Analysis

Of Virus File

Virus Analysis Report

Report On file calc.exe & sys-logs.dll

Date: 2022/03/26

Time: 10:12 am

CHARCHIT SUBEDI

CONTENT **PAGE NO.**

INTRODUCTION TO COMPUTER VIRUS

A computer virus is a type of computer program that, when executed, replicates itself by modifying other computer programs and inserting its own code. If this replication succeeds, the affected areas are said to be "infected" with a computer virus.

Computer viruses generally require a host program. The virus writes its own code into the host program. When the program runs, the written virus program is executed first, causing infection and damage. A computer worm does not need a host program, as it is an independent program or code chunk. Therefore, it is not restricted by the host program, but can run independently and actively carry out attacks.

Virus writers use social engineering deceptions and exploit detailed knowledge of security vulnerabilities to initially infect systems and to spread the virus. The vast majority of viruses target systems running Microsoft Windows, employing a variety of mechanisms to infect new hosts, and often using complex anti-detection/stealth strategies to evade antivirus software. Motives for creating viruses can include seeking profit (e.g., with ransomware), desire to send a political message, personal amusement, to demonstrate that a vulnerability exists in software, for damage and denial of service, or simply because they wish to explore cybersecurity issues, artificial life and evolutionary algorithms.

Computer viruses cause billions of dollars' worth of economic damage each year.

In response, an industry of antivirus software has cropped up, selling or freely distributing virus protection to users of various operating systems.

INTRODUCTION TO VIRUS TOTAL

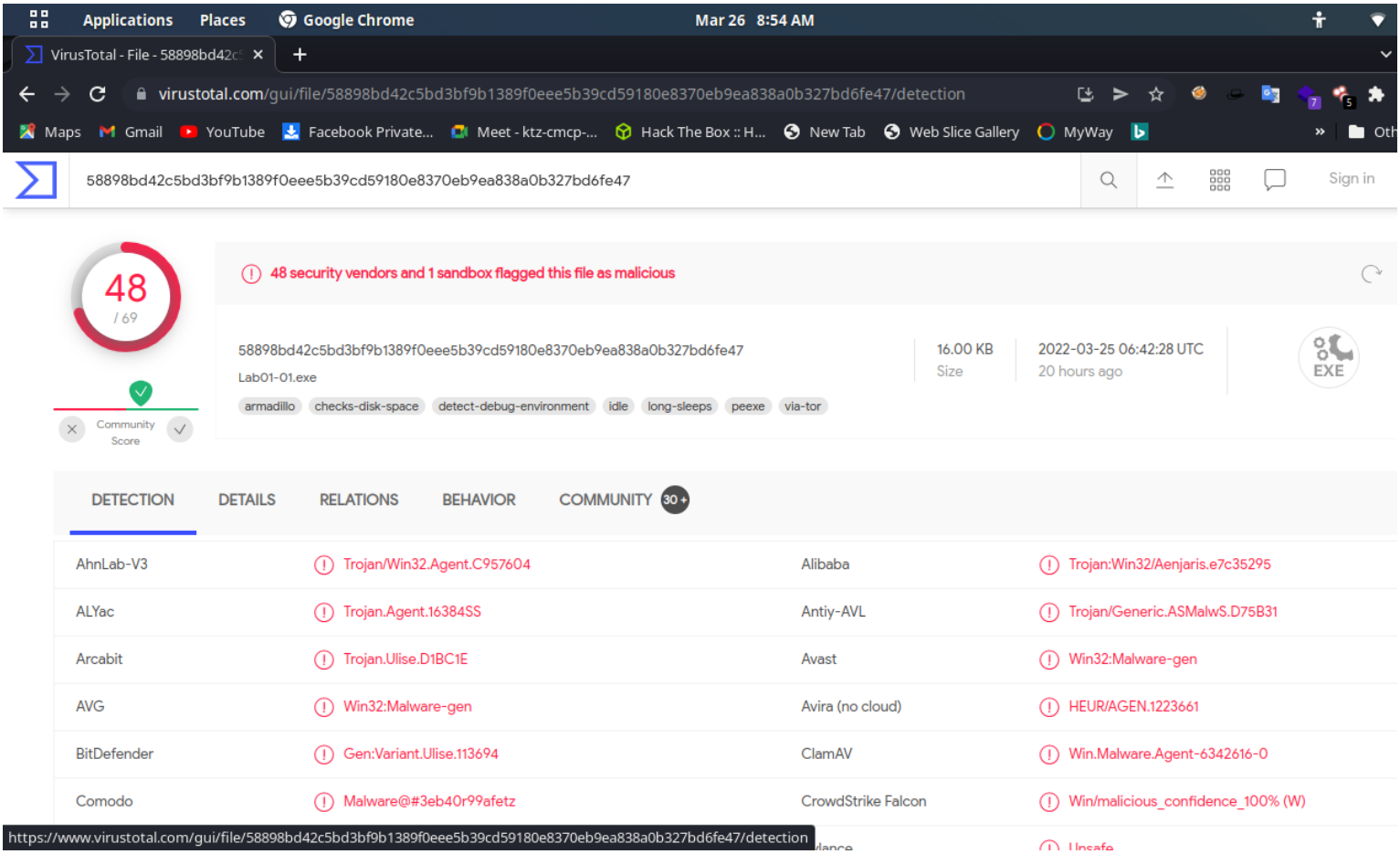
VirusTotal is a website created by the Spanish security company Hispasec Sistemas. Launched in June 2004, it was acquired by Google in September 2012. The company's ownership switched in January 2018 to Chronicle, a subsidiary of Google.

VirusTotal aggregates many antivirus products and online scan engines called Contributors. In November, 2018, the Cyber National Mission Force, a unit subordinate to the U.S. Cyber Command became a Contributor. The aggregated data from these Contributors allows a user to check for viruses that the user's own antivirus software may have missed, or to verify against any false positives. Files up to 650 MB can be uploaded to the website, or sent via email (max. 32MB). Anti-virus software vendors can receive copies of files that were flagged by other scans but passed by their own engine, to help improve their software and, by extension, VirusTotal's own capability. Users can also scan suspect URLs and search through the VirusTotal dataset. VirusTotal uses the Cuckoo sandbox for dynamic analysis of malware. VirusTotal was selected by PC World as one of the best 100 products of 2007.

