

# Shylock Malware Analysis

# Image Info Result

```
C:\Users\ruben\Documents\Kuliah\Semester 5\Computer Forensic\TOOLS\volatility_2.6_win64_standalone>volatility_2.6_win64_standalone.exe -f shylock.vmem imageinfo
Volatility Foundation Volatility Framework 2.6
INFO      : volatility.debug      : Determining profile based on KDBG search...
           Suggested Profile(s) : WinXPSP2x86, WinXPSP3x86 (Instantiated with WinXPSP2x86)
           AS Layer1             : IA32PagedMemoryPae (Kernel AS)
           AS Layer2             : FileAddressSpace (C:\Users\ruben\Documents\Kuliah\Semester 5\Computer Forensic\TOOLS\volatility_2.6_win64_standalone\shylock.vmem)
           PAE type              : PAE
           DTB                   : 0x319000L
           KDBG                  : 0x80545b60L
           Number of Processors  : 1
           Image Type (Service Pack) : 3
           KPCR for CPU 0       : 0xffdf000L
           KUSER_SHARED_DATA     : 0xffdf000L
           Image date and time   : 2011-09-30 00:26:30 UTC+0000
           Image local date and time : 2011-09-29 20:26:30 -0400
```

Pake windows XP service pack 2 dengan environment x86

# Process list result (pslist)

```
C:\Users\ruben\Documents\Kuliah\Semester 5\Computer Forensic\TOOLS\volatility_2.6_win64_standalone>volatility_2.6_win64_standalone.exe -f shylock.vmem pslist
```

```
Volatility Foundation Volatility Framework 2.6
```

Offset(V)	Name	PID	PPID	Thds	Hnds	Sess	Wow64	Start	Exit
0x819cc830	System	4	0	60	209	-----	0		
0x818efda0	smss.exe	384	4	3	19	-----	0	2011-09-26 01:33:32 UTC+0000	
0x81616ab8	csrss.exe	612	384	12	473	0	0	2011-09-26 01:33:35 UTC+0000	
0x814c9b40	winlogon.exe	636	384	16	498	0	0	2011-09-26 01:33:35 UTC+0000	
0x81794d08	services.exe	680	636	15	271	0	0	2011-09-26 01:33:35 UTC+0000	
0x814a2cd0	lsass.exe	692	636	24	356	0	0	2011-09-26 01:33:35 UTC+0000	
0x815c2630	vmacthlp.exe	852	680	1	25	0	0	2011-09-26 01:33:35 UTC+0000	
0x81470020	svchost.exe	868	680	17	199	0	0	2011-09-26 01:33:35 UTC+0000	
0x818b5248	svchost.exe	944	680	11	274	0	0	2011-09-26 01:33:36 UTC+0000	
0x813a0458	MsMpEng.exe	1040	680	16	322	0	0	2011-09-26 01:33:36 UTC+0000	
0x816b7020	svchost.exe	1076	680	87	1477	0	0	2011-09-26 01:33:36 UTC+0000	
0x817f7548	svchost.exe	1200	680	6	81	0	0	2011-09-26 01:33:37 UTC+0000	
0x8169a1d0	svchost.exe	1336	680	14	172	0	0	2011-09-26 01:33:37 UTC+0000	
0x813685e0	spoolsv.exe	1516	680	14	159	0	0	2011-09-26 01:33:39 UTC+0000	
0x818f5cd0	explorer.exe	1752	1696	32	680	0	0	2011-09-26 01:33:45 UTC+0000	
0x815c9638	svchost.exe	1812	680	4	102	0	0	2011-09-26 01:33:46 UTC+0000	
0x8192d7f0	VMwareTray.exe	1876	1752	3	84	0	0	2011-09-26 01:33:46 UTC+0000	
0x818f6458	VMwareUser.exe	1888	1752	9	245	0	0	2011-09-26 01:33:47 UTC+0000	
0x8164a020	msseces.exe	1900	1752	11	205	0	0	2011-09-26 01:33:47 UTC+0000	
0x81717370	ctfmon.exe	1912	1752	3	93	0	0	2011-09-26 01:33:47 UTC+0000	
0x813a5b28	svchost.exe	2000	680	6	119	0	0	2011-09-26 01:33:47 UTC+0000	
0x81336638	vmtoolsd.exe	200	680	5	234	0	0	2011-09-26 01:33:47 UTC+0000	
0x81329b28	VMUpgradeHelper	424	680	5	100	0	0	2011-09-26 01:33:48 UTC+0000	
0x812d6020	wscntfy.exe	2028	1076	3	63	0	0	2011-09-26 01:33:55 UTC+0000	
0x812c1718	TPAutoConnSvc.e	2068	680	5	99	0	0	2011-09-26 01:33:55 UTC+0000	
0x812b03e0	alg.exe	2272	680	7	112	0	0	2011-09-26 01:33:55 UTC+0000	
0x81324020	TPAutoConnect.e	3372	2068	3	90	0	0	2011-09-26 01:33:59 UTC+0000	
0x814e7b38	msiexec.exe	2396	680	5	127	0	0	2011-09-26 01:34:45 UTC+0000	
0x814db608	cmd.exe	3756	1752	3	56	0	0	2011-09-30 00:20:44 UTC+0000	
0x812f59a8	cmd.exe	3128	200	0	-----	0	0	2011-09-30 00:26:30 UTC+0000	2011-09-30 00:26:30 UTC+0000

