

DIGITAL FORENSICS II

EXPERIMENT 7

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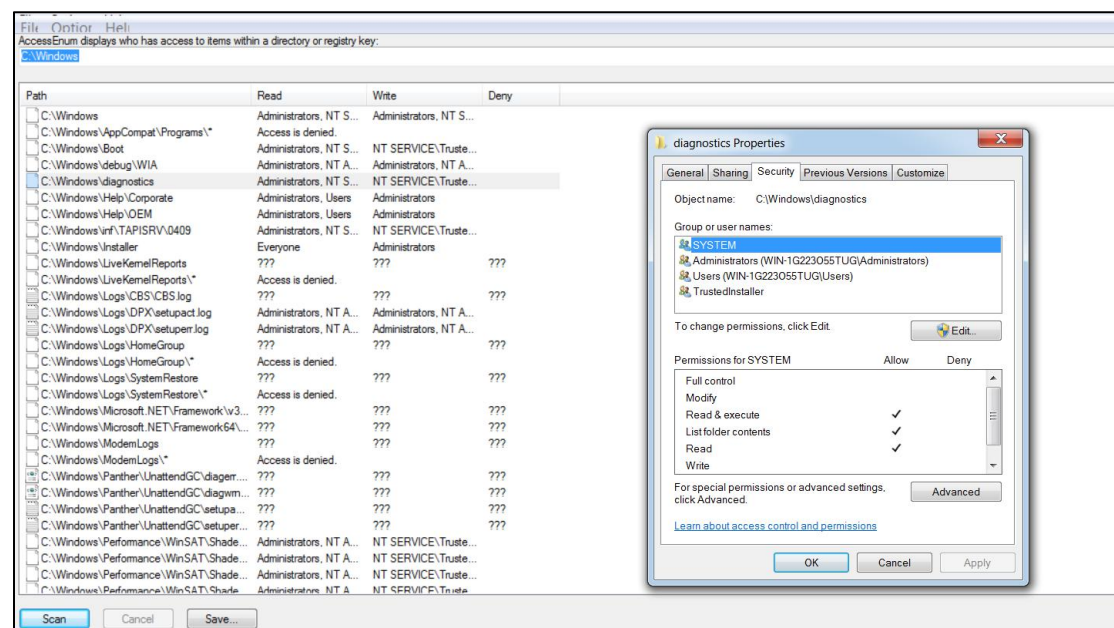
Aim: Forensics using SysInternals tool.

Tools Description: 10 tools of Sysinternals have been mentioned below -

- AccessEnum
- Cacheset
- Autologon
- PsLoglist
- Loadorder
- Bginfo
- TCPview
- CPU stres
- Disk2vhd
- PsService

❖ AccessEnum v1.32

AccessEnum gives us a full view of our file system and Registry security settings in seconds, making it the ideal tool for helping us find security holes and lock down permissions where necessary. It uses standard Windows security APIs to populate its listview with read, write and deny access information.