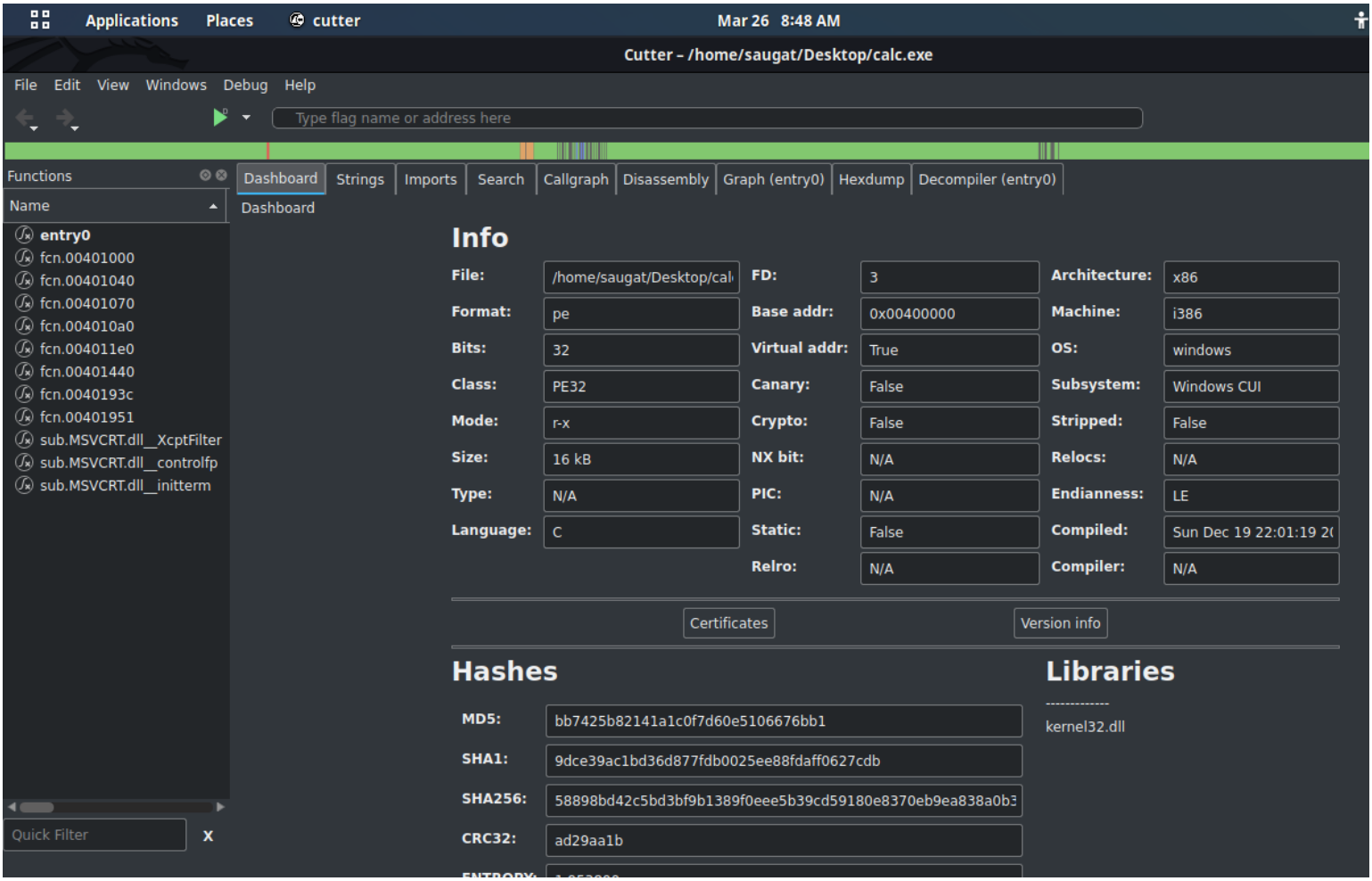
INTRODUCTION TO CUTTER TOOLS

Cutter is an open-source graphical user interface for the radare2 reverse engineering framework. Cutter is a complete framework for reverse-engineering and analyzing binaries; composed of a set of small utilities that can be used together or independently from the GUI. Built around a disassembler for computer software which generates assembly language source code from machine-executable code, it supports a variety of executable formats for different processor architectures and operating systems.

