Overlong (FlareOn CTF)

Description:

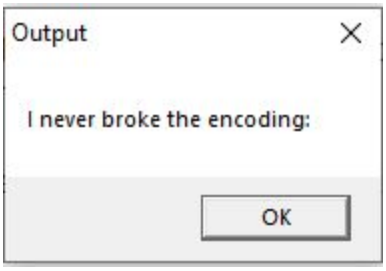
The secret of this next challenge is cleverly hidden. However, with the right approach, finding the solution will not take an overlong amount of time.

Perhaps this is another cool easy challenge which i really overlooked and stuck for a long time. Thanks to 0xdf for driving me in the right direction.

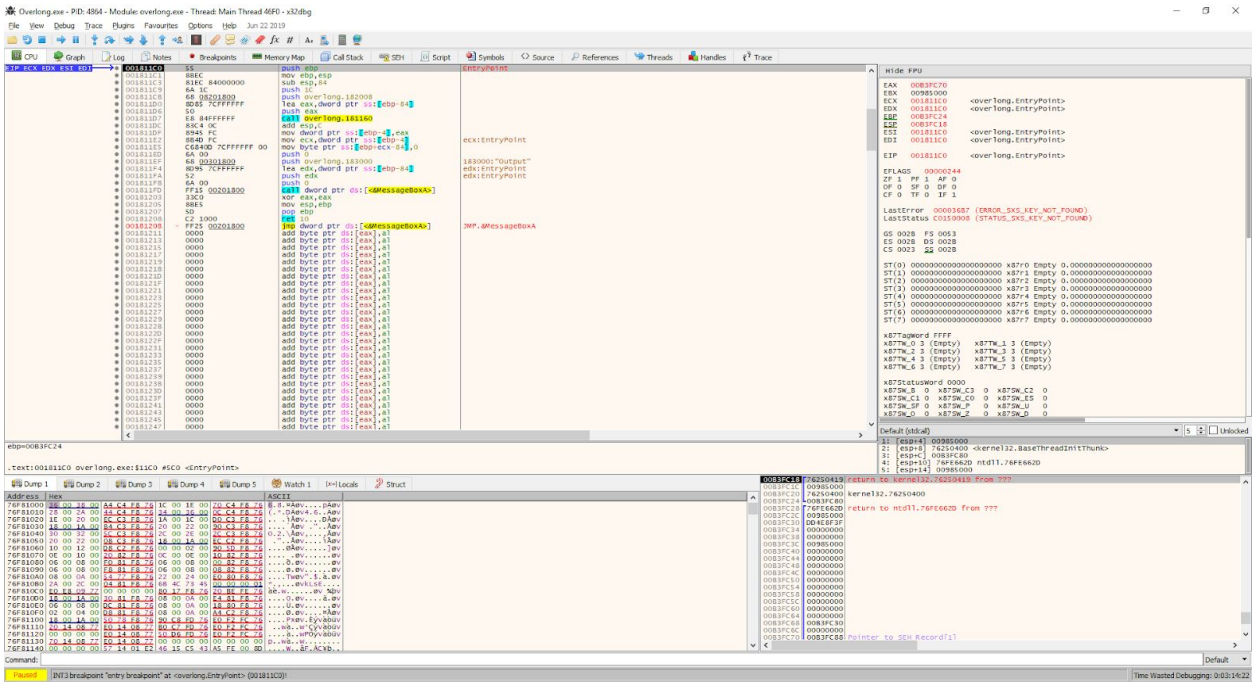
Do you see overlong ? well keep that in mind. Let's start!

Challenge:

Opening overlong.exe result in



As it was a 32bit binary, I've used x32dbg for this challenge.



Now we are at the entry point of the binary. Stepping through we can see that a function **overlong.181160** being called with certain arguments.

To make it a bit clear i loaded this exe in IDA (Interactive DisAssembler) as well as in Ghidra.

