ebCTF bin200 Writeup

原创

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CTF

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订阅专栏

刚接触CTF，做了一道简单的逆向题（题目链接）。这道题是一个掷骰子的游戏，只要能掷出一串特定的值就能得到flag。

```
[*] ebCTF 2013 Teaser - BIN100 - Dice Game
    To get the flag you will need to throw the correct numbers.

[*] You will first need to throw a three, press enter to throw a dice!

 -------
| O   O |
| O   O |
| O   O |
 -------

[*] You rolled a 6 That is not a three :/
[*] Game over!
```

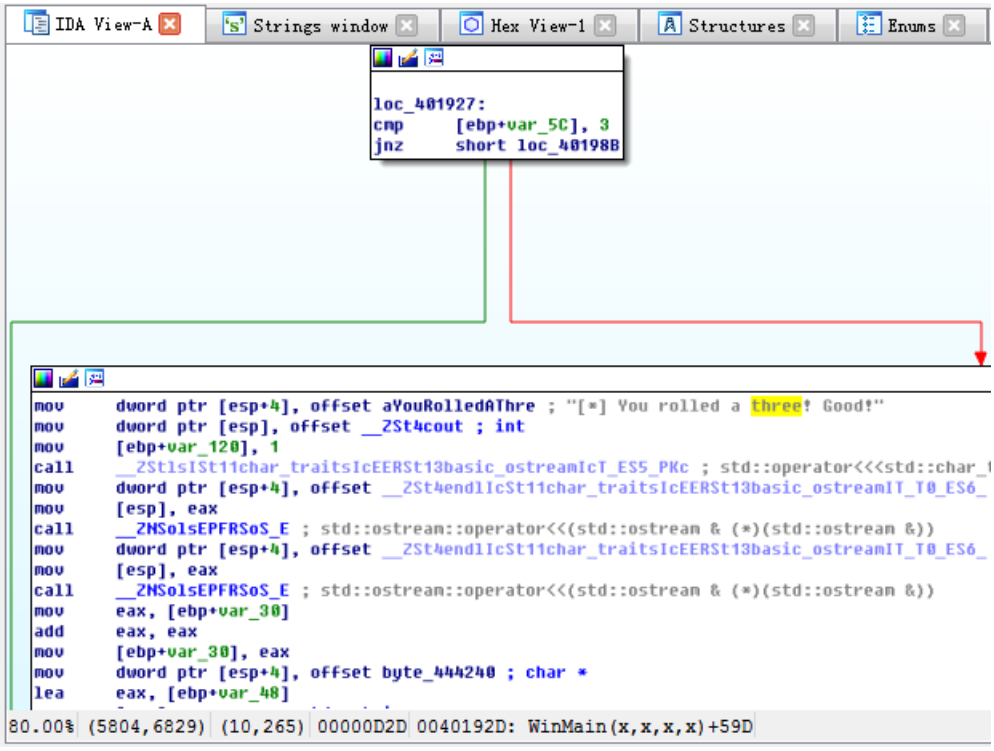
0x01 IDA加载分析

使用IDA加载二进制文件，打开Strings window查看字符串。

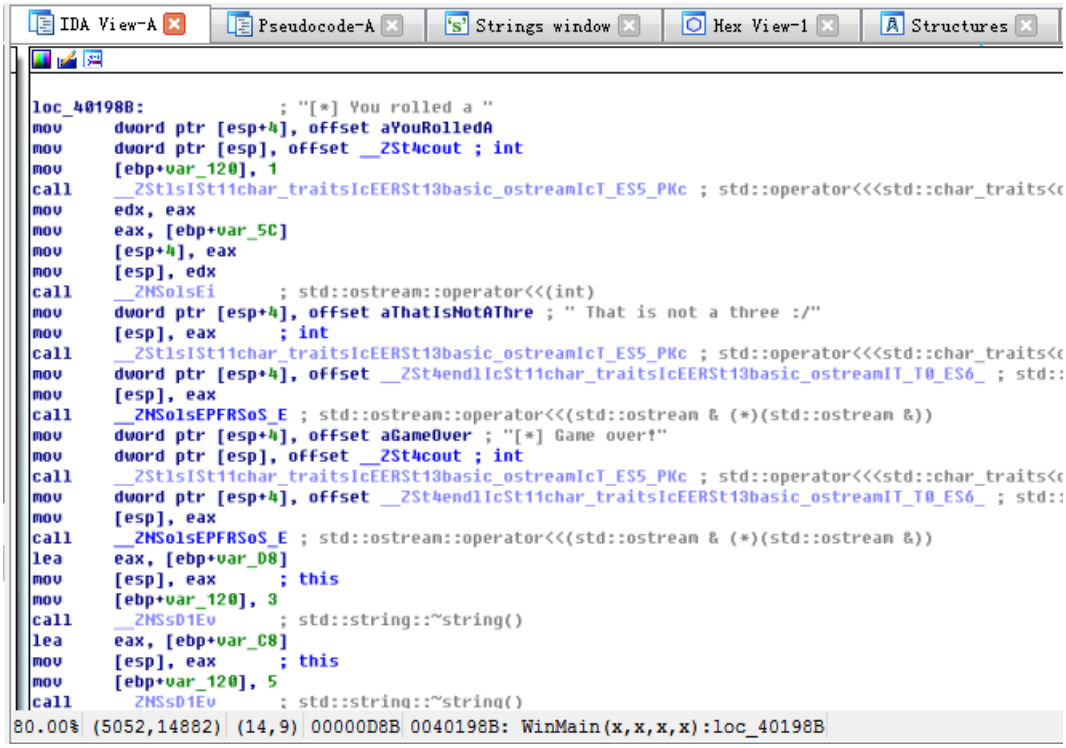
IDA View-A | Hex View-1 | Structures | Strings window | Enums | Imports