File Options Help			
AccessEnum displays who has access to items within a directory or registry key:			
C:\Windows\winsxs\Manifests\x86_microsoft-windows-e_ingfaults.resources_31bf3856ad364e35_6.1.7600.16385_en-us_7662b5ee9010de8f.manifest			
Path	Read	Write	Deny
C:\Windows	Administrators, NT S...	Administrators, NT S...	
C:\Windows\AppCompat\Programs*	Access is denied.		
C:\Windows\Boot	Administrators, NT S...	NT SERVICE\Truste...	
C:\Windows\debug\WIA	Administrators, NT A...	Administrators, NT A...	
C:\Windows\diagnostics	Administrators, NT S...	NT SERVICE\Truste...	
C:\Windows\Help\Corporate	Administrators, Users	Administrators	
C:\Windows\Help\OEM	Administrators, Users	Administrators	
C:\Windows\inf\TAPI\SRV\0409	Administrators, NT S...	NT SERVICE\Truste...	
C:\Windows\Installer	Everyone	Administrators	
C:\Windows\LiveKernelReports	???	???	???
C:\Windows\LiveKernelReports*	Access is denied.		
C:\Windows\Logs\CBS\CBS.log	???	???	???
C:\Windows\Logs\DPX\setupact.log	Administrators, NT A...	Administrators, NT A...	
C:\Windows\Logs\DPX\setuperr.log	Administrators, NT A...	Administrators, NT A...	
C:\Windows\Logs\HomeGroup	???	???	???
C:\Windows\Logs\HomeGroup*	Access is denied.		
C:\Windows\Logs\SystemRestore	???	???	???
C:\Windows\Logs\SystemRestore*	Access is denied.		
C:\Windows\Microsoft.NET\Framework\v3...	???	???	???
C:\Windows\Microsoft.NET\Framework64\...	???	???	???
C:\Windows\ModemLogs	???	???	???
C:\Windows\ModemLogs*	Access is denied.		
C:\Windows\Panther\UnattendGC\diagerr...	???	???	???
C:\Windows\Panther\UnattendGC\diagwm...	???	???	???
C:\Windows\Panther\UnattendGC\setupa...	???	???	???
C:\Windows\Panther\UnattendGC\setuper...	???	???	???
C:\Windows\Performance\WinSAT\Shade...	Administrators, NT A...	NT SERVICE\Truste...	
C:\Windows\Performance\WinSAT\Shade...	Administrators, NT A...	NT SERVICE\Truste...	
C:\Windows\Performance\WinSAT\Shade...	Administrators, NT A...	NT SERVICE\Truste...	
C:\Windows\Performance\WinSAT\Shade...	Administrators, NT A...	NT SERVICE\Truste...	

Scan Cancel Save... Scanning...

❖ CacheSet v1.0

CacheSet is an applet that allows us to manipulate the working-set parameters of the system file cache. Unlike *CacheMan*, *CacheSet* runs on all versions of NT and will work without modifications on new Service Pack releases. In addition to providing us the ability to control the minimum and maximum working set sizes, it also allows us to reset the Cache's working set, forcing it to grow as necessary from a minimal starting point.

Bginfo64	9/19/2019 10:15 PM	Application	4,494 KB
Cacheset	11/2/2006 3:36 AM	Application	151 KB
Clockres	6/22/2020 8:19 PM	Application	331 KB
Clockres64			430 KB
Contig			248 KB
Contig64			263 KB
Coreinfo			967 KB
CPUSTRES			2,131 KB
CPUSTRES64			2,796 KB
ctrl2cap.amd.sys			10 KB
ctrl2cap			147 KB
ctrl2cap.nt4.sys			3 KB
ctrl2cap.nt5.sys			3 KB
Dbgview	4/29/2020 11:19 A...	Compiled HTML H...	67 KB
Dbgview64	4/29/2020 11:14 A...	Application	867 KB

Cacheset - <http://www.sysinternals.com>

Cache Information

Current size 63640 KB

Peak size 77448 KB

Adjust Cache Settings

Working set minimum 1024 KB

Working set maximum 10737418 KB

Apply

Clear

Reset

Cancel

[SysInternals](http://www.sysinternals.com)

❖ PsLogList v2.81

PsLogList is a clone of *elogdump* except that *PsLogList* lets us login to remote systems in situations our current set of security credentials would not permit access to the Event Log, and *PsLogList* retrieves message strings from the computer on which the event log we view resides.

A screenshot of a terminal window displaying the output of the PsLogList v2.81 application. The output shows a series of service state change events. Each event is preceded by a bracketed number (778, 777, 776, 775, 774, 773) and the text 'Service Control Manager'. The events are as follows:

- 778] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:59 PM ID: 7036
The Computer Browser service entered the stopped state.
- 777] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:53 PM ID: 7036
The SSDP Discovery service entered the running state.
- 776] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:53 PM ID: 7036
The Windows Media Player Network Sharing Service service entered the running state.
- 775] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:53 PM ID: 7036
The Computer Browser service entered the running state.
- 774] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:53 PM ID: 7036
The HomeGroup Provider service entered the running state.
- 773] Service Control Manager
Type: INFORMATION
Computer: WIN-1G223055TUG
Time: 7/19/2020 7:00:53 PM ID: 7036
The Function Discovery Resource Publication service entered the running state.

