Gain Shell Access to Metasploitable

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Executive Summary

1.1 Executive Summary

I was tasked with exploiting the Metasploitable virtual machine and finding a way to get shell access. Tools built into Kali Linux were able to help me achieve this, along with the use of the Nessus software. I started with a basic network scan of the VM and decided to try to use MySQL to gain shell access to the system. Through trial and error I was able to gather information about the users on the system through the MySQL console. Since I was able to log into the root account of MySQL I could have accessed many of the other databases held on the system, but I chose to focus on the MySQL database, specifically the User database. Although nothing was there I moved on and just downloaded the "/etc/password" file and used it as a userlist to brute force into an ssh account.

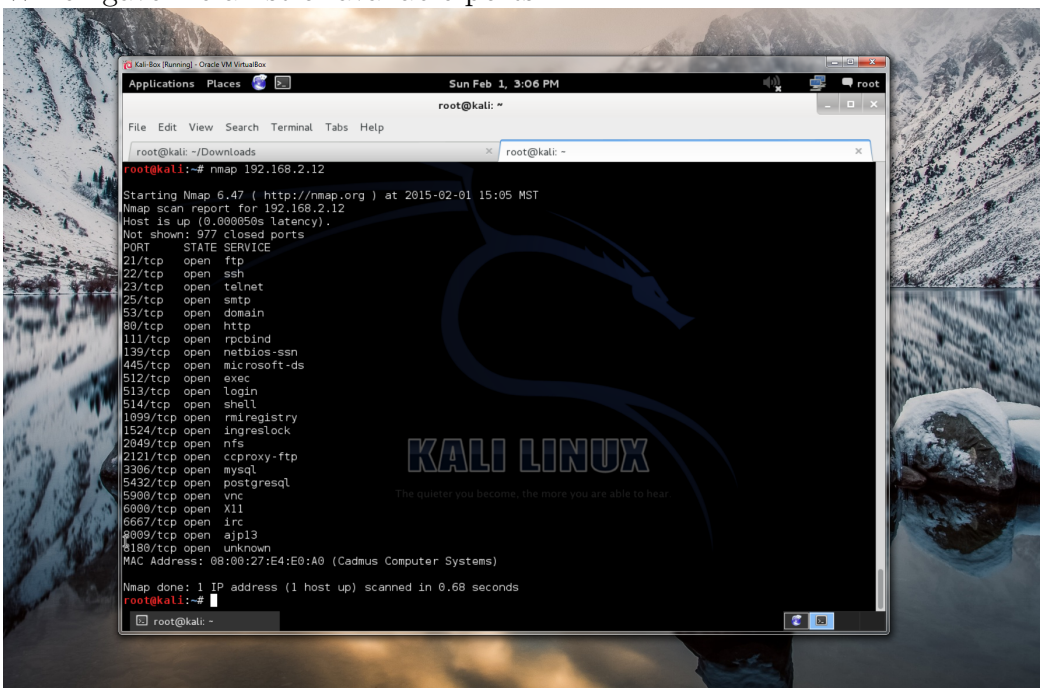
Attack Narrative

2.1 Exploration

I started with an nmap of the ip address:

```
# nmap 192.168.2.12
```

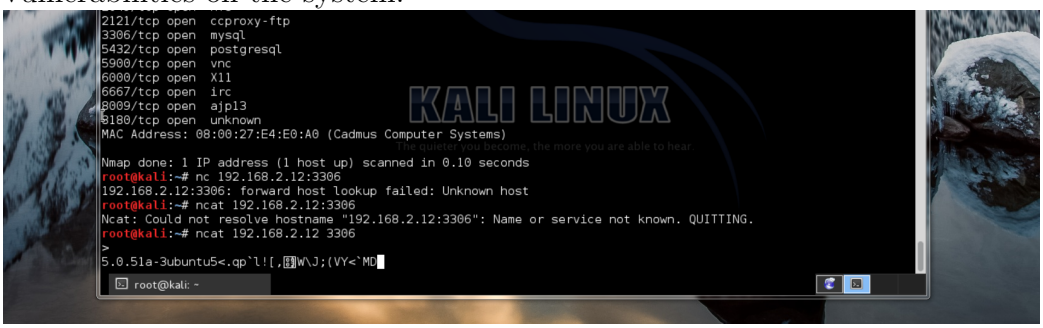
Which gave me a list of available ports:



