SIFT WORKSTATION 2.0 DISTRO VERSION

DETAILED INFORMATION

SIFT Workstation 2.0 Developed by Rob Lee and distributed as a part of the SANS Institute's Computer Forensic Curriculum. (http://computer-forensics.sans.org)

The SIFT Workstation is released under GPL.

Background

Faculty Fellow Rob Lee created the SANS Investigative Forensic Toolkit(SIFT) Workstation featured in the Computer Forensic Investigations and Incident Response course(FOR 508) in order to show that advanced investigations and investigating hackers can be accomplished using freely available open-source tools.

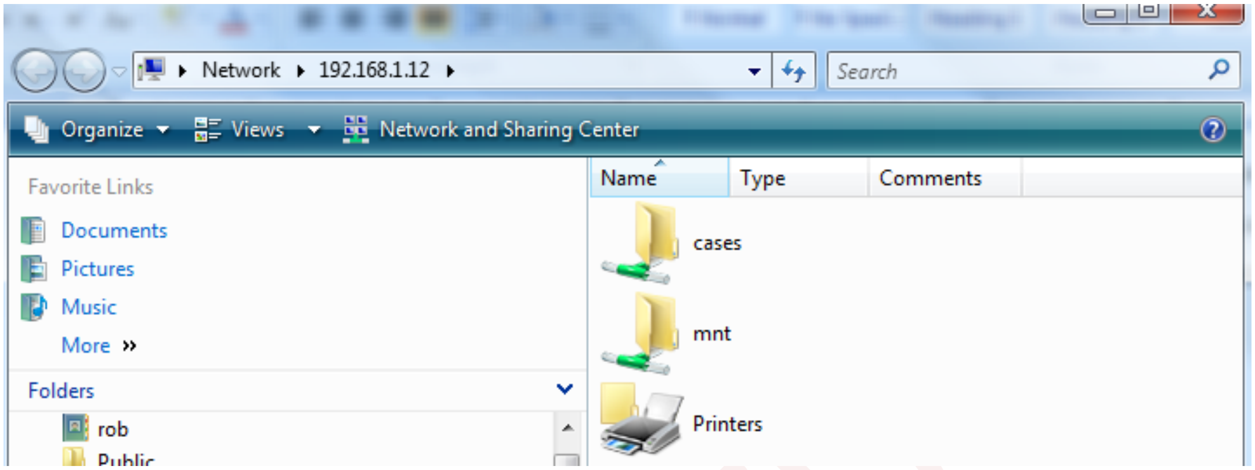
http://computer-forensics.sans.org/course/computer-forensic-investigations-and-incident-response-98-1

The SANS SIFT Workstation is a VMware Appliance that is preconfigured with all the necessary tools to perform a detailed digital forensic examination. It is compatible with Expert Witness Format (E01), Advanced Forensic Format (AFF), and raw (dd) evidence formats.The brand new version released to the world this week at SANS 2010 has been completely rebuilt on an Ubuntu base with many additional tools and capabilities that can match any modern forensic tool suite.

Basic information:

- After downloading the toolkit, use the credentials below to gain access. Login "sansforensics"
- Password "forensics"
- use **`sudo su -`** to elevate privileges to root while mounting disk images.
- Enable SHARED FOLDERS (VM -> SETTINGS -> OPTIONS -> Shared Folders -> Always Enabled)
  - Access to Host System Found on Desktop **`VMware-Shared-Drive`**
- Filesystem Shares \\SIFTWORKSTATION
  - or use ifconfig and connect to eth0 IP Address listed (e.g. \\192.168.1.12)
  - **`/mnt`** - Mount point for read-only examination of digital forensic evidence

- `/cases` - Directory to store evidence



1. How-Tos -

1.1. How To Mount a Disk Image In Read-Only Mode

1.1.1. http://blogs.sans.org/computer-forensics/2009/02/19/digital-forensic-sifting-how-to-perform-a-read-only-mount-of-evidence/

1.2. How To Create a Filesystem and Registry Timeline

1.2.1. http://blogs.sans.org/computer-forensics/2009/02/24/digital-forensic-sifting-registry-and-filesystem-timeline-creation/