The terminal window has a black background with white text. The application window title bar is visible at the bottom, showing 'Application' and 'Event Log - PSN'.

❖ LoadOrder v1.0

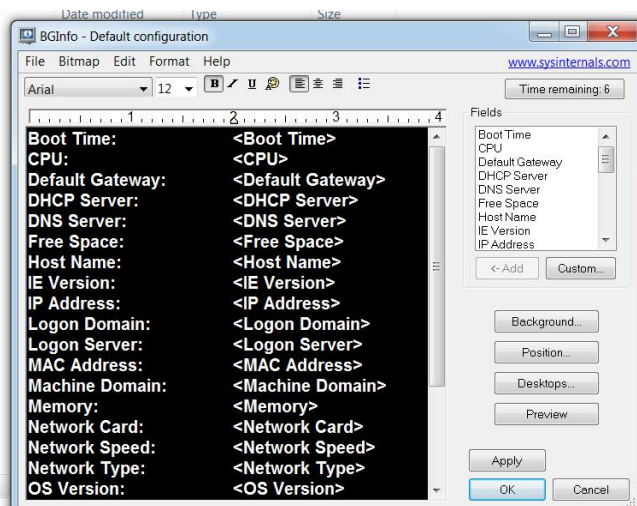
This applet shows us the order that a Windows NT or Windows 2000 system loads device drivers. Note that on Windows 2000 plug-and-play drivers may actually load in a different order than the one calculated, because plug-and-play drivers are loaded on demand during device detection and enumeration.

LoadOrder						
Load order for drivers and services:						
Start value	Group name	Tag	Service/Device	Display Name	Image path	
Boot	WdfLoadGroup	n/a*	Wdf01000	Kernel Mode D...	system32\driv...	
Boot	Boot Bus Exten...	1	ACPI	Microsoft ACP...	system32\driv...	
Boot	Boot Bus Exten...	2	msisadv		system32\driv...	
Boot	Boot Bus Exten...	3	pci	PCI Bus Driver	system32\driv...	
Boot	Boot Bus Exten...	6	vdrvroot	Microsoft Virtu...	system32\driv...	
Boot	Boot Bus Exten...	n/a*	partmgr	@%SystemRo...	System32\driv...	
Boot	System Bus Ext...	7	Compbatt	Microsoft Co...	system32\DRIV...	
Boot	System Bus Ext...	9	volmgr	Volume Mana...	system32\driv...	
Boot	System Bus Ext...	10	volmgrx	@%SystemRo...	System32\driv...	
Boot	System Bus Ext...	6	intelide		system32\driv...	
Boot	System Bus Ext...	15	vmci	VMware VMCI ...	system32\DRIV...	
Boot	System Bus Ext...	16	vsock	vSockets Virtu...	system32\DRIV...	
Boot	System Bus Ext...	n/a*	mountmgr	@%SystemRo...	System32\driv...	
Boot	SCSI Miniport	33	ataapi	IDE Channel	system32\driv...	
Boot	SCSI Miniport	34	LSI_SAS		system32\driv...	
Boot	SCSI Miniport	64	msahci		system32\driv...	
Boot	SCSI miniport	n/a*	amdxata		system32\driv...	
Boot	FSFilter Infratr...	1	FltMgr	@%SystemRo...	system32\driv...	
Boot	FSFilter Bottom	n/a*	FileInfo	@%SystemRo...	system32\driv...	
Boot	Filter	1	CLFS	@%SystemRo...	System32\CLF...	
Boot	Base	1	KSecDD		System32\Driv...	
Boot	Base	2	CNG		System32\Driv...	
Boot	Base	n/a*	pcw	Performance C...	System32\driv...	
Boot	File System	n/a*	Fs_Rec			
Boot	NDIS Wrapper	n/a*	NDIS	@%SystemRo...	system32\driv...	
Boot	Cryptography	2	KSecPkg		System32\Driv...	
Boot	PNP_TDI	3	Tcpip	@%SystemRo...	System32\driv...	
Boot	n/a*	n/a*	Disk	Disk Driver	system32\driv...	
Boot	PnP Filter*	5*	fvevol	@%SystemRo...	System32\DRI...	
Boot	n/a*	n/a*	hwpolicy	@%systemroo...	System32\driv...	
Boot	Network*	n/a*	Mup	@%systemroo...	System32\Driv...	
Boot	PnP Filter*	2*	rdyboost	ReadyBoost	System32\driv...	
Boot	n/a*	n/a*	spldr	Security Proce...		
Boot	n/a*	n/a*	volsnap	Storage volumes	system32\driv...	
System	SCSI CDROM ...	3	cdrom	CD-ROM Driver	system32\DRIV...	
Copyright (c) 2000 Bryce Cogswell						
SysInternals - www.sysinternals.com						
Ready						

