

What is FTK Imager?

FTK Imager is a powerful digital forensics tool developed by **Exterro (formerly AccessData)**. It is widely used by investigators to:

□ Key Functions:

- **Create forensic disk images** (bit-by-bit copies of hard drives, USBs, etc.)
- **Preview data without altering it** (read-only mode)
- **Recover deleted files**
- **Export files/folders**
- **Verify image integrity** using hash functions (MD5, SHA1)

It supports multiple image formats like **E01**, **Raw (dd)**, and **AFF**, making it suitable for professional investigations and academic training.

What I've Accomplished Using FTK Imager

1. Disk Imaging (Evidence Acquisition)

I successfully:

- Ran **FTK Imager as administrator**
- Selected a **Logical Drive (your USB)** for faster imaging
- Chose the **Raw (.dd) image format** for simplicity
- Saved the image to a separate drive (as required)
- Completed the imaging process and created:
 - A .dd image file
 - Logs with metadata and hash values (optional).

Extorero FTK Imager 4.7.3.81

File View Mode Help

Evidence Tree

- usb.E01.001
 - Partition 3 [0MB]
 - Unrecognized file system [1451335MB]
 - Partition 4 [451335MB]
 - Partition 1 [211362MB]
 - Partition 2 [953837MB]
 - Unpartitioned Space [basic data]
 - SSD [FAT32]
 - [root]
 - java
 - IB
 - linux
 - Alarms
 - Android
 - Audiobooks
 - DCIM
 - Documents
 - Download

File List

| Name | Size | Type | Date Modified |
|-------------------------------|--------------|--------------|------------------|
| usb_image.E01.E01 | 1,572.68... | Regular F... | 24-06-2025 01... |
| usb_image.E01.E01.FileSlack | 14,584 (1... | File Slack | |
| usb_image.E01.E01.btt | 1,278 (2 ... | Regular F... | 24-06-2025 01... |
| usb_image.E01.E01.btt.File... | 15,106 (1... | File Slack | |
| usb_image.E01.E02 | 1,572.81... | Regular F... | 24-06-2025 01... |
| usb_image.E01.E02.FileSlack | 4,178 (5 ... | File Slack | |
| usb_image.E01.E03 | 1,572.80... | Regular F... | 24-06-2025 01... |
| usb_image.E01.E03.FileSlack | 11,203 (1... | File Slack | |

Custom Content Sources

Evidence:File System[Path]... Options

Properties [Hex Value... Custom C...

Cursor pos = 0; chus = 1959; log sec = 95392

Listed: 13 Selected: 0 usb.E01.001/SSD [FAT32]/[root]/Alarms

ftktest

This PC > Local Disk (D:) > ftktest

usb.E01.001

Type: WinRAR archive

usb.E01.001.btt

Type: 002 File

usb.E01.002

Type: 003 File

usb.E01.003

Type: 004 File

usb.E01.004

Type: 005 File

usb.E01.005

Type: 006 File

usb.E01.006

Type: 007 File

usb.E01.007

Type: 008 File

usb.E01.008

Type: 009 File

usb.E01.009

usb.E01.010

21 items | 1 item selected 1.68 KB

File Edit View

Created by Extorero FTK Imager 4.7.3.81

Case Information:

- Acquired using: AD14.7.3.81
- Case Number: 81
- Evidence Number: 1
- Unique description: test
- Examiner: SAN
- Notes: -

Information for DiVtktestusb.E01:

Physical Evidentiary Item (Source) Information:

- [Device Info]
- Source Type: Logical
- [Drive Geometry]
- Bytes per Sector: 512
- Sector Count: 58,626,948
- [Physical Drive Information]
- Removable drive: True
- Source data size: 28626 MB
- Sector count: 58626948
- [Computed Hashes]
- MD5 checksum: aec973d156dcab080b0f687ba4dfd2
- SHA1 checksum: c30de9b9478c3d0ff6d81d6ef72421b3dc9d9a