1.3. How To Create a Super Timeline

1.3.1. http://blogs.sans.org/computer-forensics/2010/03/19/digital-forensic-sifting-super-timeline-analysis-and-creation/?utm_source=rss&utm_medium=rss&utm_campaign=digital-forensic-sifting-super-timeline-analysis-and-creation

1.4. How To Acquire and Mount Raw, E01, AFF Disk Images

1.4.1. https://www.sans.org/webcasts/imagine-this-acquisition-and-handling-techniques-of-computer-evidence-92018

1.5. How to use the SIFT Workstation for Basic Memory Image Analysis

1.5.1. https://www.sans.org/webcasts/memory-analysisincident-responders-and-forensic-analysts-92368

2. Filesystem Support

2.1. ntfs (NTFS)

2.2. iso9660 (ISO9660 CD)

2.3. hfs (HFS+)

2.4. raw (Raw Data)

2.5. swap (Swap Space)

2.6. memory (Ram Data)

2.7. fat12 (FAT12)

2.8. fat16 (FAT16)

2.9. fat32 (FAT32)

2.10. ext2 (Ext2)

2.11. ext3 (Ext3)

2.12. ufs1 (UFS1)

2.13. ufs2 (UFS2)

3. Evidence Image File Support

3.1. raw (Single raw file (dd))

3.2. aff (Advanced Forensic Format)

3.3. afd (AFF Multiple File)

3.4. afm (AFF with external metadata)

3.5. afflib (All AFFLIB image formats (including beta ones))

3.6. ewf (Expert Witness format (encase))

3.7. split raw (Split raw files)

3.8. split ewf (Split E01 files)

3.8.1. mount_ewf.py - mount E01 image/split images to view single raw file and metadata

4. Partition Table Support

4.1. dos (DOS Partition Table)

4.2. mac (MAC Partition Map)

4.3. bsd (BSD Disk Label)
4.4. sun (Sun Volume Table of Contents (Solaris))
4.5. gpt (GUID Partition Table (EFI))
5. Digital Evidence Acquisition
5.1. guymager - GUI Imager
5.1.1. http://guymager.sourceforge.net/
5.2. linen - Guidance Image
5.2.1. http://www.forensicswiki.org/wiki/LinEn
5.3. dd - dd, sometimes called GNU dd, is the oldest imaging tool still used.
5.4. ddrescue - ddrescue is a raw disk imaging tool that "copies data from one file or block device to another, trying hard to rescue data in case of read errors." The application is developed as part of the GNU project and has written with UNIX/Linux in mind.
5.4.1. http://www.gnu.org/software/ddrescue/ddrescue.html
5.5. dc3dd - dc3dd is a patched version of GNU dd with added features for computer forensics.
5.5.1. http://dc3dd.sourceforge.net/
5.6. dcfldd - dcfldd is an enhanced version of dd developed by the U.S. Department of Defense Computer Forensics Lab.
5.6.1. http://dcfldd.sourceforge.net/
5.7. sdd
5.7.1. http://linux.maruhn.com/sec/sdd.html
5.8. ewfacquire - create EWF (E01) file format images
5.8.1. http://linux.die.net/man/1/ewfacquire
5.8.2. http://www.forensicswiki.org/wiki/Libewf
5.9. aimage - aimage can create files in raw, AFF, AFD, or AFM formats. AFF and AFD formats can be compressed or uncompressed. aimage can optionally compress and calculate MD5 or SHA-1 hash residues while the data is being copied.
5.9.1. http://www.afflib.org/aimage.php
6. Media Management
6.1. ewflib
6.1.1. http://sourceforge.net/projects/libewf/
6.1.2. ewfacquire - ewfacquire to acquire data from a file or device and store it in the EWF format
6.1.3. ewfexport - ewfexport to export data from the EWF format (Expert Witness Compression Format) to raw data or another EWF format.
6.1.4. ewfverify - ewfverify to verify data stored in the EWF format (Expert Witness Compression Format).
6.1.5. ewfinfo - wfinfo to determine information about the EWF format
6.1.6. mount_ewf.pl - mount EWF format images/split images to view single raw file and metadata
6.2. afflib
6.2.1. http://www.afflib.org/aimage.php
6.2.2. aimage- ewfacquire to acquire data from a file or device and store it in the AFF format
6.2.3. afcat - Output contents of an image file to stdout
6.2.4. afconvert - Convert AFF images to Raw or Raw to AFF image
6.2.5. afuse - mount AFF format images/split images to view single raw file and metadata
7. Mounting Disk Images -
7.1. ntfs3g - http://www.tuxera.com/community/ntfs-3g-download/
7.2. http://blogs.sans.org/computer-forensics/2009/02/19/digital-forensic-sifting-how-to-perform-a-read-only-mount-of-evidence/