❖ BgInfo v4.28

It automatically displays relevant information about a Windows computer on the desktop's background, such as the computer name, IP address, service pack version, and more. us can edit any field as well as the font and background colors, and can place it in usr startup folder so that it runs every boot, or even configure it to display as the background for the logon screen.

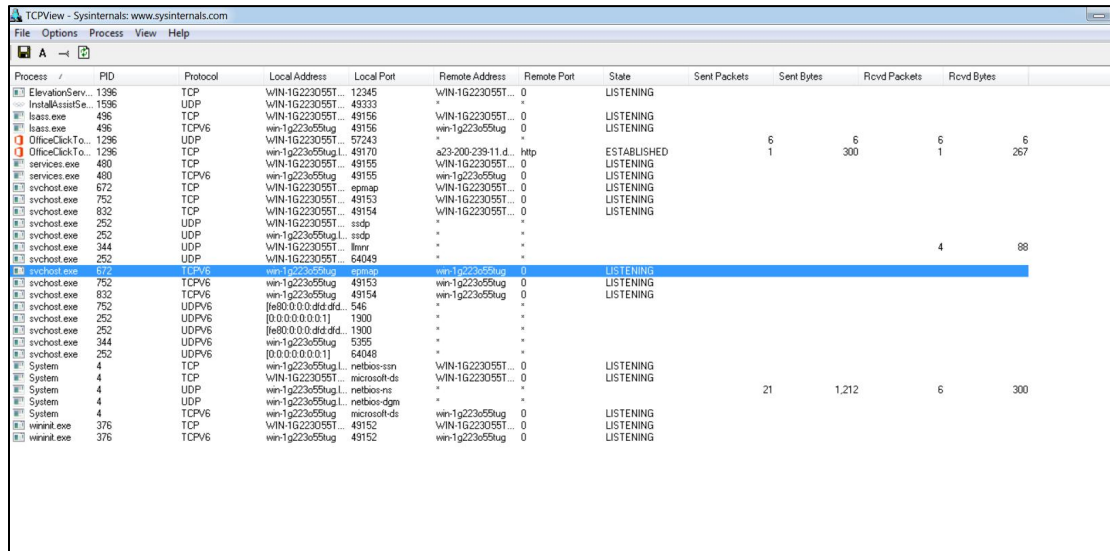
Boot Time: 10/20/2020 9:55 PM
CPU: 1.8 GHz Unknown Family 6, Model 8E
Default Gateway: 192.168.198.2
DHCP Server: 192.168.198.254
 (none)
DNS Server: 192.168.198.2
 (none)
Free Space: C:\ 46.65 GB NTFS
Host Name: WIN-1G223O55TUG
IE Version: 8.0.7601.17514
IP Address: 192.168.198.129
 (none)
Logon Domain: WIN-1G223O55TUG
Logon Server: WIN-1G223O55TUG
MAC Address: 00-0C-29-9C-39-C0
 FC-01-7C-29-BE-7A
Machine Domain: WORKGROUP
Memory: 2048 MB
Network Card: Intel(R) PRO/1000 MT Network Connection
 Bluetooth Device (Personal Area Network)
Network Speed: 1 Gb/s
 0 b/s
Network Type: Ethernet
 Ethernet
OS Version: Windows 7
Service Pack: Service Pack 1
Snapshot Time: 10/20/2020 10:08 PM
Subnet Mask: 255.255.255.0
 (none)
System Type: Workstation, Terminal Server, Personal