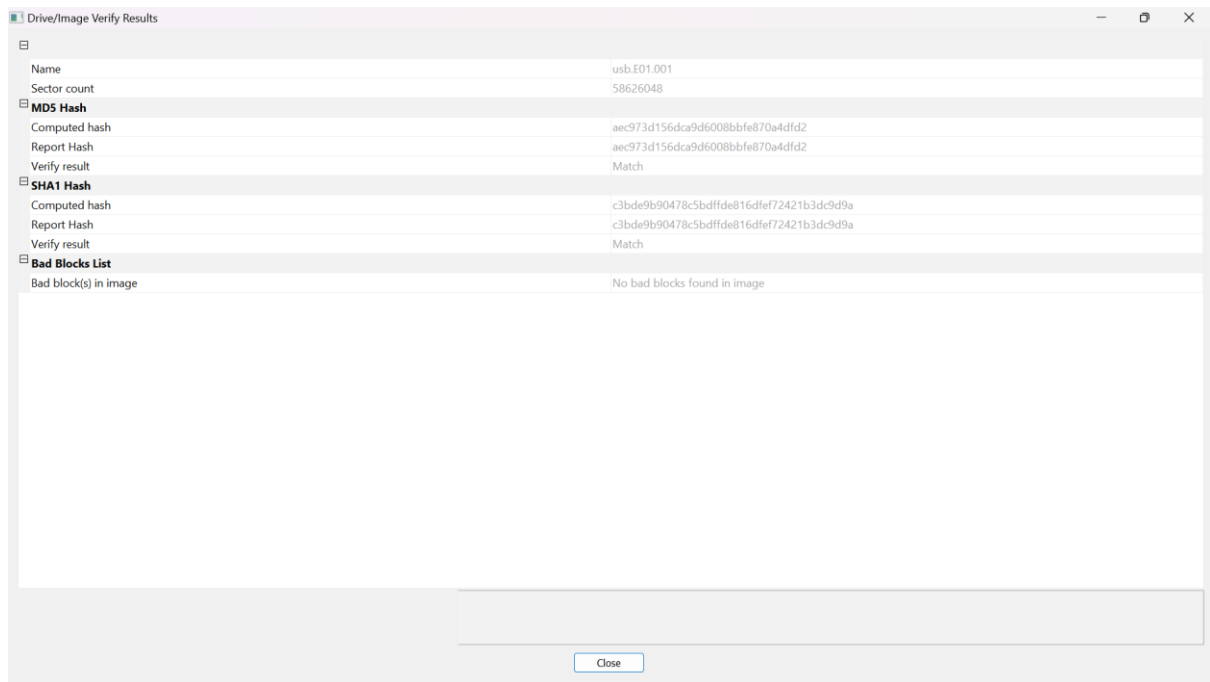
Image Information:

- Acquisition started: Tue Jun 24 02:23:36 2025
- Acquisition finished: Tue Jun 24 02:37:34 2025
- Segment list:
- DiVtktestusb.E01.001
- DiVtktestusb.E01.002
- DiVtktestusb.E01.003
- DiVtktestusb.E01.004
- DiVtktestusb.E01.005
- DiVtktestusb.E01.006
- DiVtktestusb.E01.007
- DiVtktestusb.E01.008
- DiVtktestusb.E01.009
- DiVtktestusb.E01.010
- DiVtktestusb.E01.011
- DiVtktestusb.E01.012
- DiVtktestusb.E01.013
- DiVtktestusb.E01.014
- DiVtktestusb.E01.015
- DiVtktestusb.E01.016
- DiVtktestusb.E01.017
- DiVtktestusb.E01.018
- DiVtktestusb.E01.019
- DiVtktestusb.E01.020