Address	Length	Type	String
.rdata:0044416C	0000002B	C	[*] ebCTF 2013 Teaser - BIN100 - Dice Game
.rdata:00444198	00000040	C	To get the flag you will need to throw the correct numbers.
.rdata:004441D8	00000047	C	[*] You will first need to throw a three, press enter to throw a dice!
.rdata:0044421F	0000001E	C	[*] You rolled a three! Good!
.rdata:00444244	00000009	C	=3WG-'jsD
.rdata:0044425B	00000006	C	JxtjpB
.rdata:00444268	00000012	C	[*] You rolled a
.rdata:0044427A	00000018	C	That is not a three :/
.rdata:00444292	0000000F	C	[*] Game over!
.rdata:004442A4	00000044	C	[*] Next you will need to throw a one, press enter to throw a dice!
.rdata:004442E8	00000021	C	[*] You rolled a one! Very nice!
.rdata:00444310	00000006	C	\a<0*0U
.rdata:0044431E	00000016	C	That is not a one :/
.rdata:00444334	0000004C	C	[*] Next you will need to throw another three, press enter to throw a dice!
.rdata:00444380	00000021	C	[*] You rolled a three! Awesome!
.rdata:004443A4	00000041	C	[*] Throw another three for me now, press enter to throw a dice!
.rdata:004443E8	00000030	C	[*] You rolled another three! Almost there now!
.rdata:00444418	0000005C	C	[*] The last character you need to roll is a seven.... (o_O) Press enter to throw a dice!
.rdata:00444474	00000045	C	[*] You rolled a seven, with a six sided dice! How awesome are you?!
.rdata:004444B9	00000018	C	That is not a seven :/
.rdata:004444D1	00000006	C	ebCTF
.rdata:004444D8	0000003E	C	[*] You rolled 3-1-3-3-7, what does that make you? ELEET! \\o/
.rdata:00444518	00000021	C	[*] Nice job, here is the flag:
.rdata:0044453C	00000039	C	[!] It seems you did something wrong :(No flag for you.

通过这些字符串可以看到只有依次掷出3-1-3-3-7就有可能得到flag，但是要随机掷出这些数字明显不可能，因为其中有个7！为此，需要跟进字符串“[*] You rolled a three! Good!”引用处查看程序的处理逻辑。



从图中可以看到，程序通过判断[ebp+var_5C]中的值是否为3进行跳转，如果为3则进入右边分支，程序继续执行；否则，程序跳转至loc_40198B提示掷出的数字不是3，游戏结束！



0x02 修改指令

理清程序的逻辑后，采用最简单的办法控制程序的执行路径——修改指令。首先，通过菜单栏中Options/General/Disassembly/Number of opcode bytes设置IDA使其显示指令的机器码。jnz的机器码为75，只需将其改为jz的机器码74。修改方法：Edit/Patch program/Change byte。

通过“[*] You rolled a one! Very nice!”等提示信息找到其他几处判断语句，使用相同的方法修改机器码。但是有两处为near jump，jnz的机器码为0F 85，将其修改为0F 84即可。

修改完后Edit/Patch program/Apply patches to input file保存修改后的文件，运行便能得到flag:ebCTF{64ec47ece868ba34a425d90044cd2dec}。