ANALYSIS OF CALC.EXE

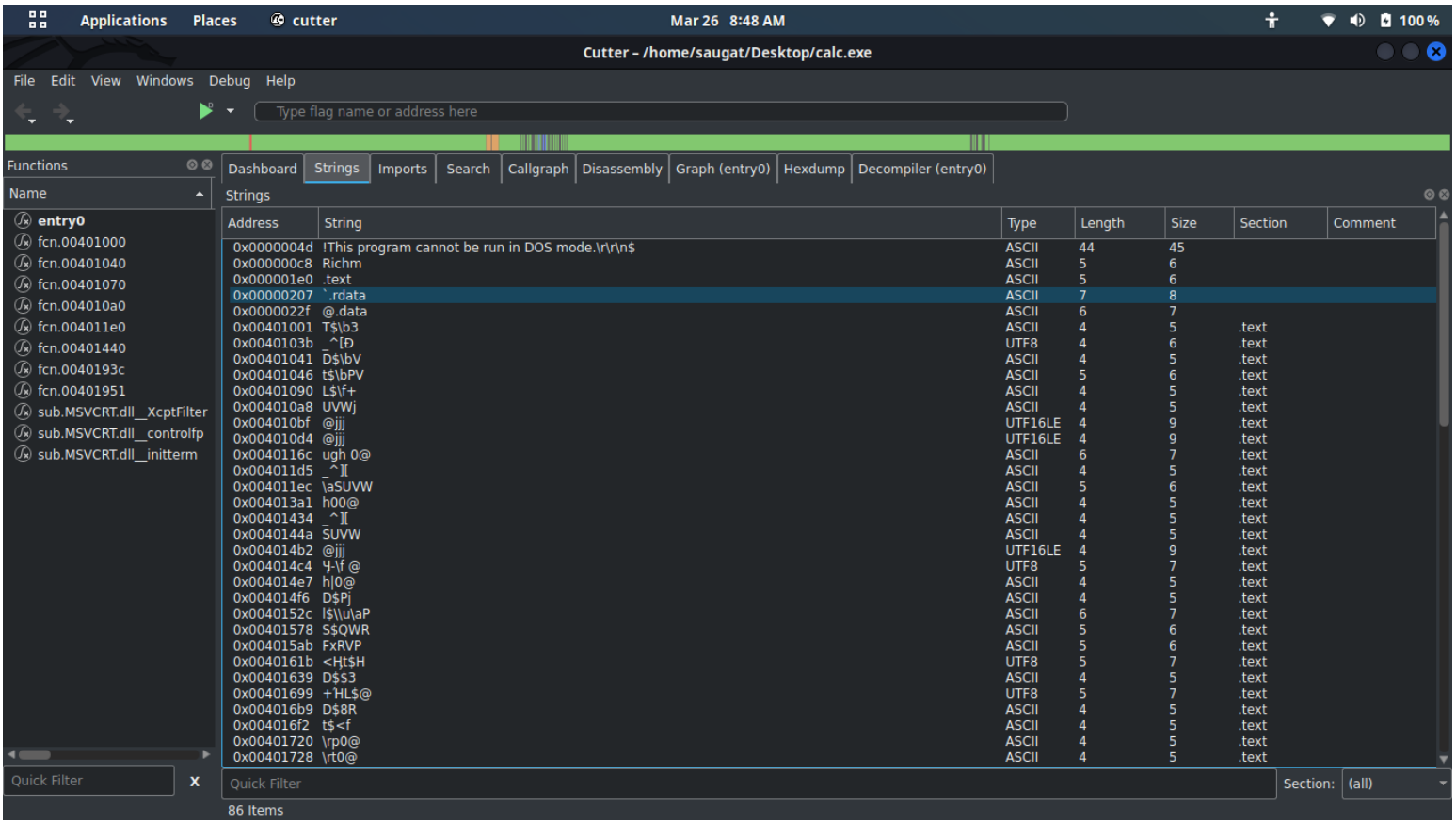


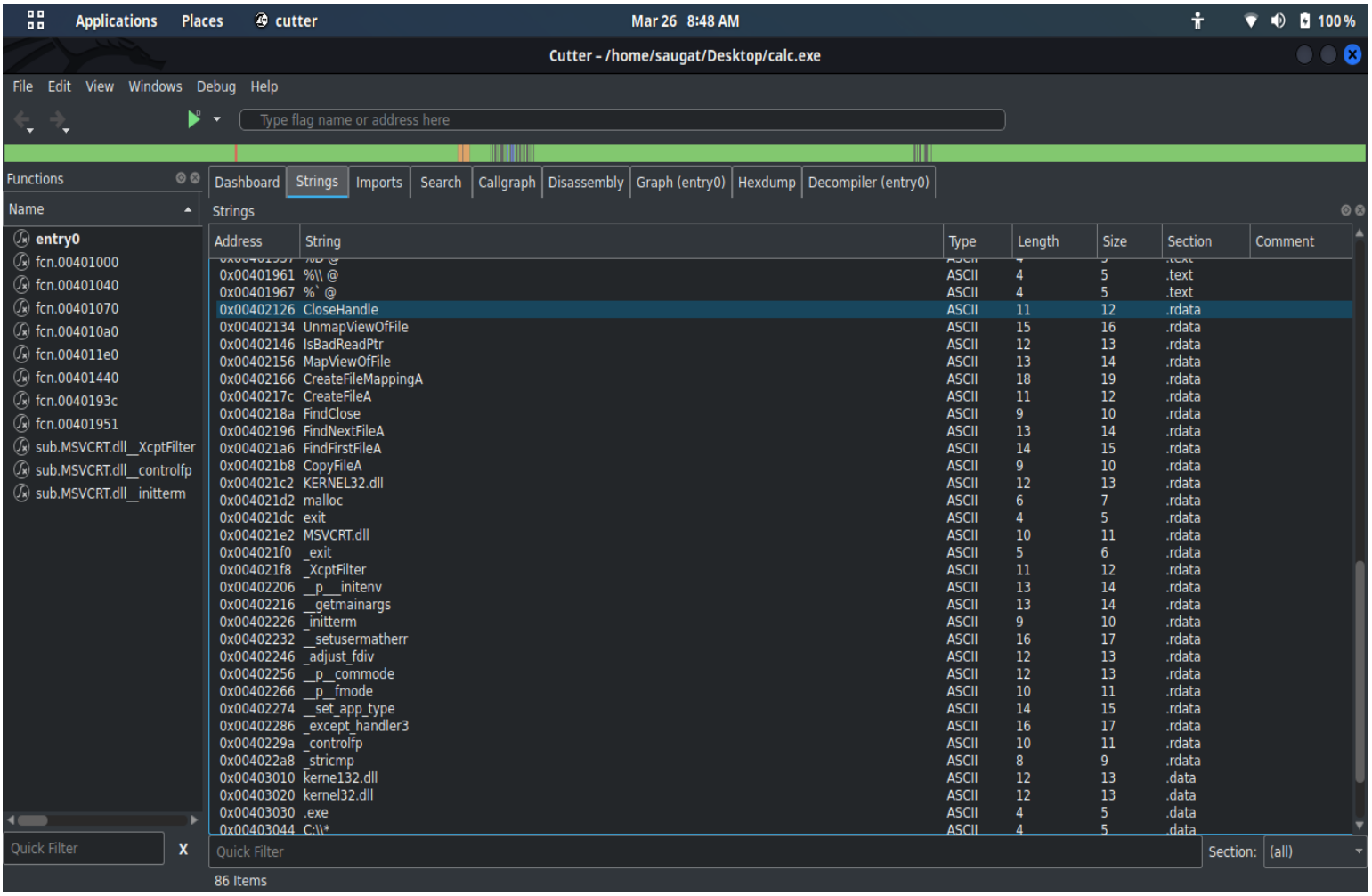
From the above screenshot, we can see that we have scanned the calc.exe file from www.virustotal.com . In the above scanned result the file is detected by 48 antivirus out of 69. Some of the antiviruse said that it is Trojan, some have said that it is malware. Let's do Reverse Engineering of the software with the help of cutter tool.

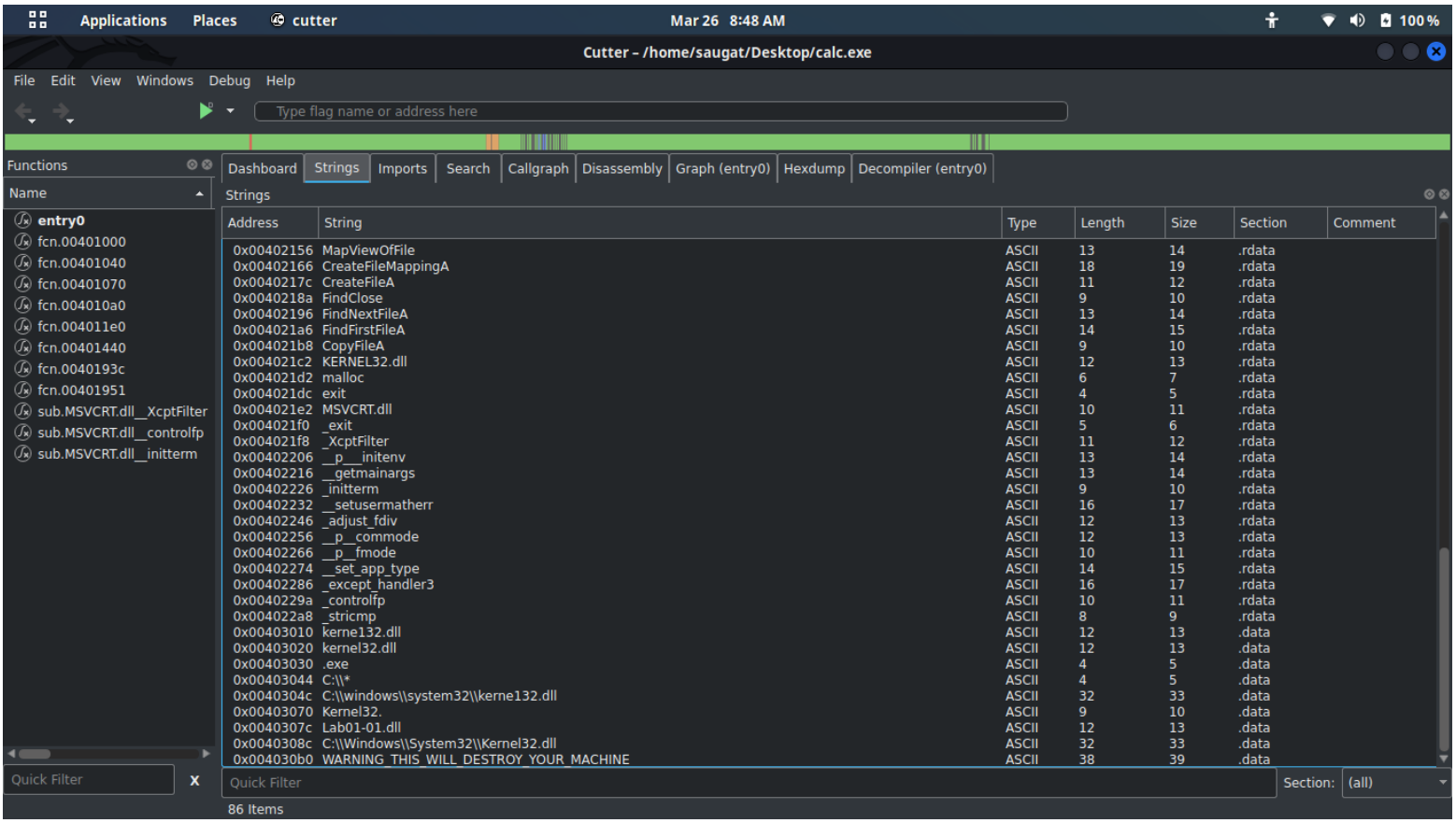


In the above screenshot we can see the dashboard of cutter tool. In the dashboard we can see the information of calc.exe file where, the main information are listed below :

i. It is created from "c" programming language.
ii. It's architecture is X86 which support only 32bit operating system.
iii. It support only Window operating system.