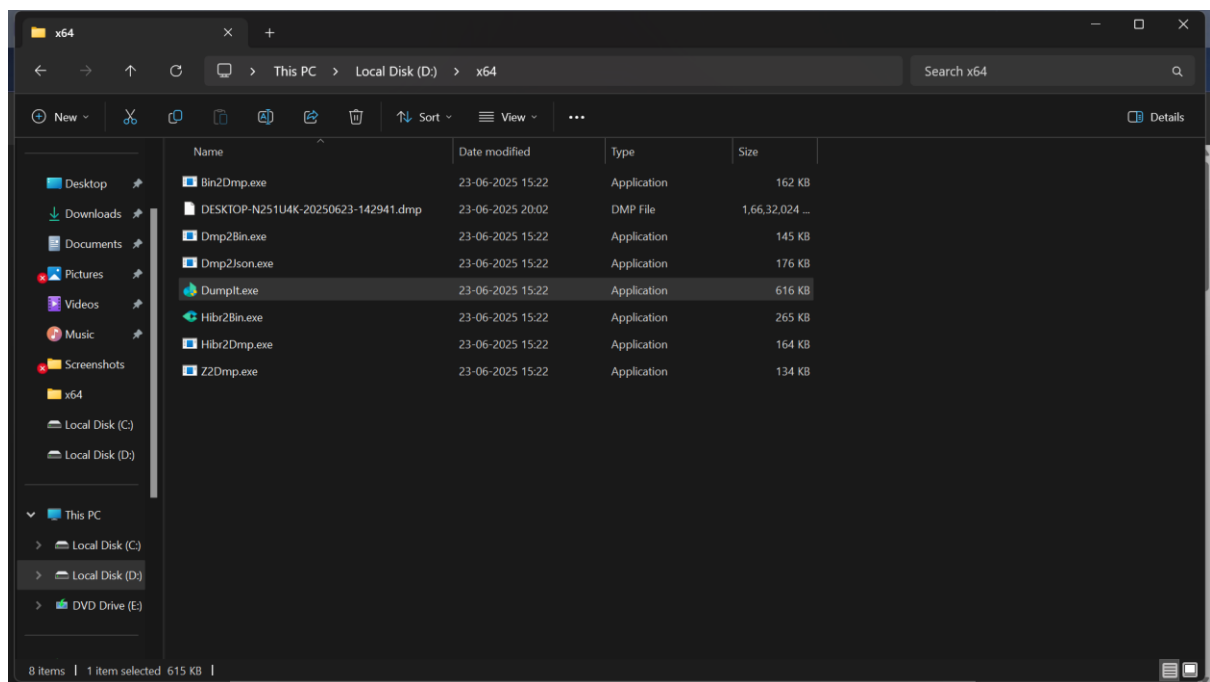
Image Verification Results:

- Verification started: Tue Jun 24 02:37:34 2025
- Verification finished: Tue Jun 24 02:39:46 2025
- MD5 checksum: aec973d156dcab080b0f687ba4dfd2 : verified
- SHA1 checksum: c30de9b9478c3d0ff6d81d6ef72421b3dc9d9a : verified

Ln 1, Col 1 1,662 characters 60% Windows (CR/LF) UTF-8 with BOM



Capture RAM with DumpIt.



```
D:\x64\DumpIt.exe
All rights reserved.

Thanks for using DumpIt! Always use Microsoft crash dumps!

Destination path:      \??\D:\x64\DESKTOP-N251U4K-20250623-142941.dmp
Computer name:         DESKTOP-N251U4K

--> Proceed with the acquisition ? [y/n] y

[+] Information:
Dump Type:             Microsoft Crash Dump

[+] Machine Information:
Windows version:       10.0.22631
MachineId:             4C4C4544-0048-5210-8058-B7C04F305832
TimeStamp:            133951625842056769
Cr3:                   0x1ae002
KdCopyDataBlock:      0xffffffff80779567160
KdDebuggerData:       0xffffffff80779c021a0
KdpDataBlockEncoded:  0xffffffff80779d18300

Current date/time:     [2025-06-23 (YYYY-MM-DD) 14:29:44 (UTC)]
+ Processing... Done.

Acquisition finished at: [2025-06-23 (YYYY-MM-DD) 14:32:37 (UTC)]
Time elapsed:         2:53 minutes:seconds (173 secs)

Created file size:     17031192576 bytes (16242 Mb)
Total physical memory size: 16242 Mb

NtStatus (troubleshooting): 0x00000000
Total of written pages: 4158004
Total of inaccessible pages: 0
Total of accessible pages: 4158004

SHA-256: 68B93518B281D820D2AB2C677D170488D1970887EA2C9B080C2A5A67920473C9

JSON path:             D:\x64\DESKTOP-N251U4K-20250623-142941.json
```

What is Malware Analysis?

Malware analysis is the process of studying **malicious software** to understand its origin, functionality, and impact. The goal is to detect, contain, and neutralize threats posed by malware. Analysts use various techniques to reverse-engineer malware samples, monitor their behavior, and develop countermeasures. This field is crucial in **cybersecurity**, digital forensics, and incident response.

Malware Analysis Lab Setup (Windows 10 - VirtualBox)

To perform malware analysis safely and effectively, I set up a **fully isolated lab environment** using the following:

Virtualization Platform

- **Oracle VirtualBox** was used to create and manage virtual machines.
- I created a **Windows 10 VM** dedicated to malware testing.
- Network was configured to **Host-Only** or **Internal Network** to prevent malware from reaching the internet or host system.