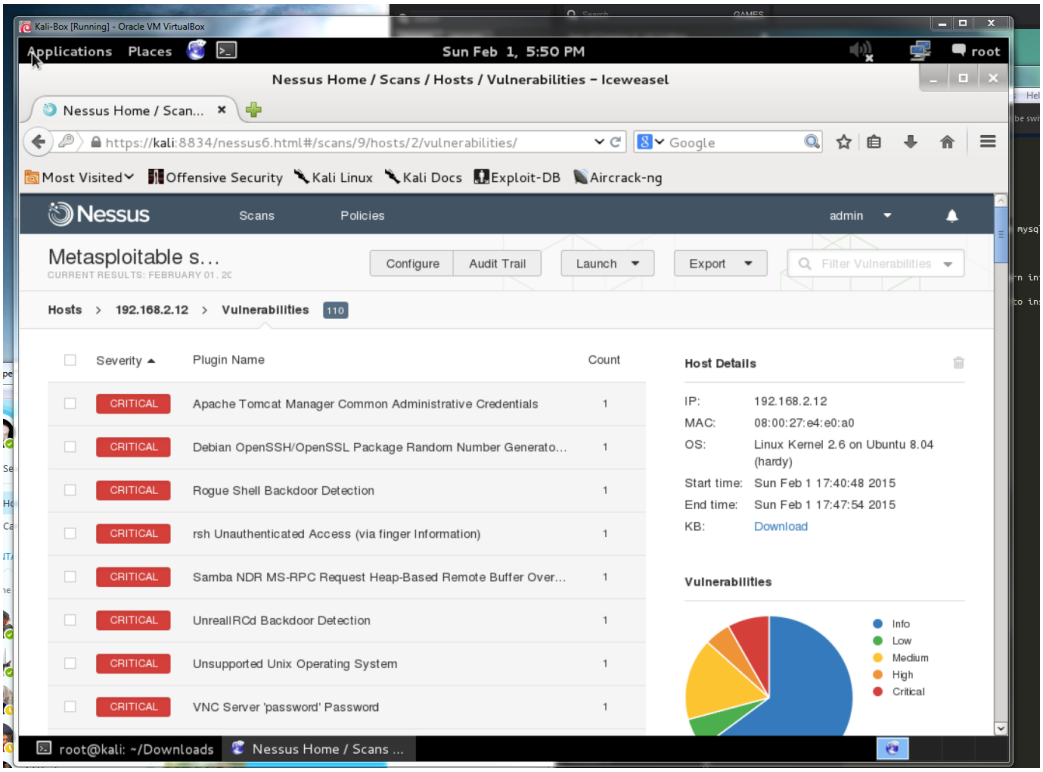
I decided that I would try to investigate the MySQL port and see if that could give me any sort of access to the system. I decided to run an NetCat on the port:

```
# ncat 192.168.2.12 3306
```

This gave me some very weird output that I could not understand. It was at this point I decided to wait until Nessus finished installing. Then I could run a basic network scan of the system and see if there were any MySQL vulnerabilities on the system.



2.2 Nessus Scan



The Nessus scan of the virtual machine returned many errors, but since I was in-

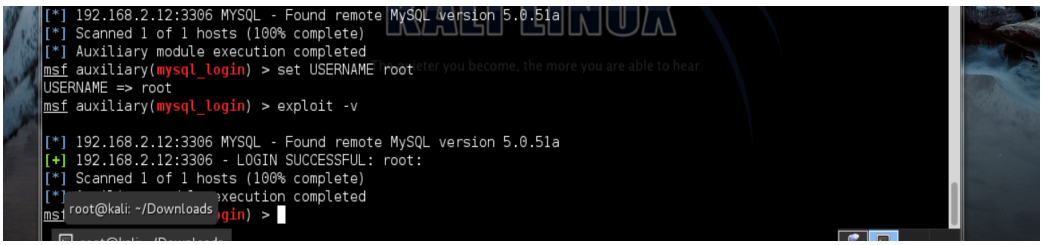
terested in attacking the MySQL service I started to check if there were any errors associated with it. I was able to find a vulnerability associated with MySQL of "MySQL Unpassworded Account Check".
After finding this vulnerability I decided that it was time to load up msfconsole and start to try to exploit it. After searching for MySQL I was able to find a tool called "mysql_login". I decided to try it out as I figured I would try to login to the MySQL service using a blank password like Nessus suggested there was.

```
> use auxiliary/scanner/mysql/mysql_login
> info
> set RHOSTS 192.168.2.12
> set BLANK_PASSWORDS true
> exploit
```

After running the tool with the options set as above, I received the output:

I was confused at first as I had thought that Nessus had said the password was blank. Then I remembered that I had forgotten to set a username, so I set the username to root and ran it again:

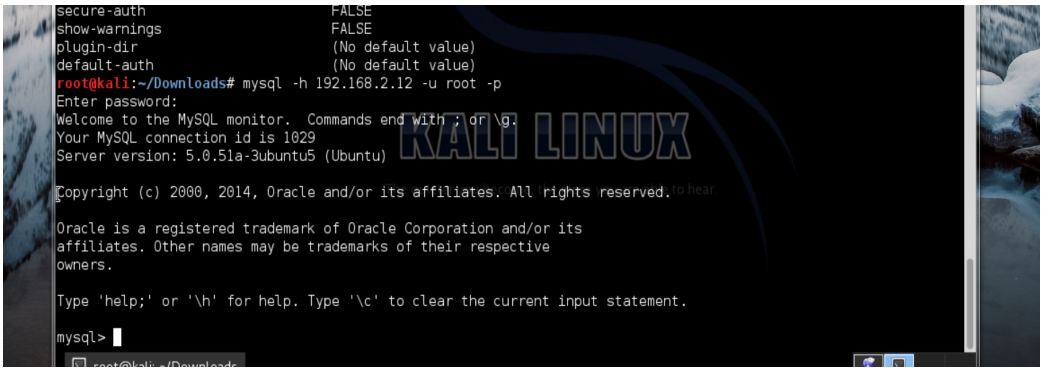
```
> set USERNAME root
> exploit
```



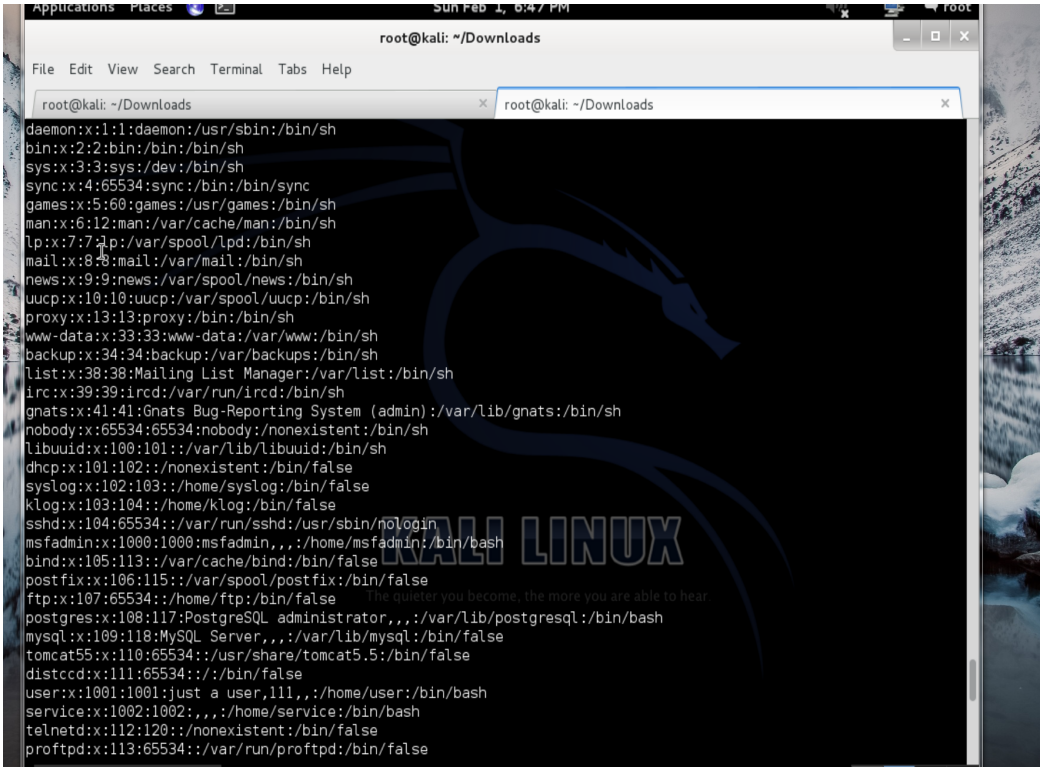
2.3 MySQL

I now have the username and password to the MySQL service. I decided to attempt to log into the service remotely through my machine to see what I could do from there:

```
# mysql -h 192.168.2.12 -u root -p
```