Applications Places cutter Mar 26 8:48 AM 100%
Cutter – /home/saugat/Desktop/calc.exe
File Edit View Windows Debug Help
Type flag name or address here
Functions
Name
entry0
fcn.00401000
fcn.00401040
fcn.00401070
fcn.004010a0
fcn.004011e0
fcn.00401440
fcn.0040193c
fcn.00401951
sub.MSVCRT.dll__XcptFilter
sub.MSVCRT.dll__controlfp
sub.MSVCRT.dll__initterm
Quick Filter
Dashboard Strings Imports Search Callgraph Disassembly Graph (entry0) Hexdump Decompiler (entry0)
Strings
Address String Type Length Size Section Comment
0x0000004d !This program cannot be run in DOS mode.\r\r\n$ ASCII 44 45
0x000000c8 Richm ASCII 5 6
0x000001e0 .text ASCII 5 6
0x00000207 `.rdata ASCII 7 8
0x0000022f @.data ASCII 6 7
0x00401001 T$\b3 ASCII 4 5 .text
0x0040103b _^[Ð UTF8 4 6 .text
0x00401041 D$\bV ASCII 4 5 .text
0x00401046 t$\bPV ASCII 5 6 .text
0x00401090 L$\f+ ASCII 4 5 .text
0x004010a8 UVWj ASCII 4 5 .text
0x004010bf @jjj UTF16LE 4 9 .text
0x004010d4 @jjj UTF16LE 4 9 .text
0x0040116c ugh 0@ ASCII 6 7 .text
0x004011d5 _^][ASCII 4 5 .text
0x004011ec \aSUVW ASCII 5 6 .text
0x004013a1 h00@ ASCII 4 5 .text
0x00401434 _^][ASCII 4 5 .text
0x0040144a SUVW ASCII 4 5 .text
0x004014b2 @jjj UTF16LE 4 9 .text
0x004014c4 Ч-\f @ UTF8 5 7 .text
0x004014e7 h|0@ ASCII 4 5 .text
0x004014f6 D$Pj ASCII 4 5 .text
0x0040152c l$\\u\aP ASCII 6 7 .text
0x00401578 S$QWR ASCII 5 6 .text
0x004015ab FxRVP ASCII 5 6 .text
0x0040161b <Ht$H UTF8 5 7 .text
0x00401639 D$$3 ASCII 4 5 .text
0x00401699 +ЋHL$@ UTF8 5 7 .text
0x004016b9 D$8R ASCII 4 5 .text
0x004016f2 t$<f ASCII 4 5 .text
0x00401720 \rp0@ ASCII 4 5 .text
0x00401728 \rt0@ ASCII 4 5 .text
Quick Filter
Section: (all)
86 Items


Applications Places cutter Mar 26 8:48 AM 100%
Cutter – /home/saugat/Desktop/calc.exe
File Edit View Windows Debug Help
Type flag name or address here
Functions
Name
entry0
fcn.00401000
fcn.00401040
fcn.00401070
fcn.004010a0
fcn.004011e0
fcn.00401440
fcn.0040193c
fcn.00401951
sub.MSVCRT.dll__XcptFilter
sub.MSVCRT.dll__controlfp
sub.MSVCRT.dll__initterm
Quick Filter
Dashboard Strings Imports Search Callgraph Disassembly Graph (entry0) Hexdump Decompiler (entry0)
Strings
Address String Type Length Size Section Comment
0x00401961 %\\ @ ASCII 4 5 .text
0x00401967 %` @ ASCII 4 5 .text
0x00402126 CloseHandle ASCII 11 12 .rdata
0x00402134 UnmapViewOfFile ASCII 15 16 .rdata
0x00402146 IsBadReadPtr ASCII 12 13 .rdata
0x00402156 MapViewOfFile ASCII 13 14 .rdata
0x00402166 CreateFileMappingA ASCII 18 19 .rdata
0x0040217c CreateFileA ASCII 11 12 .rdata
0x0040218a FindClose ASCII 9 10 .rdata
0x00402196 FindNextFileA ASCII 13 14 .rdata
0x004021a6 FindFirstFileA ASCII 14 15 .rdata
0x004021b8 CopyFileA ASCII 9 10 .rdata
0x004021c2 KERNEL32.dll ASCII 12 13 .rdata
0x004021d2 malloc ASCII 6 7 .rdata
0x004021dc exit ASCII 4 5 .rdata
0x004021e2 MSVCRT.dll ASCII 10 11 .rdata
0x004021f0 _exit ASCII 5 6 .rdata
0x004021f8 _XcptFilter ASCII 11 12 .rdata
0x00402206 __p___initenv ASCII 13 14 .rdata
0x00402216 __getmainargs ASCII 13 14 .rdata
0x00402226 _initterm ASCII 9 10 .rdata
0x00402232 __setusermatherr ASCII 16 17 .rdata
0x00402246 _adjust_fdiv ASCII 12 13 .rdata
0x00402256 __p__commode ASCII 12 13 .rdata
0x00402266 __p__fmode ASCII 10 11 .rdata
0x00402274 __set_app_type ASCII 14 15 .rdata
0x00402286 _except_handler3 ASCII 16 17 .rdata
0x0040229a _controlfp ASCII 10 11 .rdata
0x004022a8 _stricmp ASCII 8 9 .rdata
0x00403010 kerne132.dll ASCII 12 13 .data
0x00403020 kernel32.dll ASCII 12 13 .data
0x00403030 .exe ASCII 4 5 .data
0x00403044 C:* ASCII 4 5 .data
Quick Filter
Section: (all)
86 Items



In the above screenshot we can see that, We are in string section, Let's explain main string's

i. This program will not run in DOS (disk operating system) .

ii. CloseHandle : The CloseHandle function closes an open object handle.

iii. Unmap view office : Unmaps a mapped view of a file from the calling process's address space.

iv. IsBadReadptr : Verifies that the calling process has read access to the specified range of memory.

v. MapViewOffice : This function maps a view of a file into the address space of the calling process.

vi. CreateFileMappingA : Creates or opens a named or unnamed file mapping object for a specified file.

vii. CReateFileA : Creates or opens a file or I/O device. The most commonly used I/O devices are as follows: file, file stream, directory, physical disk, volume, console buffer, tape drive, communications resource, mailslot, and pipe. The function returns a handle that can be used to access the file or device for various types of I/O depending on the file or device and the flags and attributes specified.

viii. CopyfileA : Copies an existing file to a new file. The CopyFileEx function provides two additional capabilities. CopyFileEx can call a specified callback function each time a portion of the copy operation is completed, and CopyFileEx can be canceled during the copy operation.

ix. FindClose : Closes a file search handle opened by the FindFirstFile, FindFirstFileEx, FindFirstFileNameW, FindFirstFileNameTransactedW, FindFirstFileTransacted, FindFirstStreamTransactedW, or FindFirstStreamW functions.

x. FindNextFileA : Continues a file search from a previous call to the FindFirstFile, FindFirstFileEx, or FindFirstFileTransacted functions.

xi. FindFirstFileA : Searches a directory for a file or subdirectory with a name that matches a specific name (or partial name if wildcards are used).