8. Hashing Tools

8.1. http://md5deep.sourceforge.net/

8.2. md5deep - Compute and compare MD5 message digests

8.3. sha1deep - Compute and compare SHA-1 message digests

8.4. sha256deep - Compute and compare SHA-256 message digests

8.5. tigerdeep - Compute and compare Tiger message digests

8.6. whirlpooldeep - Compute and compare Whirlpool message digests

8.7. hashdeep - Compute, compare, or audit multiple message digests

8.8. Fuzzy Hashing

8.8.1. ssdeep - Computes context triggered piecewise hashes

9. Disk Analysis - Sleuthkit Tools

9.1. http://www.sleuthkit.org/

9.2. Media Management Layer

9.2.1. mmls - Display the partition layout of a volume system (partition tables)

9.2.2. mmstat - Display details about the volume system (partition tables)

9.2.3. disk_stat - Check for Host Protected Area (HPA)

9.2.4. disk_sreset - remove HPA

9.3. Data Layer

9.3.1. blkls - List or output file system data units.

9.3.2. blkstat - Display details of a file system data unit (i.e. block or sector)

9.3.3. blkcat - Display the contents of file system data unit in a disk image.

9.3.4. blkcalc - Converts between unallocated disk unit numbers and regular disk unit numbers

9.3.5. srch_strings - print out ascii or unicode strings from a raw file

9.3.6. grep - search for strings from a dirty_words list or a file

9.4. Metadata Layer

9.4.1. istat - Display details of a meta-data structure (i.e. inode)

9.4.2. ils - List inode information

9.4.3. icat - Output the contents of a file based on its inode number

9.4.4. ifind - Find the meta-data structure that has allocated a given disk unit or file name

9.4.5. analyszeMFT.py - parse MFT structure pulling out all metadata into csv file

9.4.5.1. http://integriography.wordpress.com/2010/01/20/analyzemft-a-python-tool-to-deconstruct-the-windows-ntfs-mft-file/

9.5. Filename Layer

9.5.1. fls - List file and directory names in a disk image

9.5.2. ffind - Finds the name of the file or directory using a given inode

9.6. Timeline Analysis - http://blogs.sans.org/computer-forensics/2010/03/19/digital-forensic-sifting-super-timeline-analysis-and-creation/?utm_source=rss&utm_medium=rss&utm_campaign=digital-forensic-sifting-super-timeline-analysis-and-creation

9.6.1. fls - List file and directory names in a disk image

9.6.2. mac-robber

9.6.3. regtime.pl - list registry key last write times in a hive file

9.6.4. timescanner - A recursive scanner to produce timeline data extracted from file artifacts

9.6.5. log2timeline - a log file parser that produces a body file used to create timelines (for forensic investigations)Artifact Analysis

9.6.5.1. Log2timeline/Timescanner output formats

9.6.5.1.1. cef	Output timeline using the ArcSight Commen Event Format (CEF)

9.6.5.1.2. cftl	Output timeline in a XML format that can be read by CFTL
9.6.5.1.3. csv	Output timeline using CSV (Comma Separated Value) file
9.6.5.1.4. mactime	Output timeline using mactime format
9.6.5.1.5. mactime_l	Output timeline using this particular output method
9.6.5.1.6. simile	Output timeline in a XML format that can be read by a SIMILE widget
9.6.5.1.7. sqlite	Output timeline into a SQLite database
9.6.5.1.8. tln	Output timeline using H. Carvey's TLN format