# Connscan result

```
C:\Users\ruben\Documents\Kuliah\Semester 5\Computer Forensic\TOOLS\volatility_2.6_win64_standalone>volatility_2.6_win64_standalone.exe -f shylock.vmem connscan
Volatility Foundation Volatility Framework 2.6
Offset(P)  Local Address      Remote Address      Pid
-----
0x014f6ab0 10.0.0.109:1072     209.190.4.84:443    1752
0x01507380 10.0.0.109:1073     209.190.4.84:443    1752
0x016c2b00 10.0.0.109:1065     184.173.252.227:443 1752
0x017028a0 10.0.0.109:1067     184.173.252.227:443 1752
0x01858cb0 10.0.0.109:1068     209.190.4.84:443    1752
```

Dapat dilihat semua percobaan komunikasi dengan IP lain dilakukan oleh process id 1752.

Bila di cek dari hasil sebelumnya process ini bernama explorer.exe

Explorer.exe ini merupakan process yang mengatur GUI windows, seharusnya tidak memerlukan internet dalam prosesnya

```
C:\Users\ruben\Documents\Kuliah\Semester 5\Computer Forensic\TOOLS\volatility_2.6_win64_standalone>volatility_2.6_win64_standalone.exe -f shylock.vmem sockets
```

Volatility Foundation Volatility Framework 2.6

Offset(V)	PID	Port	Proto	Protocol	Address	Create Time
0x812b15d0	4	0	47	GRE	0.0.0.0	2011-09-26 01:33:56 UTC+0000
0x812a8008	4	1030	6	TCP	0.0.0.0	2011-09-26 01:33:56 UTC+0000
0x813a5728	692	500	17	UDP	0.0.0.0	2011-09-26 01:33:47 UTC+0000
0x812a9b60	2272	1028	6	TCP	127.0.0.1	2011-09-26 01:33:56 UTC+0000
0x814c4008	1752	1073	6	TCP	0.0.0.0	2011-09-30 00:25:39 UTC+0000
0x818a3bf8	4	445	6	TCP	0.0.0.0	2011-09-26 01:33:32 UTC+0000
0x8179e730	944	135	6	TCP	0.0.0.0	2011-09-26 01:33:36 UTC+0000
0x812ade38	1076	1076	17	UDP	127.0.0.1	2011-09-30 00:26:30 UTC+0000
0x813a4e98	1752	1070	6	TCP	0.0.0.0	2011-09-30 00:25:34 UTC+0000
0x816711c8	1076	123	17	UDP	127.0.0.1	2011-09-30 00:26:30 UTC+0000
0x816757d0	692	0	255	Reserved	0.0.0.0	2011-09-26 01:33:47 UTC+0000
0x815bb708	1752	1067	6	TCP	0.0.0.0	2011-09-30 00:25:33 UTC+0000
0x812bb008	1336	1900	17	UDP	127.0.0.1	2011-09-30 00:26:30 UTC+0000
0x81904478	692	4500	17	UDP	0.0.0.0	2011-09-26 01:33:47 UTC+0000
0x814c9008	4	445	17	UDP	0.0.0.0	2011-09-26 01:33:32 UTC+0000

```
C:\Users\ruben\Documents\Kulliah\Semester 5\Computer Forensics\TOOLS\volatility_2.6_win64_standalone.exe -f shylock.vmem -p 1752 dlllist
Volatility Foundation Volatility Framework 2.6
*****
explorer.exe pid: 1752
Command line : C:\WINDOWS\Explorer.EXE
Service Pack 3
```

