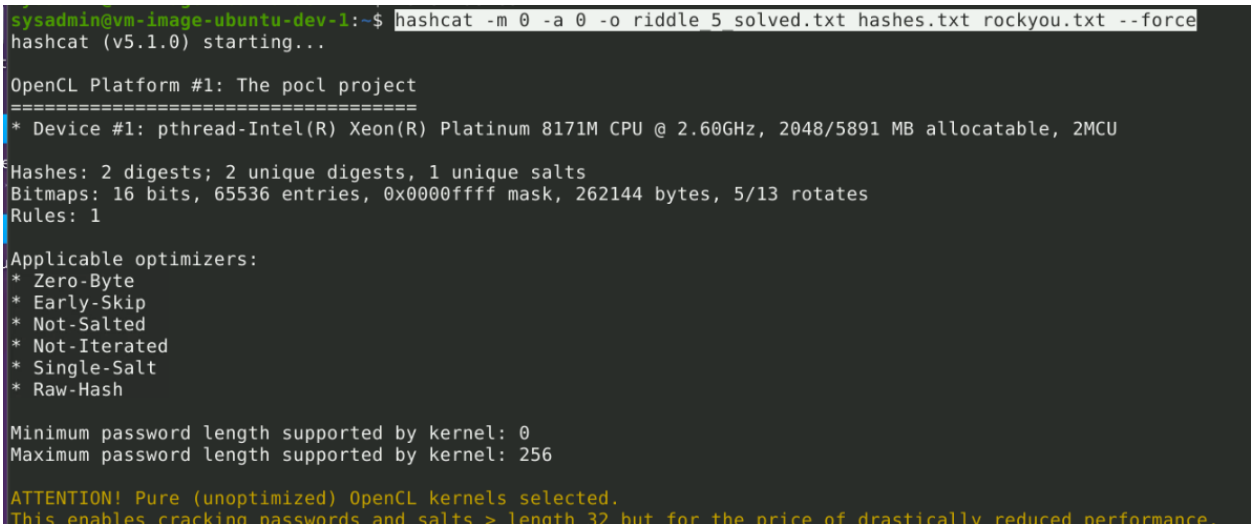
Riddle 5: HashCatcd ..

Hey diddle diddle,
the cat and the fiddle,
The cow jumped over the moon.

The little dog laughed
when it found this MD5 hash,

And the dish ran away with the spoon!

- Step 1: nano hash into the hashes.txt file in the VM apache
- Step 2: run hashcat command to create a solved txt file. Ran against the rockyou.txt wordlist.
    - **hashcat -m 0 -a 0 -o riddle_5_solved.txt hashes.txt rockyou.txt --force**



- Step 3: Then I could cat the solved txt file and got the answer as **argyle**

```
sysadmin@vm-image-ubuntu-dev-1:~$ cat riddle_5_solved.txt
3b75cdd826a16f5bba0076690f644dc7:argyle
```

Once I entered the answer of argyle into the field, it gave me the key.

key 5 = **ajy39d2**

Riddle 6: Steghide

Mary had a secret code,
Hidden in a photo,
And everywhere that photo went,
The code was sure to go

She wrote the passphrase on the book, to access the code
You just need to use some stego tricks and the secret will be showed.

Downloaded the image to the VM Apache. Need to run steghide command to find secret code.

Command: steghide extract –sf mary-lamb.jpg

Passphrase: ABC

Extracted data to “code_is_inside_this_file.txt”

```
sysadmin@vm-image-ubuntu-dev-1:~/Downloads$ steghide extract -sf mary-lamb.jpg
Enter passphrase:
wrote extracted data to "code_is_inside_this_file.txt".
sysadmin@vm-image-ubuntu-dev-1:~/Downloads$
```

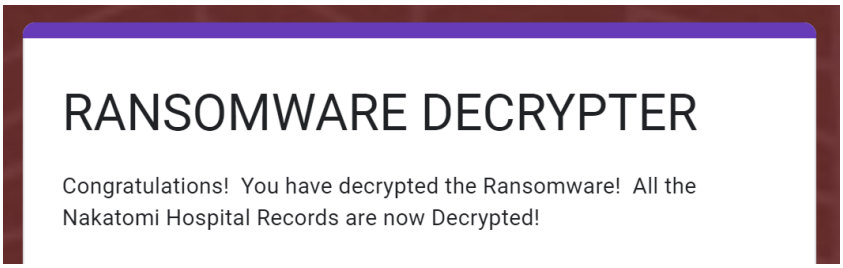
When I cat the file, it displays **mcclane**

```
sysadmin@vm-image-ubuntu-dev-1:~/Downloads$ cat code_is_inside_this_file.txt
mcclane
```

I enter mcclane in the answer field, and a key is given.

key 6 = **7skahd6**

When I enter all keys into the decrypter section of website, it says all data has now been decrypted. The mission was a success!!



QUIZ.

Question 1 15 / 15 pts

What is the first key (Riddle 1)?

6skd8s

Correct. The answer to the riddle was `gruber`

Question 2 20 / 20 pts

What is the second key (Riddle 2)?

cy8snd2

Correct. The answer to the riddle was `Gennero`

Question 3 15 / 15 pts

What is the third key (Riddle 3)?

ud6s98n

Correct. The answer to the riddle was `takagi`

Question 4 — 15 / 15 pts

What is the fourth key (Riddle 4)?

7gsn3nd2

Correct.

1. Jack would use Jill's public key to encrypt a message that he will send to Jill.
2. Jill would decrypt this message with her private key.
3. Six people total:
   - **Asymmetric** = 6 * 2 = 12 Keys
   - **Symmetric** = (6 * (6 -1))/2 = (6 * 5)/2 = 30/2 = 15 Keys
4. Tim would only use someone else's public key to encrypt a message. The only other person's public key is Alice.

Question 5 — 20 / 20 pts

What is the fifth key (Riddle 5)?

ajy39d2

Correct. The answer to the riddle was `argyle`

Question 6 — 15 / 15 pts

What is the sixth key (Riddle 6)?

7skahd6

Correct. The answer to the riddle was `mcclane`