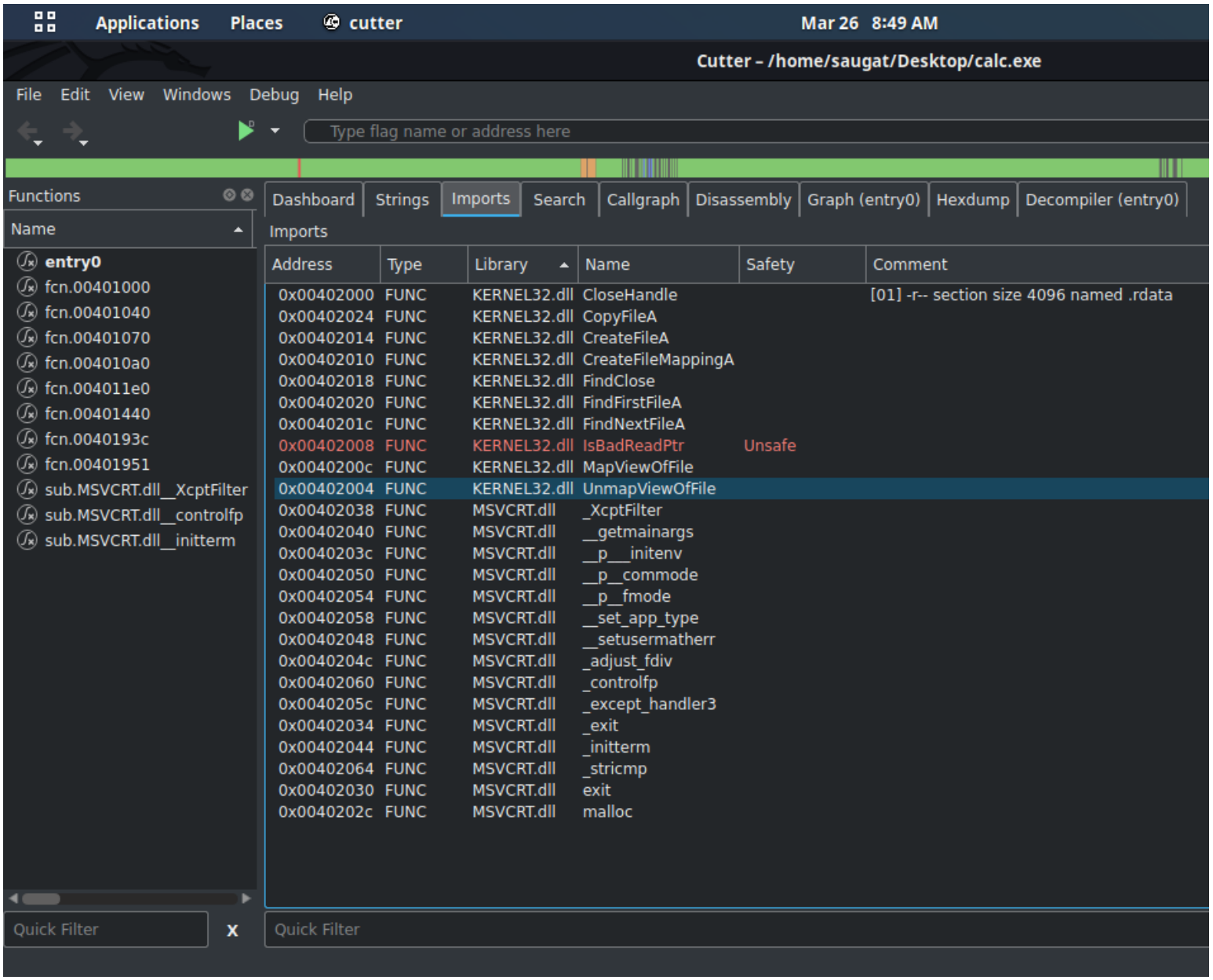
xii. Kernal32.dll : KERNEL32. DLL exposes to applications most of the Win32 base APIs, such as memory management, input/output (I/O) operations, process and thread creation, and synchronization functions.

xiii. Malloc : The name "malloc" stands for memory allocation. The malloc() function reserves a block of memory of the specified number of bytes. And, it returns a pointer of void which can be casted into pointers of any form.

xiv. MSVCRT.dll : MSVCRT. DLL is the C standard library for the Visual C++ (MSVC) compiler from version 4.2 to 6.0. It provides programs compiled by these versions of MSVC with most of the standard C library functions. These include string manipulation, memory allocation, C-style input/output calls, and others.

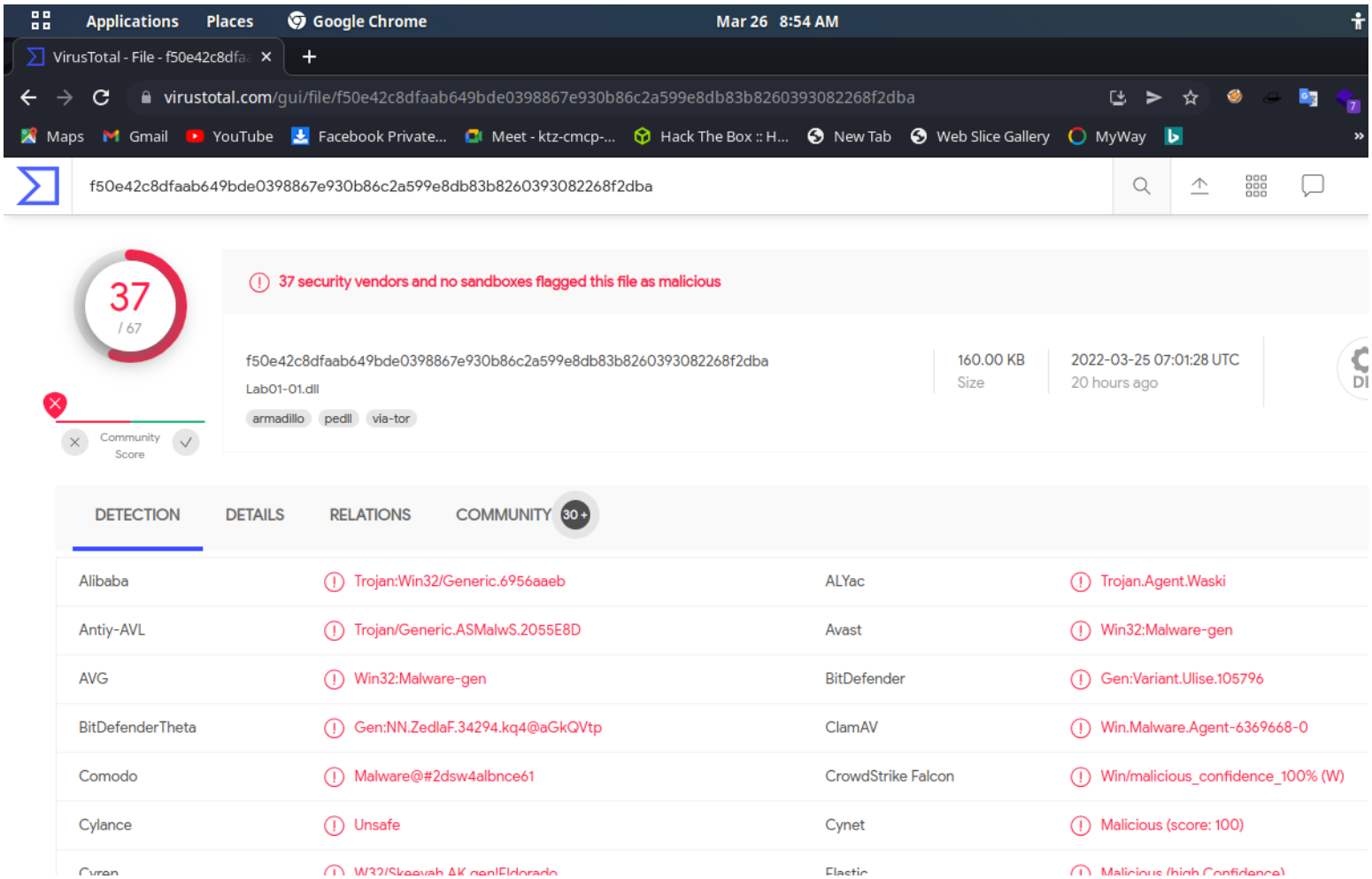
xv. XcptFilter : This method is called by the exception-filter expression of the try-except Statement. The method consults the _XcptActTab[] table to identify the exception and determine the appropriate action. _XcptActTab[] is a constant and is defined as shown in the following table. The exception numbers are defined in winnt.h and the signal numbers are defined in signal.h.

xvi. _setusermather : Specifies a user-supplied rountine to handle math errors, instead of the _matherr routine.