Base	Size	LoadCount	Path
-----	-----	-----	----
0x01000000	0xffff00	0xffff	C:\WINDOWS\Explorer.EXE
0x7c900000	0xb2000	0xffff	C:\WINDOWS\system32\ntdll.dll
0x7c800000	0xf6000	0xffff	C:\WINDOWS\system32\kernel32.dll
0x77dd0000	0x9b000	0xffff	C:\WINDOWS\system32\ADVAPI32.dll
0x77e70000	0x93000	0xffff	C:\WINDOWS\system32\RPCRT4.dll
0x77fe0000	0x11000	0xffff	C:\WINDOWS\system32\Secur32.dll
0x75f80000	0xfd000	0xffff	C:\WINDOWS\system32\BROWSEUI.dll
0x77f10000	0x49000	0xffff	C:\WINDOWS\system32\GDI32.dll
0x7e410000	0x91000	0xffff	C:\WINDOWS\system32\USER32.dll
0x77c10000	0x58000	0xffff	C:\WINDOWS\system32\msvcrt.dll
0x774e0000	0x13e000	0xffff	C:\WINDOWS\system32\ole32.dll
0x77f60000	0x76000	0xffff	C:\WINDOWS\system32\SHLWAPI.dll
0x77120000	0x8b000	0xffff	C:\WINDOWS\system32\OLEAUT32.dll
0x7e290000	0x173000	0xffff	C:\WINDOWS\system32\SHDOCVW.dll
0x77a80000	0x95000	0xffff	C:\WINDOWS\system32\CRYPT32.dll
0x77b20000	0x12000	0xffff	C:\WINDOWS\system32\MSASN1.dll
0x754d0000	0x80000	0xffff	C:\WINDOWS\system32\CRYPTUI.dll
0x5b860000	0x55000	0xffff	C:\WINDOWS\system32\NETAPI32.dll
0x77c00000	0x8000	0xffff	C:\WINDOWS\system32\VERSION.dll
0x3d930000	0xd1000	0xffff	C:\WINDOWS\system32\WININET.dll
0x00400000	0x9000	0xffff	C:\WINDOWS\system32\Normaliz.dll
0x3dfd0000	0x45000	0xffff	C:\WINDOWS\system32\iertutil.dll
0x76c30000	0x2e000	0xffff	C:\WINDOWS\system32\WINTRUST.dll
0x76c90000	0x28000	0xffff	C:\WINDOWS\system32\IMAGEHLP.dll
0x76f60000	0x2c000	0xffff	C:\WINDOWS\system32\WLDAP32.dll