6/22/2020 8:19 PM Application 331 KB

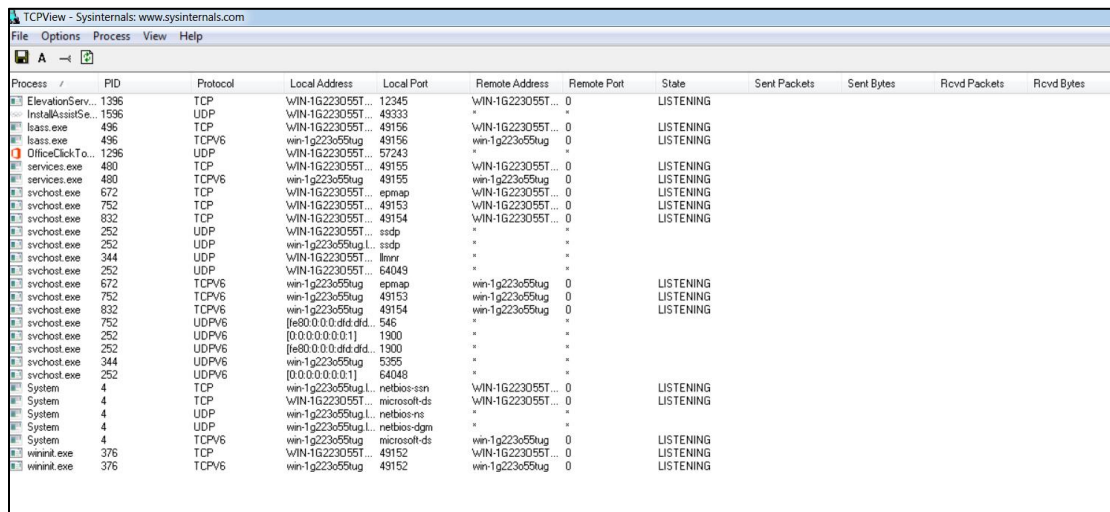
❖ TCPView v3.05

TCPView is a Windows program that will show us detailed listings of all TCP and UDP endpoints on our system, including the local and remote addresses and state of TCP connections. On Windows Server 2008, Vista, and XP, TCPView also reports the name of the process that owns the endpoint. TCPView provides a more informative and conveniently presented subset of the Netstat program that ships with Windows. The TCPView download includes Tcpcvcon, a command-line version with the same functionality.



The screenshot shows the TCPView application window with a menu bar (File, Options, Process, View, Help) and a toolbar. The main window displays a table of network connections. The table has columns for Process, PID, Protocol, Local Address, Local Port, Remote Address, Remote Port, State, Sent Packets, Sent Bytes, Rcvd Packets, and Rcvd Bytes. The data is sorted by Local Port. The 'svchost.exe' process is highlighted in blue, showing multiple connections to various remote addresses and ports.