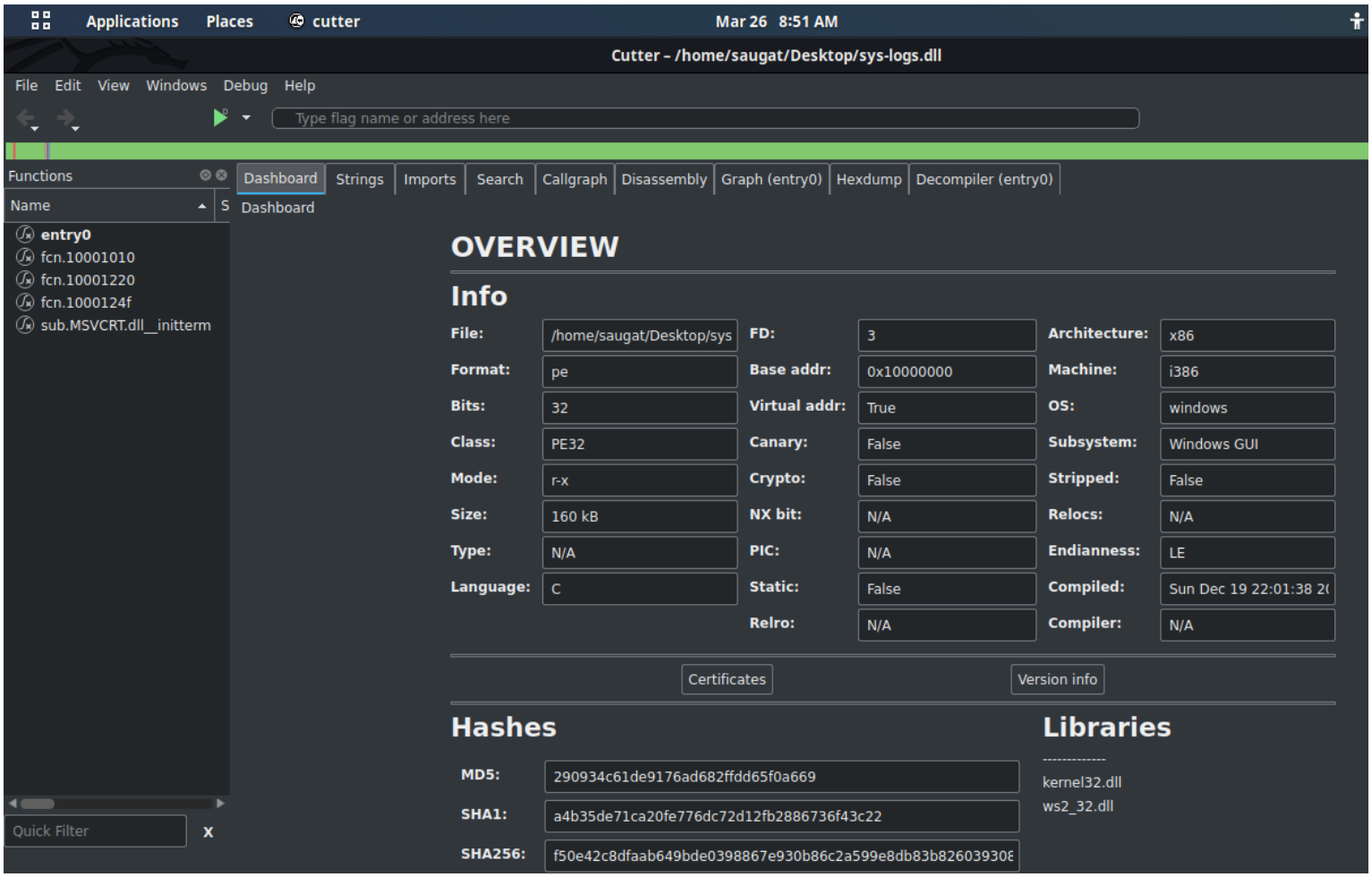


This is the Import section . where we can see the Kernal32.dll isbadreadptr is unsafe / the main file of virus.