Security Precautions

- **Snapshots** were taken before analysis to easily revert the VM.
- VM features like **drag-and-drop** and **shared folders** were disabled to prevent malware escape.
- Internet access was limited and monitored using **FakeNet-NG**.

FLARE VM – Malware Analysis Toolkit

I installed **FLARE VM (FireEye Labs Advanced Reverse Engineering VM)** — a specialized Windows-based platform for malware analysis. It includes:

- **Static Analysis Tools:** PEStudio, Detect It Easy, Resource Hacker
- **Dynamic Analysis Tools:** Process Hacker, Wireshark, Procmon, FakeNet-NG
- **Reverse Engineering Tools:** IDA Free, x64dbg, .NET Reflector
- **Automation & Forensics:** Volatility, Autoruns, Strings

Installation was done using a PowerShell script (install.ps1) from the [FLARE VM GitHub repo](#). The setup required around **60 GB of disk space** and several hours of tool installation.

Static malware analysis steps

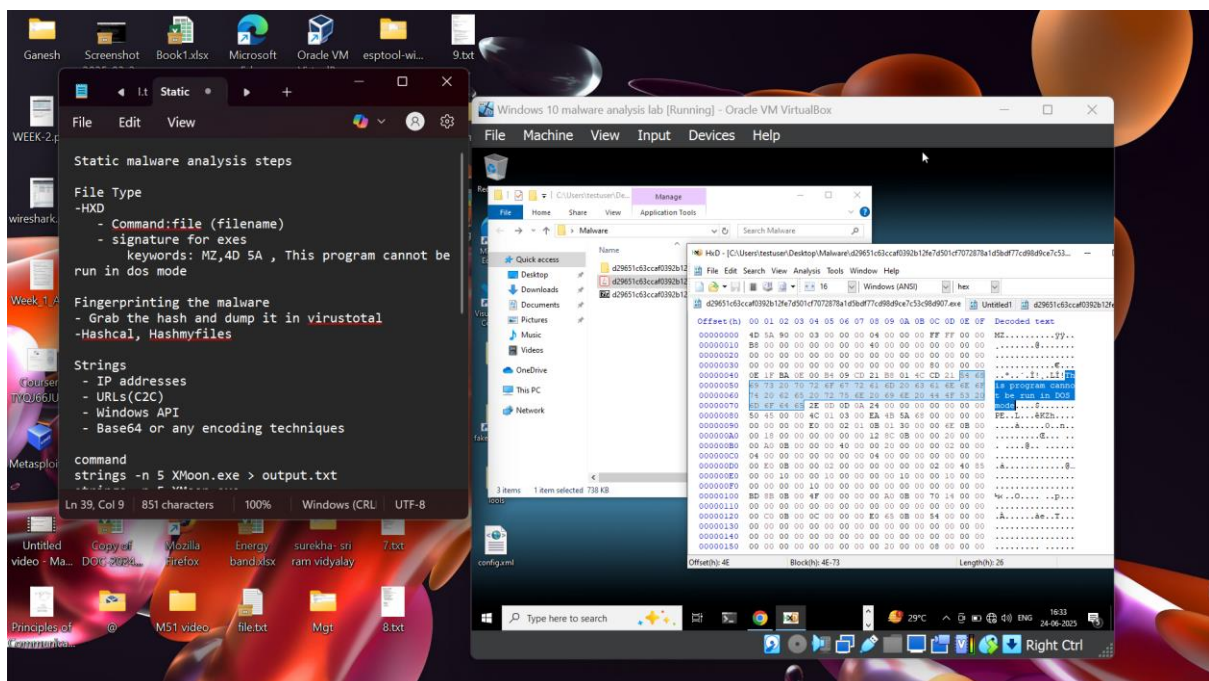
File Type

-HXD

- Command:file (filename)