Process	PID	Protocol	Local Address	Local Port	Remote Address	Remote Port	State	Sent Packets	Sent Bytes	Rcvd Packets	Rcvd Bytes
ElevationServ...	1396	TCP	WIN-1G223055T...	12345	WIN-1G223055T...	0	LISTENING				
InstallAssistSe...	1596	UDP	WIN-1G223055T...	49333	*	*					
lsass.exe	496	TCP	WIN-1G223055T...	49156	WIN-1G223055T...	0	LISTENING				
lsass.exe	496	TCPV6	WIN-1G223055T...	49156	WIN-1G223055T...	0	LISTENING				
OfficeClickTo...	1296	UDP	WIN-1G223055T...	57243	*	*					
OfficeClickTo...	1296	TCP	WIN-1G223055T...	49155	WIN-1G223055T...	0	LISTENING				
services.exe	480	TCP	WIN-1G223055T...	49155	WIN-1G223055T...	0	LISTENING				
services.exe	480	TCPV6	WIN-1G223055T...	49155	WIN-1G223055T...	0	LISTENING				
svchost.exe	672	TCP	WIN-1G223055T...	epmap	WIN-1G223055T...	0	LISTENING				
svchost.exe	752	TCP	WIN-1G223055T...	49153	WIN-1G223055T...	0	LISTENING				
svchost.exe	832	TCP	WIN-1G223055T...	49154	WIN-1G223055T...	0	LISTENING				
svchost.exe	252	UDP	WIN-1G223055T...	ssdp	*	*					
svchost.exe	252	UDP	WIN-1G223055T...	ssdp	*	*					
svchost.exe	344	UDP	WIN-1G223055T...	llmnr	*	*					
svchost.exe	252	UDP	WIN-1G223055T...	64048	*	*					
svchost.exe	672	TCPV6	WIN-1G223055T...	epmap	WIN-1G223055T...	0	LISTENING				
svchost.exe	752	TCPV6	WIN-1G223055T...	49153	WIN-1G223055T...	0	LISTENING				
svchost.exe	832	UDPV6	WIN-1G223055T...	49154	WIN-1G223055T...	0	LISTENING				
svchost.exe	752	UDPV6	WIN-1G223055T...	49154	WIN-1G223055T...	0	LISTENING				
svchost.exe	252	UDPV6	WIN-1G223055T...	1900	*	*					
svchost.exe	252	UDPV6	WIN-1G223055T...	1900	*	*					
svchost.exe	344	UDPV6	WIN-1G223055T...	5355	*	*					
svchost.exe	252	UDPV6	WIN-1G223055T...	64048	*	*					
System	4	TCP	WIN-1G223055T...	netbios-ssn	WIN-1G223055T...	0	LISTENING				
System	4	TCP	WIN-1G223055T...	microsoft-ds	WIN-1G223055T...	0	LISTENING				
System	4	UDP	WIN-1G223055T...	netbios-ns	*	*					
System	4	UDP	WIN-1G223055T...	netbios-dgm	*	*					
System	4	TCPV6	WIN-1G223055T...	microsoft-ds	WIN-1G223055T...	0	LISTENING				
wininit.exe	376	TCP	WIN-1G223055T...	49152	WIN-1G223055T...	0	LISTENING				
wininit.exe	376	TCPV6	WIN-1G223055T...	49152	WIN-1G223055T...	0	LISTENING				



This screenshot is identical to the one above, showing the same network connections in the TCPView application.

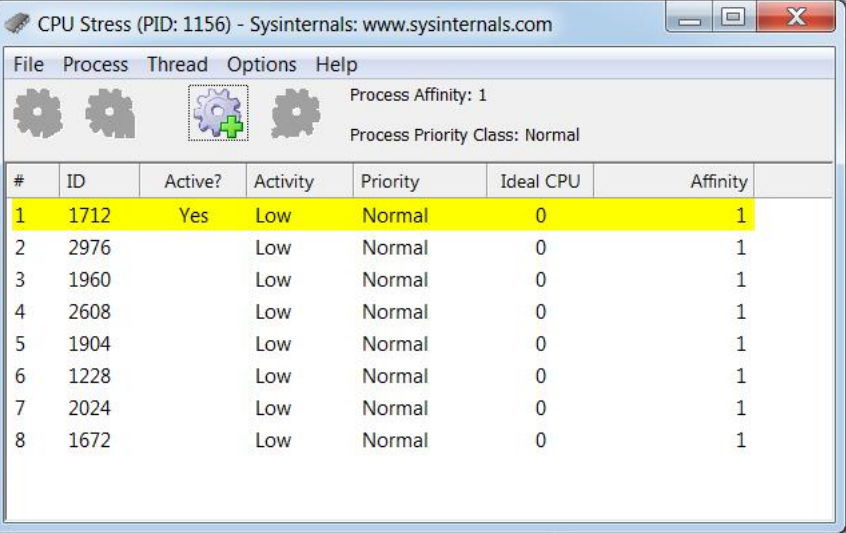
❖ CPUstres v2.0

CpuStres is a utility that can be used to simulate CPU activity by running up to 64 threads in a tight loop.