ANALYSIS OF SYS-LOGS.DLL

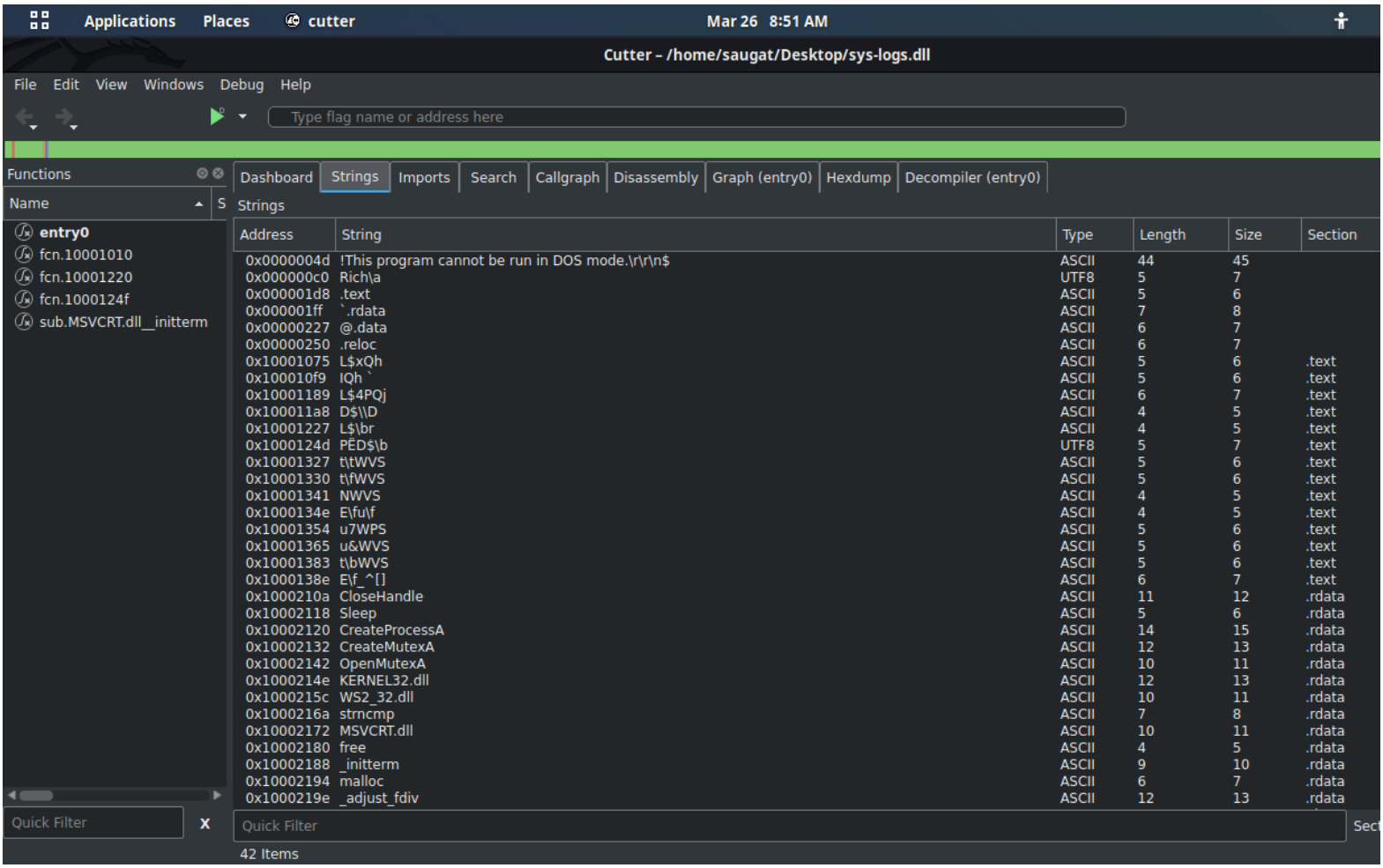


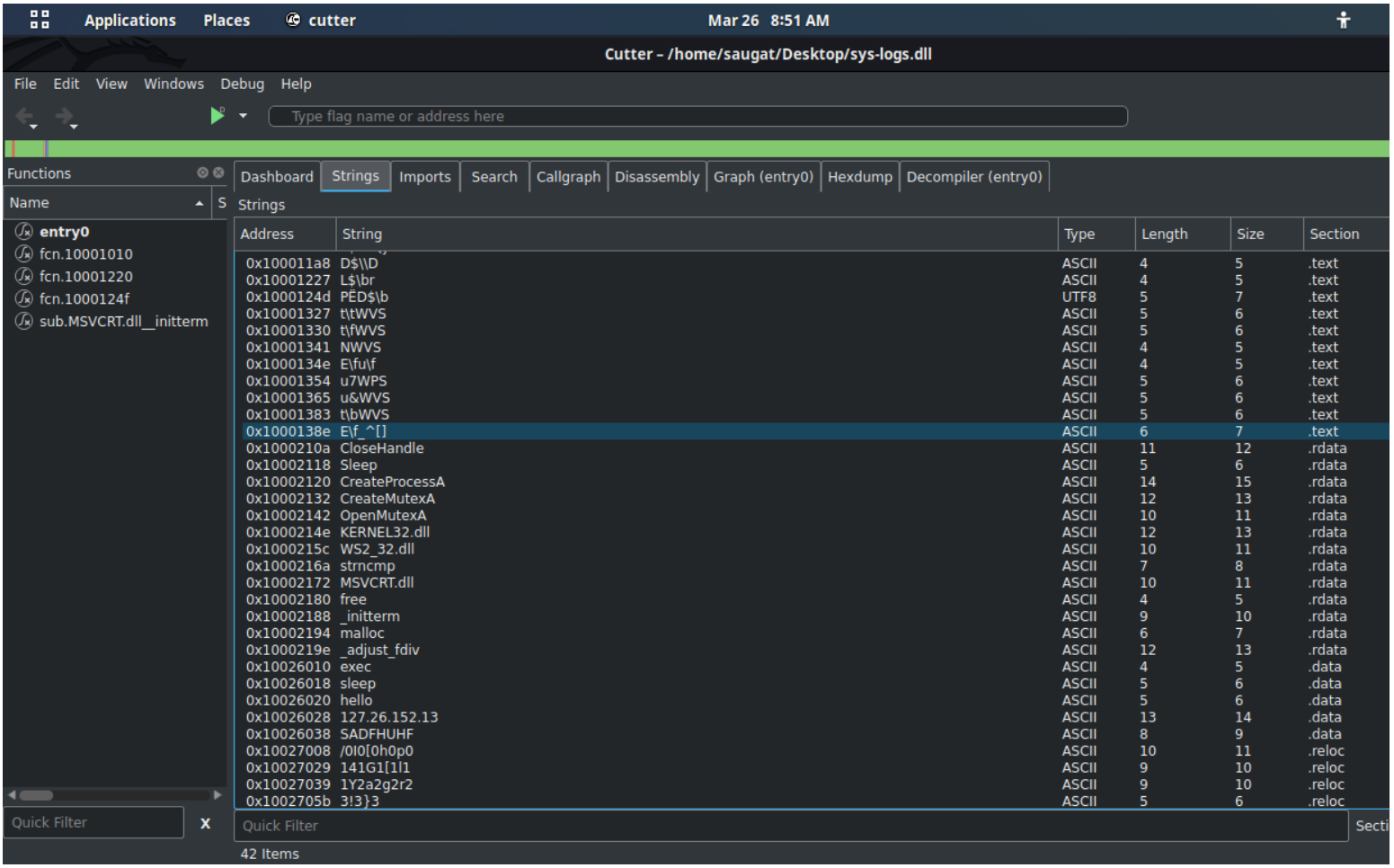
From the above screenshot, we can see that we have scanned the sys-logs.dll file from www.virustotal.com . In the above scanned result the file is detected by 37 antivirus out of 67. Some of the antiviruse said that it is Trojan, some have said that it is malware. Let's do Reverse Engineering of the software with the help of cutter tool.



In the above screenshot we can see the dashboard of cutter tool. In the dashboard we can see the information of sys-logs.dll file where, the main information are listed below :

i. It is created from "c" programming language.
ii. It's architecture is X86 which support only 32bit operating system.
iii. It support only Window operating system.
iv. It's subsystem is Window GUI .
v. It's libraries are Kernal32.dll and ws_32.dll


Applications Places cutter Mar 26 8:51 AM
Cutter – /home/saugat/Desktop/sys-logs.dll
File Edit View Windows Debug Help
Type flag name or address here
Functions
Name
entry0
fcn.10001010
fcn.10001220
fcn.1000124f
sub.MSVCRT.dll__initterm
Dashboard Strings Imports Search Callgraph Disassembly Graph (entry0) Hexdump Decompiler (entry0)
Strings
Address String Type Length Size Section
0x0000004d !This program cannot be run in DOS mode.\r\r\n$ ASCII 44 45
0x000000c0 Rich\a UTF8 5 7
0x000001d8 .text ASCII 5 6
0x000001ff `.rdata ASCII 7 8
0x00000227 @.data ASCII 6 7
0x00000250 .reloc ASCII 6 7
0x10001075 L$xQh ASCII 5 6 .text
0x100010f9 IQh` ASCII 5 6 .text
0x10001189 L$4PQj ASCII 6 7 .text
0x100011a8 D$\\D ASCII 4 5 .text
0x10001227 L$\br ASCII 4 5 .text
0x1000124d PED$\b UTF8 5 7 .text
0x10001327 t\tWVS ASCII 5 6 .text
0x10001330 t\fWVS ASCII 5 6 .text
0x10001341 NWVS ASCII 4 5 .text
0x1000134e E\fu\f ASCII 4 5 .text
0x10001354 u7WPS ASCII 5 6 .text
0x10001365 u&WVS ASCII 5 6 .text
0x10001383 t\bWVS ASCII 5 6 .text
0x1000138e E\f_^[] ASCII 6 7 .text
0x1000210a CloseHandle ASCII 11 12 .rdata
0x10002118 Sleep ASCII 5 6 .rdata
0x10002120 CreateProcessA ASCII 14 15 .rdata
0x10002132 CreateMutexA ASCII 12 13 .rdata
0x10002142 OpenMutexA ASCII 10 11 .rdata
0x1000214e KERNEL32.dll ASCII 12 13 .rdata
0x1000215c WS2_32.dll ASCII 10 11 .rdata
0x1000216a strncmp ASCII 7 8 .rdata
0x10002172 MSVCRT.dll ASCII 10 11 .rdata
0x10002180 free ASCII 4 5 .rdata
0x10002188 _initterm ASCII 9 10 .rdata
0x10002194 malloc ASCII 6 7 .rdata
0x1000219e _adjust_fdiv ASCII 12 13 .rdata
Quick Filter
Quick Filter
42 Items