- signature for exes

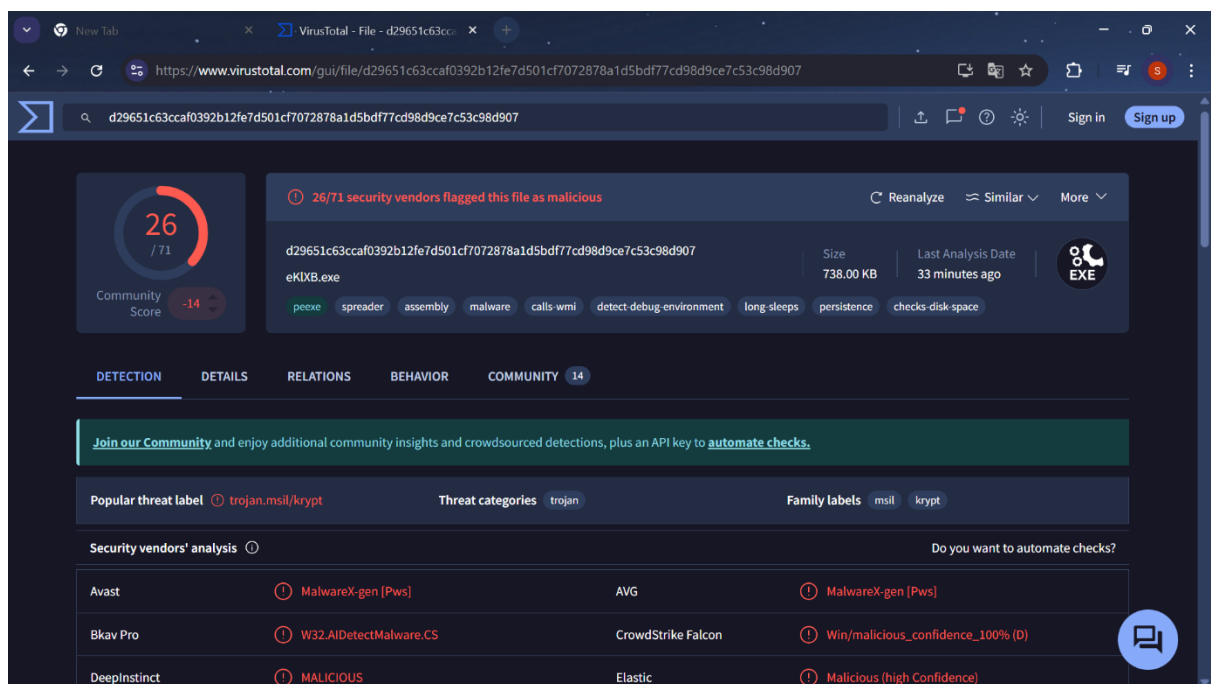
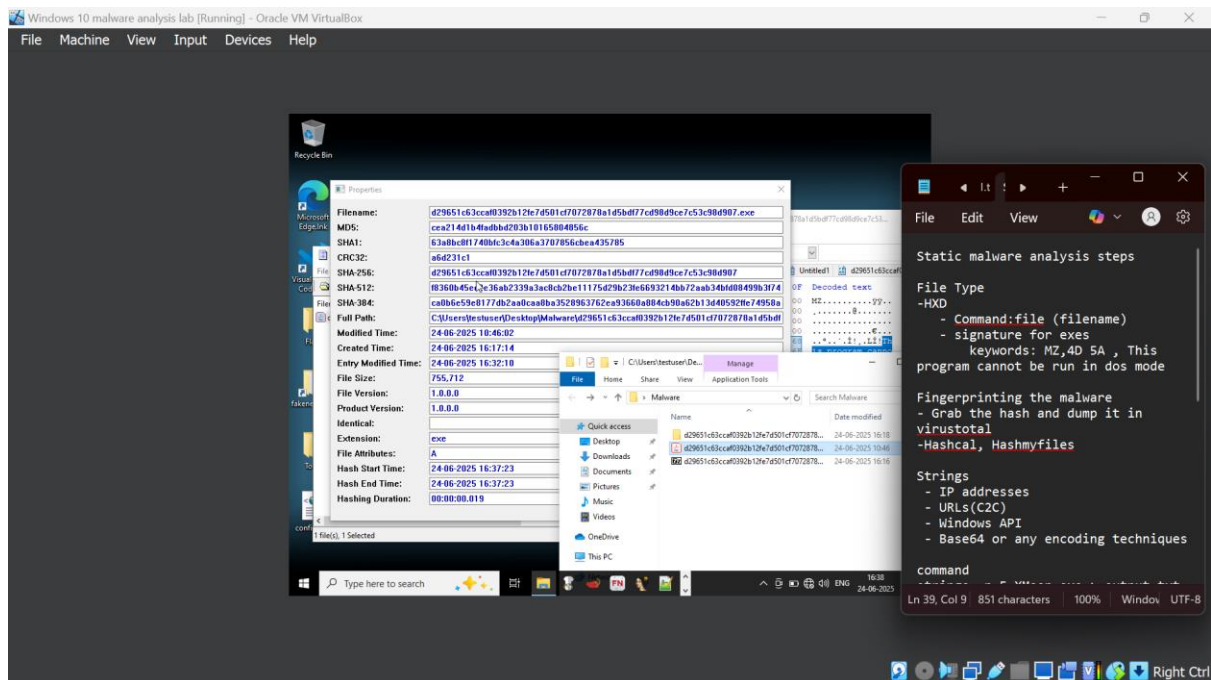
keywords: MZ,4D 5A , This program cannot be run in dos mode