9.6.5.2. Log2timeline/Timescanner Parsing Formats

9.6.5.2.1. chrome	Parse the content of a Chrome history file
9.6.5.2.2. evt	Parse the content of a Windows 2k/XP/2k3 Event Log
9.6.5.2.3. evtx	Parse the content of a Windows Event Log File (EVTX)
9.6.5.2.4. exif	Extract metadata information from files using ExifTool
9.6.5.2.5. ff_bookmark	Parse the content of a Firefox bookmark file
9.6.5.2.6. firefox3 0.7	Parse the content of a Firefox 3 history file
9.6.5.2.7. iehistory	Parse the content of an index.dat file containg IE history
9.6.5.2.8. iis	Parse the content of a IIS W3C log file
9.6.5.2.9. isatxt	Parse the content of a ISA text export log file
9.6.5.2.10. mactime	Parse the content of a body file in the mactime format
9.6.5.2.11. mcafee	Parse the content of a log file
9.6.5.2.12. opera	Parse the content of an Opera's global history file
9.6.5.2.13. oxml	Parse the content of an OpenXML document (Office 2007 documents)
9.6.5.2.14. pcap	Parse the content of a PCAP file
9.6.5.2.15. pdf	Parse some of the available PDF document metadata
9.6.5.2.16. prefetch	Parse the content of the Prefetch directory
9.6.5.2.17. recycler	Parse the content of the recycle bin directory
9.6.5.2.18. restore	Parse the content of the restore point directory
9.6.5.2.19. setupapi	Parse the content of the SetupAPI log file in Windows XP
9.6.5.2.20. sol	Parse the content of a .sol (LSO) or a Flash cookie file
9.6.5.2.21. squid	Parse the content of a Squid access log (http_emulate off)
9.6.5.2.22. tln	Parse the content of a body file in the TLN format
9.6.5.2.23. userassist	Parses the UserAssist Active Desktop key (part of NTUSER.DAT file)
9.6.5.2.24. win_link	Parse the content of a Windows shortcut file (or a link file)
9.6.5.2.25. xpfirewall	Parse the content of a XP Firewall log

10. Artifact Analysis

10.1. missidentify - Find executable files without an executable extensionq
10.2. Galetta - a ms-windows cookies analyzer
10.3. Pasco - a ms-windows IExplorer cache analyzer
10.4. Rifiuti - a ms-windows trashcan analyzer
10.5. mdbtools - playing with MS mdb access databases
10.6. antiword - show the text and images of MS Word documents
10.7. exiftool - metadata extractor (over 400 file types)
10.8. extract - keyword extractor
10.9. lslnk - list link file metadata information
10.10. pref.pl - list prefetch directory information
10.11. reglookup
10.12. vinetto - parse thumbs.db files

10.13. Windows Event Log Analysis

10.13.1. GrokEVT - parse windows event logs

10.13.1.1. http://projects.sentinelchicken.org/grokevt/

10.13.2. Evtxtools - Parse EVTX event logs

10.13.2.1. http://computer.forensikblog.de/en/2010/02/evtx_parser_1_0_3.html#more

11. Registry Analysis

11.1. recover_deleted_registry_keys.pl - recover unallocated keys and key slack from a registry hive

11.2. ripxp.pl - Windows XP Restore Point Parser

11.2.1. 1.1.1. www.regripper.net

11.3. rip.pl - regripper

11.3.1. www.regripper.net

11.3.2. Regripper Plugins

11.3.2.1. appinitdlls [Software] - Gets contents of AppInit_DLLs value

11.3.2.2. cmd_shell [Software] - Gets shell open cmds for various file types

11.3.2.3. mspaper [NTUSER.DAT - Gets images listed in user's MSPaper key

11.3.2.4. usb [System] - Get USB subkeys info; csv output

11.3.2.5. acmru [NTUSER.DAT] - Gets contents of user's ACMru key

11.3.2.6. logonusername [NTUSER.DAT] - Get user's Logon User Name value

11.3.2.7. winzip [NTUSER.DAT] - Get WinZip extract and filemenu values

11.3.2.8. controlpanel [NTUSER.DAT] - Look for RecentTask* values in ControlPanel key (Vista)