Applications Places cutter Mar 26 8:51 AM
Cutter – /home/saugat/Desktop/sys-logs.dll
File Edit View Windows Debug Help
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Functions
Name
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fcn.10001010
fcn.10001220
fcn.1000124f
sub.MSVCRT.dll__initterm
Dashboard Strings Imports Search Callgraph Disassembly Graph (entry0) Hexdump Decompiler (entry0)
Strings
Address String Type Length Size Section
0x100011a8 D$\\D ASCII 4 5 .text
0x10001227 L$\br ASCII 4 5 .text
0x1000124d PED$\b UTF8 5 7 .text
0x10001327 t\tWVS ASCII 5 6 .text
0x10001330 t\fWVS ASCII 5 6 .text
0x10001341 NWVS ASCII 4 5 .text
0x1000134e E\fu\f ASCII 4 5 .text
0x10001354 u7WPS ASCII 5 6 .text
0x10001365 u&WVS ASCII 5 6 .text
0x10001383 t\bWVS ASCII 5 6 .text
0x1000138e E\f_^[] ASCII 6 7 .text
0x1000210a CloseHandle ASCII 11 12 .rdata
0x10002118 Sleep ASCII 5 6 .rdata
0x10002120 CreateProcessA ASCII 14 15 .rdata
0x10002132 CreateMutexA ASCII 12 13 .rdata
0x10002142 OpenMutexA ASCII 10 11 .rdata
0x1000214e KERNEL32.dll ASCII 12 13 .rdata
0x1000215c WS2_32.dll ASCII 10 11 .rdata
0x1000216a strncmp ASCII 7 8 .rdata
0x10002172 MSVCRT.dll ASCII 10 11 .rdata
0x10002180 free ASCII 4 5 .rdata
0x10002188 _initterm ASCII 9 10 .rdata
0x10002194 malloc ASCII 6 7 .rdata
0x1000219e _adjust_fdiv ASCII 12 13 .rdata
0x10026010 exec ASCII 4 5 .data
0x10026018 sleep ASCII 5 6 .data
0x10026020 hello ASCII 5 6 .data
0x10026028 127.26.152.13 ASCII 13 14 .data
0x10026038 SADFHUHF ASCII 8 9 .data
0x10027008 /0l0[0h0p0 ASCII 10 11 .reloc
0x10027029 141G1[1l1 ASCII 9 10 .reloc
0x10027039 1Y2a2g2r2 ASCII 9 10 .reloc
0x1002705b 3!3}3 ASCII 5 6 .reloc
Quick Filter
Quick Filter
42 Items

In the above screenshot we can see that, We are in string section, Let's explain main string's

i. This program will not run in DOS (disk operating system) .

ii. CloseHandle : The CloseHandle function closes an open object handle.

iii. Sleep : sleep() function is used in order to wait for a current thread for a specified time. slepp() function will sleep given thread specified time for the current executable. Of course, the CPU and other processes will run without a problem.

iv. CreateProcessA : Creates a new process and its primary thread. The new process runs in the security context of the calling process. If the calling process is impersonating another user, the new process uses the token for the calling process, not the impersonation token. To run the new process in the security context of the user represented by the impersonation token, use the CreateProcessAsUser or CreateProcessWithLogonW function.

v. CreateMutexA : Creates or opens a named or unnamed mutex object. To specify an access mask for the object, use the CreateMutexEx function

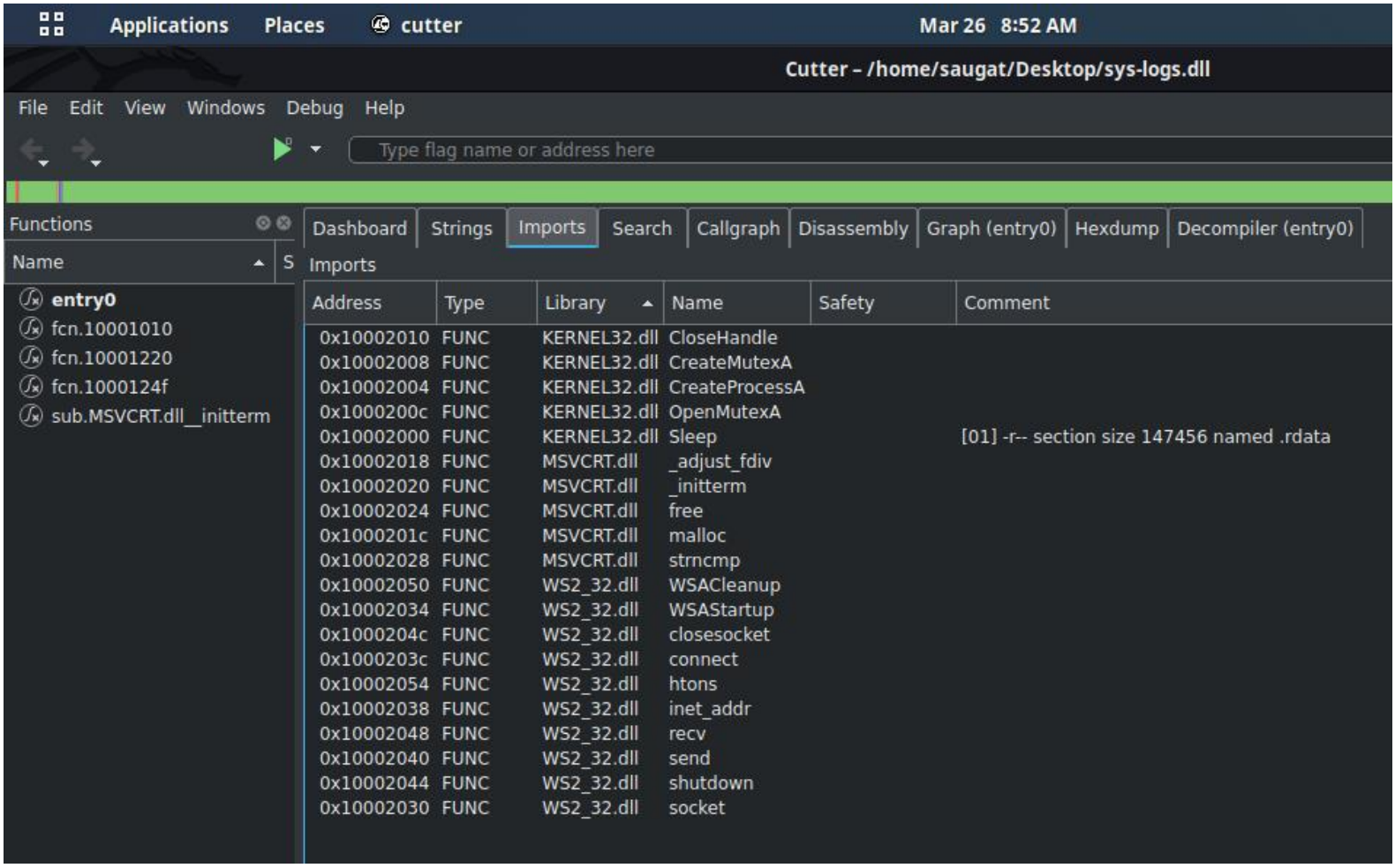
vi. Kernal32.dll : KERNEL32. DLL exposes to applications most of the Win32 base APIs, such as memory management, input/output (I/O) operations, process and thread creation, and synchronization functions.

vii. Strncmp : Compares up to num characters of the C string str1 to those of the C string str2. This function starts comparing the first character of each string. If they are equal to each other, it continues with the following pairs until the characters differ, until a terminating null-character is reached, or until num characters match in both strings, whichever happens first.

viii. **MSVCRT.dll** : MSVCRT. DLL is the C standard library for the Visual C++ (MSVC) compiler from version 4.2 to 6.0. It provides programs compiled by these versions of MSVC with most of the standard C library functions. These include string manipulation, memory allocation, C-style input/output calls, and others.

ix. **FREE :** The free() function in C library allows you to release or deallocate the memory blocks which are previously allocated by calloc(), malloc() or realloc() functions. It frees up the memory blocks and returns the memory to heap.

x. **_exec :** In computing, exec is a functionality of an operating system that runs an executable file in the context of an already existing process, replacing the previous executable. This act is also referred to as an overlay.



This is the Import section . where we can see what types of files are being imported by the sys-logs.dll . It will close handle ,CreateMutex A , CreateprocessA , sleep, closesocket, connect,receive,send,shutdown the computer.

CONCLUSION

Hence, From the above report we Know that Any software can be affected by Virus and malware. We should always use Geniun Products / software. If we are not able to use Geniun software then once we have to properly check that software in Virustotal.