reverse-easyGo(新手向)

原创

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2019信安国赛初赛reverse-easyGo

记录解题思路，不一定做得出来！

我现在能做了！（2019-09-08）

ELF格式程序，利用kali试着运行一下：

```
root@kali:~/下载# ./easyGo
Please input you flag like flag{123} to judge:
flag{113}
Try again! Come on!
```

应该只是一个简单的判断而已。
使用gdb看看有没有调试的信息，gdb之前没有用过，这里只能硬上弓了：

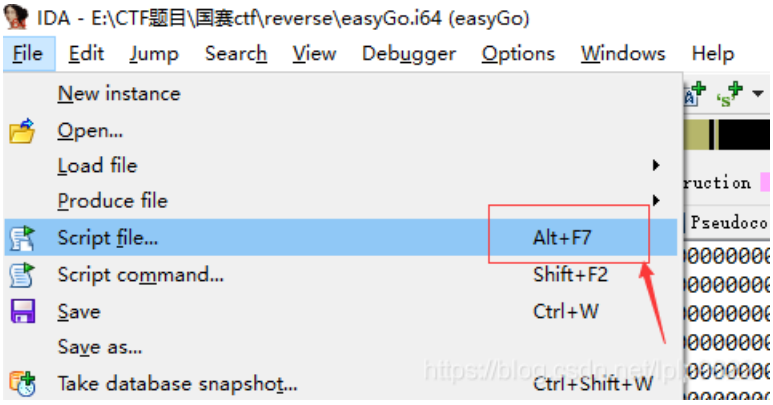
```
root@kali:~/下载# gdb -q easyGo
Reading symbols from easyGo...(no debugging symbols found)...done.
(gdb) b start
No symbol table is loaded.  Use the "file" command.
Make breakpoint pending on future shared library load? (y or [n]) y
Breakpoint 1 (start) pending.
(gdb) file
No executable file now.
No symbol file now.
(gdb) r
Starting program:
No executable file specified.
Use the "file" or "exec-file" command.
(gdb) file easyGo
Reading symbols from easyGo...(no debugging symbols found)...done.
(gdb) q
```


是说因为没有发现调试符号（`debug symbols`），所以就直接完成了。
使用ida打开来看也只是一大堆函数符号，从字符串窗口也得不到任何信息，根据短时间内解出来的队伍数来看，我想这道题的解法应该挺简单的。用OD？行吗？试试。