11.3.2.9. mountdev2 [System] - Return contents of System hive MountedDevices key

11.3.2.10. recentdocs [NTUSER.DAT] - Gets contents of user's RecentDocs key

11.3.2.11. adoberdr [NTUSER.DAT] - Gets user's Adobe Reader cRecentFiles values

11.3.2.12. usbstor2 [System] - Get USBStor key info; csv output

11.3.2.13. bitbucket [Software] - Get HKLM\..\BitBucket keys\values

11.3.2.14. muicache [NTUSER.DAT] - Gets EXEs from user's MUICache key

11.3.2.15. bho [Software] - Gets Browser Helper Objects from Software hive

11.3.2.16. listsoft [NTUSER.DAT] - Lists contents of user's Software key

11.3.2.17. user_win [NTUSER.DAT] - --

11.3.2.18. applets [NTUSER.DAT] - Gets contents of user's Applets key

11.3.2.19. mmc [NTUSER.DAT] - Get contents of user's MMC\Recent File List key

11.3.2.20. tsclient [NTUSER.DAT] - Displays contents of user's Terminal Server Client\Default key

11.3.2.21. apppaths [Software] - Gets content of App Paths key

11.3.2.22. timezone [System] - Get TimeZoneInformation key contents

11.3.2.23. logon_xp_run [NTUSER.DAT] - Autostart - Get XP user logon Run key contents from NTUSER.DAT hive

11.3.2.24. auditpol [Security] - Get audit policy from the Security hive file

11.3.2.25. devclass [System] - Get USB device info from the DeviceClasses keys in the System hive

11.3.2.26. winlogon [Software] - Get values from the WinLogon key

11.3.2.27. shutdown [System] - Gets ShutdownTime value from System hive

11.3.2.28. typedurls [NTUSER.DAT] - Returns contents of user's TypedURLs key.

11.3.2.29. comdlg32 [NTUSER.DAT] - Gets contents of user's ComDlg32 key

11.3.2.30. winnt_cv v.20080609 [Software]- Get and display the contents of the Windows\CurrentVersion key

11.3.2.31. network [System] - Gets info from System\Control\Network GUIDs

11.3.2.32. vista_bitbucket [NTUSER.DAT] - Get BitBucket settings from Vista via NTUSER.DAT

11.3.2.33. mountdev [System] - Return contents of System hive MountedDevices key

11.3.2.34. ssid [Software] - Get WZCSVC SSID Info

11.3.2.35. regtime [All] - Dumps entire hive, all keys sorted by LastWrite time

11.3.2.36. usbstor [System] - Get USBStor key info

11.3.2.37. aim [NTUSER.DAT] - Gets info from the AOL Instant Messenger (not AIM) instal

11.3.2.38. compdesc [NTUSER.DAT] - Gets contents of user's ComputerDescriptions key

11.3.2.39. fileexts [NTUSER.DAT] - Get user FileExts values

11.3.2.40. mp2 [NTUSER.DAT] - Gets user's MountPoints2 key contents

11.3.2.41. shares [System] - Get list of shares from System hive file

11.3.2.42. realplayer6 [NTUSER.DAT] - Gets user's RealPlayer v6 MostRecentClips(Default) values

11.3.2.43. services [System] - Lists services/drivers in Services key by LastWrite times

11.3.2.44. uninstall [Software] - Gets contents of Uninstall key from Software hive

11.3.2.45. ide [System] - Get IDE device info from the System hive file

11.3.2.46. mndmru [NTUSER.DAT] - Get contents of user's Map Network Drive MRU

11.3.2.47. user_run [NTUSER.DAT] - Autostart - get Run key contents from NTUSER.DAT hive