Fingerprinting the malware

- Grab the hash and dump it in virustotal

-Hashcal, Hashmyfiles



Strings

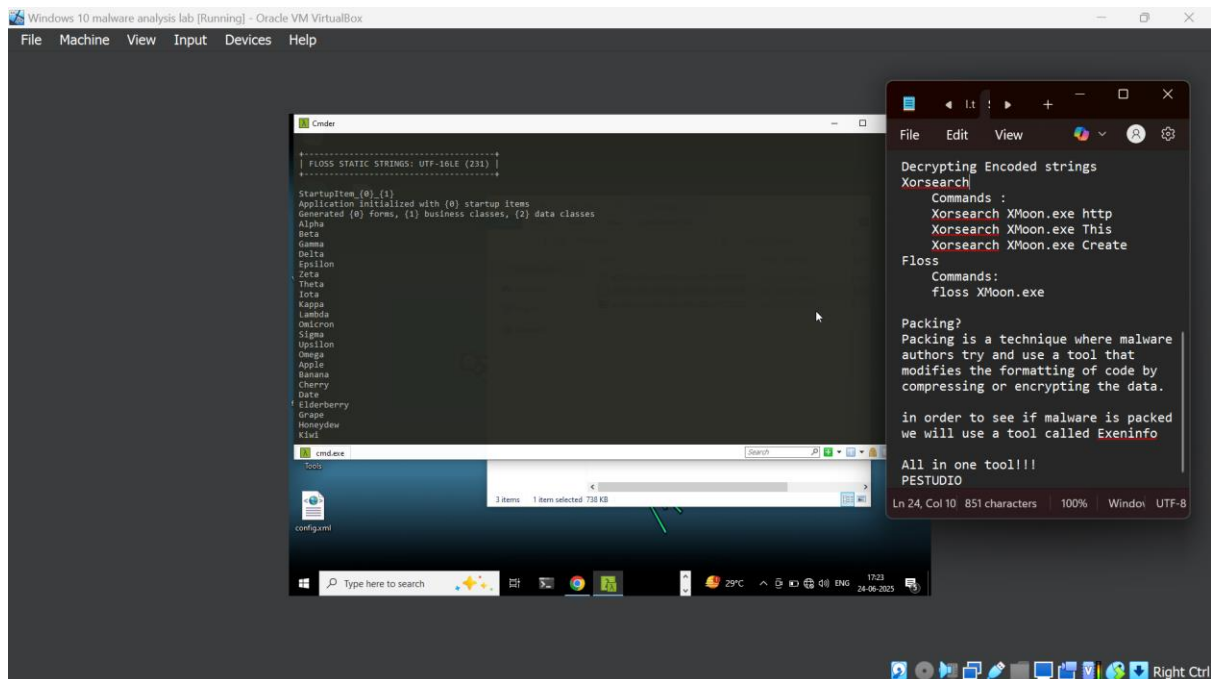
- IP addresses
- URLs(C2C)
- Windows API

Packing is a technique where malware authors try and use a tool that modifies the formatting of code by compressing or encrypting the data.

in order to see if malware is packed we will use a tool called Exeninfo

All in one tool!!!

PESTUDIO



Dynamic Malware Analysis:

4 Things to look for:

-Process Hacker

-Procmon

Network Activity : Look for C2 servers because malware steals data and sends it to the malware author

-Wireshark(Fliter or smtp, http, DNS)

Registry Activities(Persistence)

-Regshot:(Keys added, values added, values modified, files added)

-procmon

keys to look for when it comes to startup

HKCU\Software\Microsoft\Windows\CurrentVersion\Run

HKCU\Software\Microsoft\Windows\CurrentVersion\RunOnce

HKLM\Software\Microsoft\Windows\CurrentVersion\Run

HKLM\Software\Microsoft\Windows\CurrentVersion\RunOnce

File Activities (Persistence)

-regshot

- "C:\Users\Username\AppData\Roaming\"

Windows+R

%temp%

shell:startup

shell:common startup