0x7c9c0000	0x817000	0xffff C:\WINDOWS\system32\SHELL32.dll
0x5ad70000	0x38000	0xffff C:\WINDOWS\system32\UxTheme.dll
0x5cb70000	0x26000	0x1 C:\WINDOWS\system32\ShimEng.dll
0x6f880000	0x1ca000	0x1 C:\WINDOWS\AppPatch\AcGenral.DLL
0x76b40000	0x2d000	0x7 C:\WINDOWS\system32\WINMM.dll
0x77be0000	0x15000	0x1 C:\WINDOWS\system32\MSACM32.dll
0x769c0000	0xb4000	0x1c C:\WINDOWS\system32\USERENV.dll
0x76390000	0x1d000	0x5 C:\WINDOWS\system32\IMM32.DLL
0x773d0000	0x103000	0x22 C:\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.2600.6028_x-ww_61e65202\comctl32.dll
0x5d090000	0x9a000	0x6 C:\WINDOWS\system32\comctl32.dll
0x755c0000	0x2e000	0x2 C:\WINDOWS\system32\msctfime
0x77b40000	0x22000	0x4 C:\WINDOWS\system32\appHelp.dll
0x76fd0000	0x7f000	0x2 C:\WINDOWS\system32\CLBCATQ.DLL
0x77050000	0xc5000	0x2 C:\WINDOWS\system32\COMRes.dll
0x10000000	0x17000	0x4 C:\Documents and Settings\Administrator\Application Data\Dropbox\bin\DropboxExt.13.dll
0x59a60000	0xa1000	0x4 C:\WINDOWS\system32\dbghelp.dll
0x7c3a0000	0x7b000	0x4 C:\Documents and Settings\Administrator\Application Data\Dropbox\bin\MSVCP71.dll
0x7c340000	0x56000	0x8 C:\Documents and Settings\Administrator\Application Data\Dropbox\bin\MSVCR71.dll
0x77a20000	0x54000	0x2 C:\WINDOWS\System32\cscui.dll
0x76600000	0x1d000	0x2 C:\WINDOWS\System32\CSCDLL.dll
0x5ba60000	0x71000	0x1 C:\WINDOWS\system32\themeui.dll
0x76380000	0x5000	0x2 C:\WINDOWS\system32\MSIMG32.dll
0x01210000	0x2c5000	0xb C:\WINDOWS\system32\xpsp2res.dll
0x71d40000	0x1b000	0x1 C:\WINDOWS\system32\actxprxy.dll
0x5fc10000	0x33000	0x1 C:\WINDOWS\system32\msutb.dll
0x74720000	0x4c000	0x3 C:\WINDOWS\system32\MSCTF.dll
0x78130000	0x128000	0x3 C:\WINDOWS\system32\urlmon.dll
0x3e1c0000	0x5cf000	0x3 C:\WINDOWS\system32\ieframe.dll
0x76bf0000	0xb000	0x10 C:\WINDOWS\system32\PSAPI.DLL
0x76980000	0x8000	0x1 C:\WINDOWS\system32\LINKINFO.dll
0x76990000	0x25000	0x2 C:\WINDOWS\system32\ntshrui.dll
0x76b20000	0x11000	0x7 C:\WINDOWS\system32\ATL.DLL
0x75cf0000	0x91000	0x2 C:\WINDOWS\system32\MLANG.dll
0x76360000	0x10000	0x7 C:\WINDOWS\system32\WINSTA.dll
0x42e40000	0x3c000	0x1 C:\WINDOWS\system32\webcheck.dll