11.3.2.48. userassist [NTUSER.DAT] - Displays contents of UserAssist Active Desktop key

11.3.2.49. imagedev [System] - --

11.3.2.50. networkcards [Software] - Get NetworkCards

11.3.2.51. wallpaper [NTUSER.DAT] - Parses Wallpaper MRU Entries

11.3.2.52. profilelist [Software] - Get content of ProfileList key

11.3.2.53. compname [System] - Gets ComputerName value from System hive

11.3.2.54. fw_config [System] - Gets the Windows Firewall config from the System hive

11.3.2.55. vncviewer [NTUSER.DAT] - Get VNCViewer system list

11.3.2.56. assoc [Software] - Get list of file ext associations

11.3.2.57. shutdowncount [System] - Retrieves ShutDownCount value

11.3.2.58. userinit [Software] - Gets UserInit value

11.3.2.59. svc [System] - Lists services/drivers in Services key by LastWrite times, short format

11.3.2.60. imagefile [Software] - Gets Image File Execution Options subkeys w/ Debugger value

11.3.2.61. removdev [Software] - Parses Windows Portable Devices key (Vista)

11.3.2.62. mrt [Software] - Check to see if Malicious Software Removal Tool has been run

11.3.2.63. samparse [SAM] - Parse SAM file for user/group mbrshp info

11.3.2.64. snapshot [Software] - Check ActiveX comp kill bit; Access Snapshot

11.3.2.65. termserv [System] - Gets fDenyTSConnections value from System hive

11.3.2.66. nic_mst2 [System] - Gets NICs from System hive; looks for MediaType = 2

11.3.2.67. mpmru [NTUSER.DAT] - Gets user's Media Player RecentFileList values

11.3.2.68. officedocs [NTUSER.DAT] - Gets contents of user's Office doc MRU keys

11.3.2.69. winrar [NTUSER.DAT] - Get WinRAR\ArcHistory entries

11.3.2.70. runmru [NTUSER.DAT] - Gets contents of user's RunMRU key

11.3.2.71. soft_run [Software] - Autostart - get Run key contents from Software hive

12. RAM Analysis

12.1. pdfbook - extract facebook chats from ram

12.1.1. http://blogs.sans.org/computer-forensics/2009/11/20/facebook-memory-forensics/

12.2. pdgmail - extract gmail from ram

12.2.1. http://blogs.sans.org/computer-forensics/2008/10/20/pdgmail-new-tool-for-gmail-memory-forensics/

12.3. pdymail - extrat yahoo mail from ram

12.3.1. http://blogs.sans.org/computer-forensics/2009/01/12/pdymail-yahoo-mail-in-memory/

12.4. skypeex - recover skype chat from ram

12.4.1. http://nickfurneaux.blogspot.com/2010/03/skype-chat-carver-from-ram-skypeex.html

12.5. volatility - https://www.volatilesystems.com/default/volatility

12.5.1.	connections	Print list of open connections
12.5.2.	connscan	Scan for connection objects
12.5.3.	connscan2	Scan for connection objects (New)
12.5.4.	datetime	Get date/time information for image
12.5.5.	dlllist	Print list of loaded dlls for each process
12.5.6.	dmp2raw	Convert a crash dump to a raw dump
12.5.7.	dmpchk	Dump crash dump information
12.5.8.	files	Print list of open files for each process
12.5.9.	hibinfo	Convert hibernation file to linear raw image
12.5.10.	ident	Identify image properties
12.5.11.	memdmp	Dump the addressable memory for a process
12.5.12.	memmap	Print the memory map
12.5.13.	modscan	Scan for modules
12.5.14.	modscan2	Scan for module objects (New)
12.5.15.	modules	Print list of loaded modules
12.5.16.	procdump	Dump a process to an executable sample
12.5.17.	pslist	Print list of running processes
12.5.18.	psscan	Scan for EPROCESS objects
12.5.19.	psscan2	Scan for process objects (New)
12.5.20.	raw2dmp	Convert a raw dump to a crash dump
12.5.21.	regobjkeys	Print list of open regkeys for each process
12.5.22.	sockets	Print list of open sockets
12.5.23.	sockscan	Scan for socket objects
12.5.24.	sockscan2	Scan for socket objects (New)
12.5.25.	strings	Match physical offsets to virtual addresses (may take a while, VERY verbose)
12.5.26.	thrdscan	Scan for ETHREAD objects
12.5.27.	thrdscan2	Scan for thread objects (New)
12.5.28.	vaddump	Dump the Vad sections to files
12.5.29.	vadinfo	Dump the VAD info
12.5.30.	vadwalk	Walk the vad tree