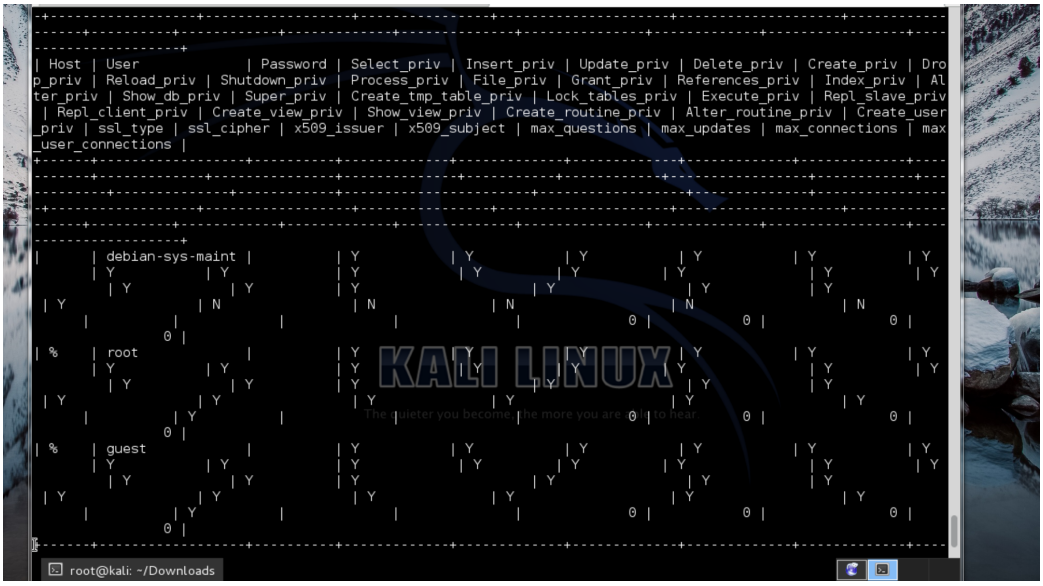
I ran a "show grants;" to find out how much power the user I now controlled has. Turns out I had access to everything in MySQL! What if I tried to open the "/etc/passwd" file?



I was able to get the file, so now I have a list of users and what group they belong to on the system. I attempted to get the "/etc/shadow" file, but was rejected. So this still leaves me with no ability to get into a shell. Now I decided that I would try to investigate the datbases contained within the system to see if there was any information contained within in them that could help me out.

```
> show databases;
> use mysql;
> Select *;
> show tables;
> select * from user;
> select User from user;
> select User, Password from user;
```

When I selected everything from the user table, I got a very messy printout of the table (see screenshot below). I was able to determine that the table contained a username and password, so I selected both of those from the table. Unfortunately the passwords were not in the table.

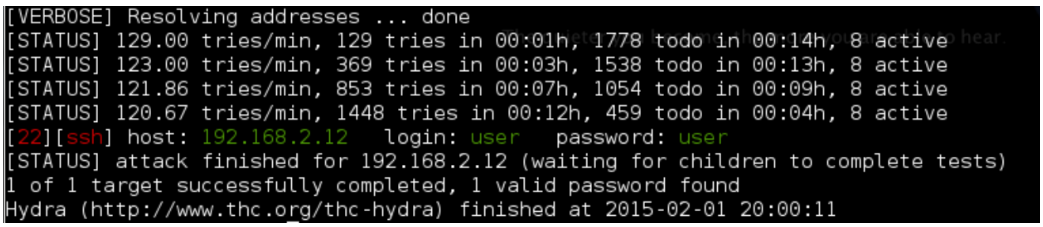


I then attempted to try to use the mysql_hashdump tool from msfconsole, unfortunately it was unable to provide me with anything. Next I decided to see if there were any known exploits for the current MySQL version that was running on the system. That search turned up nothing as well. I went into MySQL again and grabbed the print out of the "/etc/passwd" file from before to use it as a user list to try to brute force an SSH account.

2.4 SSH

I determined that I was going to try to brute force an SSH account using the users from the "/etc/passwd" file I was able to print out from MySQL. AFter waiting for a long time as Hydra attempted to test multiple passwords for the large user list, I decided to just focus on one user. I picked the user "user" and decided to try to brute force it using the namelist.txt wordlist from "/usr/share/wordlists/metasploit/" built into Kali.

```
# hydra ssh://192.168.2.12 -l user -P /usr/share/wordlists/metasploit/namelist.txt
```



I was able to successfully find the password for "user" and thus login to an SSH account with shell access.

Conclusion

3.1 Conclustion

In the end I was able to obtain shell access remotely through using msfconsole and Nessus. There are obviously much easier routes to getting a remote shell from the metasploitable VM, but I wanted a challenge so I chose to try to use MySQL as my gateway to gaining access. I had hoped there was a clever way to slide through MySQL into a shell, but I was unable to find a way to do so. I ended up gathering a userlist from my access to MySQL and then brute forced my way into a shell. The MySQL password needs to be secured, it is not safe to use a blank password.