0x76280000	0x21000	0x2 C:\WINDOWS\system32\stobject.dll
0x74af0000	0xa000	0x2 C:\WINDOWS\system32\BatMeter.dll
0x74ad0000	0x8000	0x4 C:\WINDOWS\system32\POWRPROF.dll
0x77920000	0xf3000	0x8 C:\WINDOWS\system32\SETUPAPI.dll
0x76f50000	0x8000	0x6 C:\WINDOWS\system32\WTSAPI32.dll
0x76400000	0x1a5000	0x4 C:\WINDOWS\system32\NETSHELL.dll
0x76c00000	0x2e000	0x4 C:\WINDOWS\system32\credui.dll
0x478c0000	0xa000	0x8 C:\WINDOWS\system32\dot3api.dll
0x76e80000	0xe000	0x17 C:\WINDOWS\system32\rtutils.dll
0x736d0000	0x6000	0x4 C:\WINDOWS\system32\dot3dlg.dll
0x5dca0000	0x28000	0x4 C:\WINDOWS\system32\OneX.DLL
0x745b0000	0x22000	0x4 C:\WINDOWS\system32\eapcfg.dll
0x76080000	0x65000	0x9 C:\WINDOWS\system32\MSVCP60.dll
0x5dcd0000	0xe000	0x4 C:\WINDOWS\system32\eapprxy.dll
0x76d60000	0x19000	0x6 C:\WINDOWS\system32\iphlpapi.dll
0x71ab0000	0x17000	0x26 C:\WINDOWS\system32\WS2_32.dll
0x71aa0000	0x8000	0x25 C:\WINDOWS\system32\WS2HELP.dll
0x73380000	0x57000	0x1 C:\WINDOWS\system32\zipfldr.dll
0x77690000	0x21000	0x1 C:\WINDOWS\system32\NTMARTA.DLL
0x71bf0000	0x13000	0x3 C:\WINDOWS\system32\SAMLIB.dll
0x763b0000	0x49000	0x1 C:\WINDOWS\system32\comdlg32.dll
0x5f800000	0x11000	0x1 c:\PROGRA~1\MICROS~2\MpOAv.dll
0x71600000	0x12000	0x1 C:\WINDOWS\system32\browseic.dll
0x71b20000	0x12000	0x1 C:\WINDOWS\system32\MPR.dll
0x01720000	0xd000	0x1 C:\WINDOWS\System32\vmhgs.dll
0x75f60000	0x7000	0x1 C:\WINDOWS\System32\drprov.dll
0x71c10000	0xe000	0x1 C:\WINDOWS\System32\ntlanman.dll
0x71cd0000	0x17000	0x2 C:\WINDOWS\System32\NETUI0.dll
0x71c90000	0x40000	0x1 C:\WINDOWS\System32\NETUI1.dll
0x71c80000	0x7000	0x1 C:\WINDOWS\System32\NETRAP.dll
0x75f70000	0xa000	0x1 C:\WINDOWS\System32\davclnt.dll
0x5df10000	0x60000	0x1 C:\WINDOWS\system32\wzcdlg.dll
0x4d4f0000	0x59000	0xd C:\WINDOWS\system32\WINHTTP.dll
0x73030000	0x10000	0x2 C:\WINDOWS\system32\WZCSAPI.DLL
0x755f0000	0x9a000	0x1 C:\WINDOWS\system32\netcfgx.dll
0x76d10000	0x12000	0x1 C:\WINDOWS\system32\CLUSAPI.dll
0x76f20000	0x27000	0x3 C:\WINDOWS\system32\DNSAPI.dll



0x662b0000	0x58000	0x2 C:\WINDOWS\system32\hnetcfg.dll
0x74ef0000	0x8000	0x1 C:\WINDOWS\system32\wbem\wbemprox.dll
0x75290000	0x37000	0x2 C:\WINDOWS\system32\wbem\wbemcomn.dll
0x74ed0000	0xe000	0x1 C:\WINDOWS\system32\wbem\wbemsvc.dll
0x75690000	0x76000	0x1 C:\WINDOWS\system32\wbem\fastprox.dll
0x767a0000	0x13000	0x1 C:\WINDOWS\system32\NTDSAPI.dll
0x68000000	0x36000	0x1 C:\WINDOWS\system32\rsaenh.dll
0x76ee0000	0x3c000	0x3 C:\WINDOWS\system32\RASAPI32.dll
0x76e90000	0x12000	0x4 C:\WINDOWS\system32\rasman.dll
0x76eb0000	0x2f000	0x3 C:\WINDOWS\system32\TAPI32.dll
0x722b0000	0x5000	0xc C:\WINDOWS\system32\sensapi.dll
0x767f0000	0x28000	0x8 C:\WINDOWS\system32\schannel.dll
0x77c70000	0x25000	0x1 C:\WINDOWS\system32\msv1_0.dll
0x76790000	0xc000	0x1 C:\WINDOWS\system32\cryptdll.dll
0x71a50000	0x3f000	0x5 C:\WINDOWS\System32\mswsock.dll
0x76fc0000	0x6000	0x1 C:\WINDOWS\system32\rasadhlp.dll
0x71a90000	0x8000	0x1 C:\WINDOWS\System32\wshtcpip.dll
0x68100000	0x26000	0x1 C:\WINDOWS\system32\dssenh.dll
0x75e60000	0x13000	0xb C:\WINDOWS\system32\cryptnet.dll
0x75150000	0x13000	0x1 C:\WINDOWS\system32\Cabinet.dll

Process: explorer.exe Pid: 1752 Address: 0x3380000

Vad Tag: VadS Protection: PAGE\_EXECUTE\_READWRITE

Flags: CommitCharge: 151, MemCommit: 1, PrivateMemory: 1, Protection: 6

```
0x03380000 4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00 MZ.....
0x03380010 b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 .....@.....
0x03380020 00 00 00 00 00 00 00 00 00 00 00 00 e4 02 00 20 .....
0x03380030 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 .....