12.6. volatility plugins

12.6.1.	apihooks	[VAP] Detect API hooks in user and/or kernel space
12.6.2.	cachedump	Dump (decrypted) domain hashes from the registry
12.6.3.	cryptoscan	Find TrueCrypt passphrases
12.6.4.	driverscan	Scan for driver objects
12.6.5.	fileobjscan	Scan for file objects
12.6.6.	getsids	Print the SIDs owning each process
12.6.7.	hashdump	Dump (decrypted) LM and NT hashes from the registry
12.6.8.	hivedump	Dump registry hives to CSV
12.6.9.	hivelist	Print list of registry hives
12.6.10.	hivescan	Scan for _CMHIVE objects (registry hives)
12.6.11.	idt	[VAP] Print Interrupt Descriptor Table (IDT) entries

12.6.12.	keyboardbuffer	Print BIOS keyboard buffer
12.6.13.	ldr_modules	[VAP] Detect unlinked LDR_MODULE using mapped file names
12.6.14.	lsadump	Dump (decrypted) LSA secrets from the registry
12.6.15.	malfind	Dump and rebuild executables
12.6.16.	malfind2	[VAP] Detect hidden and injected code
12.6.17.	moddump	Dump loaded kernel modules to disk.
12.6.18.	mutantscan	Scan for mutant (mutex) objects
12.6.19.	orphan_threads	[VAP] Find kernel threads that don't map back to loaded modules
12.6.20.	printkey	Print a registry key, and its subkeys and values
12.6.21.	pstree	
12.6.22.	ssdt	Display SSDT entries
12.6.23.	suspicious	Find suspicious command lines and display them
12.6.24.	symlinkobjscan	Scan for symbolic link objects
12.6.25.	thread_queues	Print message queues for each thread
12.6.26.	volshell	Shell in the memory image

13. Data Carving

    13.1. foremost - carve files based on headers/footers/max length

    13.2. magicresuce

    13.3. safecopy

    13.4. testdisk

    13.5. rapier -

14. Compression Tools

    14.1. p7zip - Wrapper on 7zr, a 7-zip file archiver with high compression ratio

    14.2. rar - archive files with compression

    14.3. unrar - extract files from rar archives

    14.4. gzrecover

    14.5. bzip/bzip2

15. Malware Analysis

    15.1. yara - yara - find files matching patterns and rules written in a special-purpose language

16. PDF Tools

    16.1. pdfid.py - differentiate between PDF documents that could be malicious and those that are most likely not

        16.1.1. http://blog.didierstevens.com/2009/03/31/pdfid/

    16.2. pdf-parser.py - parse a PDF document to identify the fundamental elements used in the analyzed file

        16.2.1. http://blog.didierstevens.com/programs/pdf-tools/

        16.2.2. http://blog.didierstevens.com/2008/10/20/analyzing-a-malicious-pdf-file/

    16.3. make-pdf-javascript.py - create a simple PDF document with embedded JavaScript that will execute upon opening of the PDF document