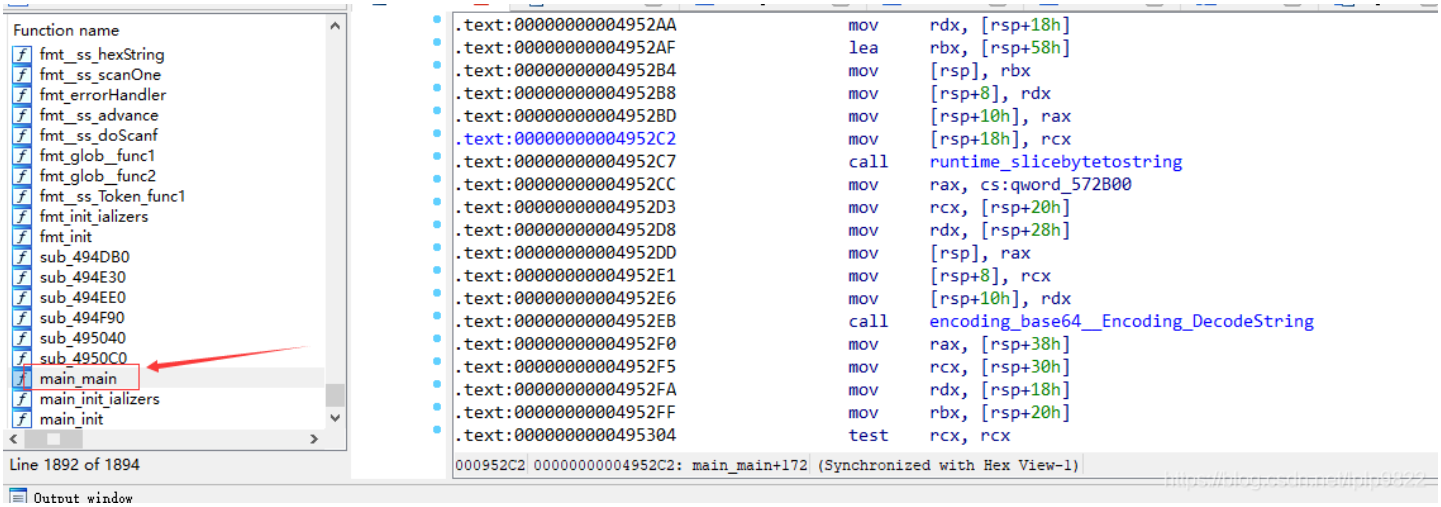
之前写夭折了，菜鸡的成长之路真是曲折！

下面是详细的`writeup`：

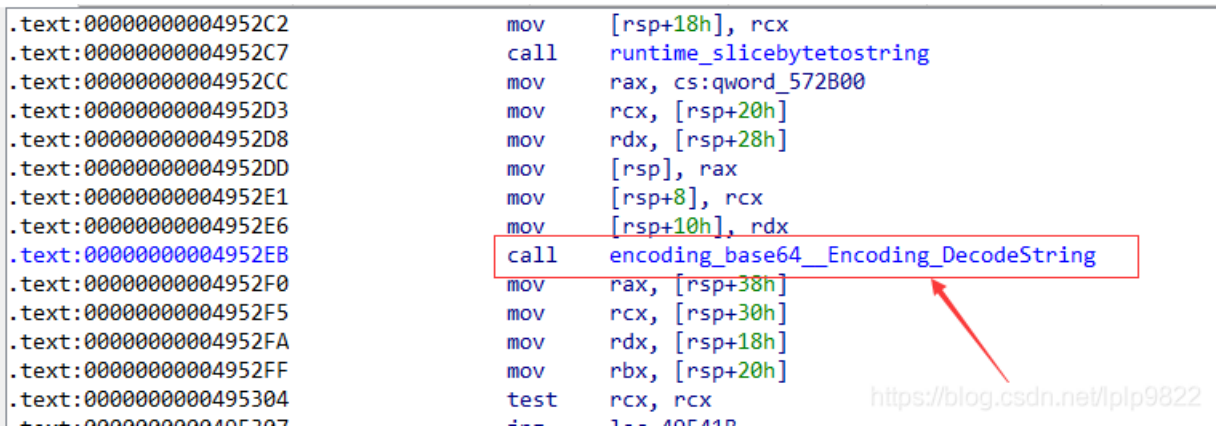
Go语言逆向，去掉了符号，导致很多函数都不能识别出来，然后使用网上的脚本可以对其进行处理，“https://raw.githubusercontent.com/strazzere/golang_loader_assist/master/golang_loader_assist.py”，这里直接在 `ida` 中 `File->Scritpt File(Alt + F7)` 加载该脚本文件就可以识别了：



然后看到的结果是这样的：



`Go` 语言实际的主函数是 `main_main` ,现在我看汇编还是看得挺懂的， `Go` 语言的参数传递也是通过栈的，和一般的64位程序通过寄存器传参是不一样的。
然后发现了这里：



这里是在main函数中，通过调用这个函数解密程序中的真正的flag字符串，解密后就得到了flag。所以使用gdb调试在这里下断点就可以了，不过需要注意要使用单步进入线程，不然可能会一直停在主函数开头。下面是详细的调试过程：

```
root@kali:~/文档# gdb easyGo
GNU gdb (Debian 8.1-4) 8.1
Copyright (C) 2018 Free Software Foundation, Inc.
```

```
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.  Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-linux-gnu".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from easyGo...(no debugging symbols found)...done.
(gdb) b *0x4952eb  //设置断点
Breakpoint 1 at 0x4952eb
(gdb) r //运行
Starting program: /root/文档/easyGo
[New LWP 51769]
[New LWP 51770]
[New LWP 51771]
[New LWP 51772]
Please input you flag like flag{123} to judge:
flag{        //这里随便输入

Thread 1 "easyGo" hit Breakpoint 1, 0x00000000004952eb in ?? ()
(gdb) info reg        //查看寄存器信息
rax            0xc00008a580 824634287488
rbx            0x38 56
rcx            0xc00009c040 824634359872
rdx            0x38 56
rsi            0xc00009c000 824634359808
rdi            0xc00009c040 824634359872
rbp            0xc000086f88 0xc000086f88
rsp            0xc000086e90 0xc000086e90
r8             0x1 1
r9             0x0 0
r10            0xc00009c040 824634359872
r11            0x0 0
r12            0xffffffffffffffff -1
r13            0x2 2
r14            0x1 1
r15            0x80 128
rip            0x4952eb 0x4952eb
eflags         0x206 [ PF IF ]
cs             0x33 51
ss             0x2b 43
ds             0x0 0
es             0x0 0
fs             0x0 0
---Type <return> to continue, or q <return> to quit---
gs             0x0 0
(gdb) ni     //单步步过
0x00000000004952f0 in ?? ()
(gdb) x/1s $rsi               //查看解密后将要对比的真正flag, x/1s 表示显示该地址处的1个字符串（string）
0xc00008c060: "flag{92094daf-33c9-431e-a85a-8bfbd5df98ad}"
(gdb)
```

这样就得到`flag`了，后面的程序逻辑就是将这个flag和你输入的flag对比，如果相等则输出提示`Congratulation...`：

```
.text:0000000000495318                 cmp     [rax+8], rbx
.text:000000000049531C                 jz      short loc_495393 ; 判断成功，跳到Congratulation
.text:000000000049531E
```

```
.text:0000000000495393 loc_495393:                             ; CODE XREF: main_main+1CC↑j
.text:0000000000495393                 mov     [rsp], rdx
.text:0000000000495397                 mov     [rsp+8], rcx
.text:000000000049539C                 mov     [rsp+10h], rbx
.text:00000000004953A1                 call    runtime_memequal
.text:00000000004953A6                 cmp     byte ptr [rsp+18h], 0
.text:00000000004953AB                 jz      loc_49531E
.text:00000000004953B1                 xorps   xmm0, xmm0
.text:00000000004953B4                 movups  [rsp+100h+var_48], xmm0
.text:00000000004953BC                 lea     rax, byte_4A6D00
.text:00000000004953C3                 mov     qword ptr [rsp+100h+var_48], rax
.text:00000000004953CB                 lea     rax, Congratulation
.text:00000000004953D2                 mov     [rsp+0C0h], rax
.text:00000000004953DA                 nop
.text:00000000004953DB                 mov     rax, cs:qword_572B18
.text:00000000004953E2                 lea     rcx, off_4E28A0
.text:00000000004953E9                 mov     [rsp], rcx
.text:00000000004953ED                 mov     [rsp+8], rax
.text:00000000004953F2                 lea     rax, [rsp+0B8h]
.text:00000000004953FA                 mov     [rsp+10h], rax
.text:00000000004953FF                 mov     qword ptr [rsp+18h], 1
.text:0000000000495408                 mov     qword ptr [rsp+20h], 1
.text:0000000000495411                 call    fmt_Fprintln
```