```

```
0x03380000 4d      DEC EBP
0x03380001 5a      POP EDX
0x03380002 90      NOP
0x03380003 0003     ADD [EBX], AL
0x03380005 0000     ADD [EAX], AL
0x03380007 000400   ADD [EAX+EAX], AL
0x0338000a 0000     ADD [EAX], AL
0x0338000c ff      DB 0xff
0x0338000d ff00   INC DWORD [EAX]
0x0338000f 00b800000000 ADD [EAX+0x0], BH
0x03380015 0000     ADD [EAX], AL
0x03380017 004000   ADD [EAX+0x0], AL
0x0338001a 0000     ADD [EAX], AL
0x0338001c 0000     ADD [EAX], AL
0x0338001e 0000     ADD [EAX], AL
0x03380020 0000     ADD [EAX], AL
0x03380022 0000     ADD [EAX], AL
0x03380024 0000     ADD [EAX], AL
0x03380026 0000     ADD [EAX], AL
0x03380028 0000     ADD [EAX], AL
0x0338002a e402     IN AL, 0x2
0x0338002c 0020     ADD [EAX], AH
0x0338002e 0900     OR [EAX], EAX
0x03380030 0000     ADD [EAX], AL
0x03380032 0000     ADD [EAX], AL
0x03380034 0000     ADD [EAX], AL
0x03380036 0000     ADD [EAX], AL
0x03380038 0000     ADD [EAX], AL
0x0338003a 0000     ADD [EAX], AL
0x0338003c 0001     ADD [ECX], AL
0x0338003e 0000     ADD [EAX], AL

```

Process: explorer.exe Pid: 1752 Address: 0x36e0000  
Vad Tag: VadS Protection: PAGE\_EXECUTE\_READWRITE  
Flags: CommitCharge: 151, MemCommit: 1, PrivateMemory: 1, Protection: 6

```
0x036e0000 4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00 MZ.....
0x036e0010 b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 .....@.....
0x036e0020 00 00 00 00 00 00 00 00 00 00 56 03 00 20 09 00 .....V.....
0x036e0030 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 .....
```

```
0x036e0000 4d          DEC EBP
0x036e0001 5a          POP EDX
0x036e0002 90          NOP
0x036e0003 0003        ADD [EBX], AL
0x036e0005 0000        ADD [EAX], AL
0x036e0007 000400      ADD [EAX+EAX], AL
0x036e000a 0000        ADD [EAX], AL
0x036e000c ff         DB 0xff
0x036e000d ff00      INC DWORD [EAX]
0x036e000f 00b800000000 ADD [EAX+0x0], BH
0x036e0015 0000        ADD [EAX], AL
0x036e0017 004000      ADD [EAX+0x0], AL
0x036e001a 0000        ADD [EAX], AL
0x036e001c 0000        ADD [EAX], AL
0x036e001e 0000        ADD [EAX], AL
0x036e0020 0000        ADD [EAX], AL
0x036e0022 0000        ADD [EAX], AL
0x036e0024 0000        ADD [EAX], AL
0x036e0026 0000        ADD [EAX], AL
0x036e0028 0000        ADD [EAX], AL
0x036e002a 56         PUSH ESI
0x036e002b 0300        ADD EAX, [EAX]
0x036e002d 2009        AND [ECX], CL
0x036e002f 0000        ADD [EAX], AL
0x036e0031 0000        ADD [EAX], AL
0x036e0033 0000        ADD [EAX], AL
0x036e0035 0000        ADD [EAX], AL
0x036e0037 0000        ADD [EAX], AL
0x036e0039 0000        ADD [EAX], AL
0x036e003b 0000        ADD [EAX], AL
0x036e003d 0100        ADD [EAX], EAX
0x036e003f 00         DB 0x0
```

## Volatility Foundation Volatility Framework 2.6

Process: explorer.exe Pid: 1752 Address: 0x3380000

Vad Tag: VadS Protection: PAGE\_EXECUTE\_READWRITE

Flags: CommitCharge: 151, MemCommit: 1, PrivateMemory: 1, Protection: 6

```
0x03380000 4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00 MZ.....
0x03380010 b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 .....@.....
0x03380020 00 00 00 00 00 00 00 00 00 00 00 e4 02 00 20 09 00 .....
0x03380030 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 .....