        16.3.1. http://blog.didierstevens.com/programs/pdf-tools/

    16.4. pdftohtml - program to convert pdf files into html, xml and png images

    16.5. pdfinfo - Portable Document Format (PDF) document information extractor

    16.6. pdfimages - Portable Document Format (PDF) image extractor

    16.7. pdftotext - Portable Document Format (PDF) to text converter

17. F-Response Compatibility

    17.1. iSCSI

18. GUI Forensic Analysis

18.1. Autopsy

18.1.1. http://www.sleuthkit.org/autopsy/

18.2. PTK

18.2.1. http://ptk.dflabs.com/

18.3. PyFLAG

18.3.1. http://www.pyflag.net/cgi-bin/moin.cgi

19. Anti-Virus

19.1. ClamAV - Anti-Virus

19.1.1. http://www.clamav.net/lang/en/

19.2. rkhunter - Rootkit Hunter

19.2.1. http://www.rootkit.nl/

19.3. chkrootkit

19.3.1. http://www.chkrootkit.org/

20. Password Crackers

20.1. CmosPwd - BIOS Cracker 5.0

20.2. john the ripper (john - a tool to find weak passwords of your users)

20.3. samdump : a tool to extract password hashes from MS Windows registry files

20.4. bkhive -- dumps the syskey bootkey from a Windows NT/2K/XP/Vista system hive

20.5. fcrackzip - a Free/Fast Zip Password Cracker

20.6. ophcrack - Cracks Windows passwords with Rainbow tables

20.6.1. http://ophcrack.sourceforge.net/

21. Stego

21.1. outguess - universal steganographic tool

21.1.1. stegbreak

21.1.2. stegcompare

21.1.3. stegdeimage

21.1.4. stegdetect

22. Crypto

22.1. cryptcat - twofish encryption enabled version of nc

22.2. outguess - universal steganographic tool

22.3. bcrypt - blowfish file encryption

22.4. ccrypt - encrypt and decrypt files and streams

23. Mail

23.1. readpst - convert PST (MS Outlook Personal Folders) files to mbox and other formats

23.2. bulk_extractor - create histogram of email addresses on a hard drive

24. Network Forensics

24.1. Snort - open source network intrusion detection system

24.2. tcpdump - dump traffic on a network

24.3. wireshark - Interactively dump and analyze network traffic

24.4. ettercap - A multipurpose sniffer/contet filter for man in the middle attacks

24.5. driftnet - capture images from network traffic and display them in an Xwindow; optionally, capture audio streams and play them.

24.6. tcpreplay - Replay network traffic stored in pcap files

24.7. tcpxtract - extract files from captured network packets

24.8. tcptrack - Monitor TCP connections on the network

24.9. tcpflow - TCP flow recorder

24.10. p0f - identify remote systems passively
24.11. arping - send ARP REQUEST to a neighbour host
24.12. ngrep - network grep
24.13. netwox - examples/tools of the network library netwib
24.14. lft - display the route packets take to a network host/socket; optionally show heuristic network information in transit
24.15. netsed - network packet stream editor
24.16. socat - Multipurpose relay (SOcket CAT)
24.17. oftcat - OFT package, which is a package created by AIM when sending files over the network
24.18. pcapcat - reads a PCAP file and prints out all the connections in the file and gives the user the option of dumping the content of the TCP stream
24.19. findsmtpinfo.py - cript creates a report of the SMTP information, stores any emails in msg format, stores any attachments from the emails, decompresses them if they are a compressed format (zip, docx), checks MD5 hashes of all files including the msg files

25. Network Scanning
25.1. knocker - An easy to use network security port scanner
25.2. nikto - web security scanner
25.3. nbtscan - program for scanning networks for NetBIOS name information

26. Utilities
26.1. winexe - psexec for linux
26.1.1. http://eol.ovh.org/winexe/
26.2. ent - entropy calculator
26.3. rdesktop - Remote Desktop Protocol client
26.4. seahorse - manage and examine key files
26.5. uni2ascii - convert UTF-8 Unicode to various 7-bit ASCII representations
26.6. sqlite - A command line interface for SQLite
26.7. bless - hex editor
26.8. ghex2 - hex editor

If you have any questions about the SIFT Workstation, please email the creator and author Rob Lee rlee@sans.org with upgrade requests and questions.

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Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

```
    <program>  Copyright (C) <year>  <name of author>

    This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.

    This is free software, and you are welcome to redistribute it

    under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an “about box”.

You should also get your employer (if you work as a programmer) or school, if any, to sign a “copyright disclaimer” for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.