We can see FUN_00401160 takes three arguments

Decompile: FUN_00401160 - (Overlong.exe)

```
1
2  uint __cdecl FUN_00401160(byte *param_1,byte *param_2,uint param_3)
3
4  {
5    byte bVar1;
6    int iVar2;
7    uint local_8;
8
9    local_8 = 0;
10   while( true ) {
11     if (param_3 <= local_8) {
12       return local_8;
13     }
14     iVar2 = FUN_00401000(param_1,param_2);
15     param_2 = param_2 + iVar2;
16     bVar1 = *param_1;
17     param_1 = param_1 + 1;
18     if (bVar1 == 0) break;
19     local_8 = local_8 + 1;
20   }
21   return local_8;
22 }
23
```

```
public start
start proc near

Text= byte ptr -84h
var_4= dword ptr -4

push    ebp
mov     ebp, esp
sub     esp, 84h
push    1Ch
push    offset unk_402008
lea     eax, [ebp+Text]
push    eax
call    sub_401160
```

First argument is being ebp which carries the base pointer reference and second argument is 1Ch (28 decimal value) being pushed to stack which is param_2 in our case. As a final argument it does loading effective address of encrypted flag at unk_402008 location.

```
.rdata:00402008 unk_402008      db 0E0h ; à             ; DATA XREF: start+B↑o
.rdata:00402009                 db  81h
.rdata:0040200A                 db  89h ; ‰
.rdata:0040200B                 db 0C0h ; À
.rdata:0040200C                 db 0A0h ;
.rdata:0040200D                 db 0C1h ; Á
.rdata:0040200E                 db 0AEh ; ®
.rdata:0040200F                 db 0E0h ; à
.rdata:00402010                 db  81h
.rdata:00402011                 db 0A5h ; ¥
.rdata:00402012                 db 0C1h ; Á
.rdata:00402013                 db 0B6h ; ¶
.rdata:00402014                 db 0F0h ; ð
.rdata:00402015                 db  80h ; €
.rdata:00402016                 db  81h
.rdata:00402017                 db 0A5h ; ¥
.rdata:00402018                 db 0E0h ; à
.rdata:00402019                 db  81h
.rdata:0040201A                 db 0B2h ; ²
.rdata:0040201B                 db 0F0h ; ð
.rdata:0040201C                 db  80h ; €
.rdata:0040201D                 db  80h ; €
.rdata:0040201E                 db 0A0h ;
.rdata:0040201F                 db 0E0h ; à
.rdata:00402020                 db  81h
.rdata:00402021                 db 0A2h ; ¢
.rdata:00402022                 db  72h ; r
.rdata:00402023                 db  6Fh ; o
.rdata:00402024                 db 0C1h ; Á
.rdata:00402025                 db 0ABh ; «
.rdata:00402026                 db  65h ; e
.rdata:00402027                 db 0E0h ; à
.rdata:00402028                 db  80h ; €
.rdata:00402029                 db 0A0h ;
.rdata:0040202A                 db 0E0h ; à
.rdata:0040202B                 db  81h
.rdata:0040202C                 db 0B4h ; ´
.rdata:0040202D                 db 0E0h ; à
.rdata:0040202E                 db  81h
.rdata:0040202F                 db 0A8h ; ¨
.rdata:00402030                 db 0C1h ; Á
.rdata:00402031                 db 0A5h ; ¥
.rdata:00402032                 db  20h
.rdata:00402033                 db 0C1h ; Á
.rdata:00402034                 db 0A5h ; ¥
.rdata:00402035                 db 0E0h ; à
```

Then it checks for length of the input. If length is either 0 or less than that it assigns length as 0 and calls the other function FUN_00401000 with pointer to flag being as an argument.

```
while( true ) {
  if (param_3 <= local_8) {
    return local_8;
  }
  iVar2 = FUN_00401000(param_1,param_2);
```

Then i believe it does some logical operations to decrypt the flag. As i only interested in length argument i skipped exploring this decryption part.

As challenge states about **Overlong** we can try increasing the length argument and get the remaining part of the flag.

I just changed **push 1C** to **push 4F**

```
001811C9    6A 4F       push 4F
```