```

```
0x03380000 4d      DEC EBP
0x03380001 5a      POP EDX
0x03380002 90      NOP
0x03380003 0003     ADD [EBX], AL
0x03380005 0000     ADD [EAX], AL
0x03380007 000400   ADD [EAX+EAX], AL
0x0338000a 0000     ADD [EAX], AL
0x0338000c ff      DB 0xff
0x0338000d ff00   INC DWORD [EAX]
0x0338000f 00b800000000 ADD [EAX+0x0], BH
0x03380015 0000     ADD [EAX], AL
0x03380017 004000   ADD [EAX+0x0], AL
0x0338001a 0000     ADD [EAX], AL
0x0338001c 0000     ADD [EAX], AL
0x0338001e 0000     ADD [EAX], AL
0x03380020 0000     ADD [EAX], AL
0x03380022 0000     ADD [EAX], AL
0x03380024 0000     ADD [EAX], AL
0x03380026 0000     ADD [EAX], AL
0x03380028 0000     ADD [EAX], AL
0x0338002a e402     IN AL, 0x2
0x0338002c 0020     ADD [EAX], AH
0x0338002e 0900     OR [EAX], EAX
0x03380030 0000     ADD [EAX], AL
0x03380032 0000     ADD [EAX], AL
0x03380034 0000     ADD [EAX], AL
0x03380036 0000     ADD [EAX], AL
0x03380038 0000     ADD [EAX], AL
0x0338003a 0000     ADD [EAX], AL
0x0338003c 0001     ADD [ECX], AL
0x0338003e 0000     ADD [EAX], AL

```

Process: explorer.exe Pid: 1752 Address: 0x36e0000

Vad Tag: VadS Protection: PAGE\_EXECUTE\_READWRITE

Flags: CommitCharge: 151, MemCommit: 1, PrivateMemory: 1, Protection: 6

```
0x036e0000  4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00  MZ.....
0x036e0010  b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00  .....@.....
0x036e0020  00 00 00 00 00 00 00 00 00 00 56 03 00 20 09 00  .....V.....
0x036e0030  00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 00  .....
```

```
0x036e0000  4d          DEC EBP
0x036e0001  5a          POP EDX
0x036e0002  90          NOP
0x036e0003  0003        ADD [EBX], AL
0x036e0005  0000        ADD [EAX], AL
0x036e0007  000400      ADD [EAX+EAX], AL
0x036e000a  0000        ADD [EAX], AL
0x036e000c  ff          DB 0xff
0x036e000d  ff00        INC DWORD [EAX]
0x036e000f  00b800000000 ADD [EAX+0x0], BH
0x036e0015  0000        ADD [EAX], AL
0x036e0017  004000      ADD [EAX+0x0], AL
0x036e001a  0000        ADD [EAX], AL
0x036e001c  0000        ADD [EAX], AL
0x036e001e  0000        ADD [EAX], AL
0x036e0020  0000        ADD [EAX], AL
0x036e0022  0000        ADD [EAX], AL
0x036e0024  0000        ADD [EAX], AL
0x036e0026  0000        ADD [EAX], AL
0x036e0028  0000        ADD [EAX], AL
0x036e002a  56          PUSH ESI
0x036e002b  0300        ADD EAX, [EAX]
0x036e002d  2009        AND [ECX], CL
0x036e002f  0000        ADD [EAX], AL
0x036e0031  0000        ADD [EAX], AL
0x036e0033  0000        ADD [EAX], AL
0x036e0035  0000        ADD [EAX], AL
0x036e0037  0000        ADD [EAX], AL
0x036e0039  0000        ADD [EAX], AL
0x036e003b  0000        ADD [EAX], AL
0x036e003d  0100        ADD [EAX], EAX
0x036e003f  00          DB 0x0
```