Each thread can be started, paused or stopped independently and can be configured with the following parameters:

Activity Level This can be Low, Medium, Busy or Maximum which controls how long the thread sleeps between cycles. Setting this value to Maximum causes the thread to run continuously.

Priority This controls the thread priority. Refer to Windows Internals by Mark Russinovich for details on thread priorities



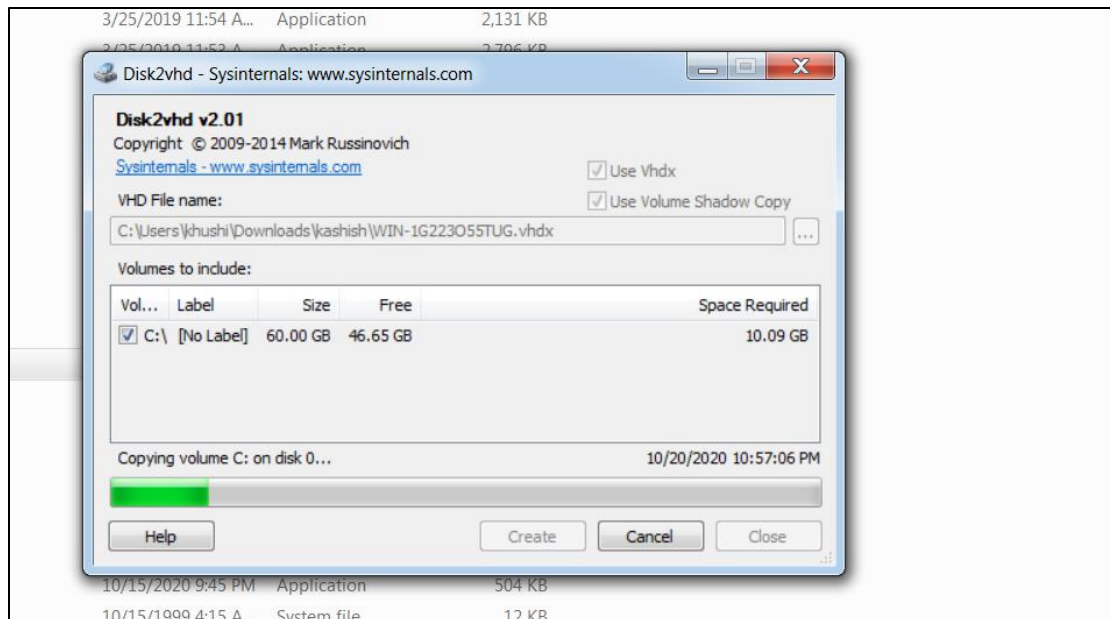
The screenshot shows the 'CPU Stress (PID: 1156) - Sysinternals: www.sysinternals.com' window. It features a menu bar (File, Process, Thread, Options, Help) and a toolbar with four gear icons. Below the toolbar, it displays 'Process Affinity: 1' and 'Process Priority Class: Normal'. A table lists eight threads with columns for #, ID, Active?, Activity, Priority, Ideal CPU, and Affinity. The first thread (ID 1712) is highlighted in yellow. Below the application window, a portion of a system file table is visible, showing columns for Name, Date modified, Type, and Size.

#	ID	Active?	Activity	Priority	Ideal CPU	Affinity
1	1712	Yes	Low	Normal	0	1
2	2976		Low	Normal	0	1
3	1960		Low	Normal	0	1
4	2608		Low	Normal	0	1
5	1904		Low	Normal	0	1
6	1228		Low	Normal	0	1
7	2024		Low	Normal	0	1
8	1672		Low	Normal	0	1

Name	Date modified	Type	Size
reinfo	4/27/2020 5:01 PM	Application	967 KB
USTRES	3/25/2019 11:54 A...	Application	2,131 KB
USTRES64	3/25/2019 11:53 A...	Application	2,796 KB
l2cap.amd.sys	9/28/2006 7:34 AM	System file	10 KB

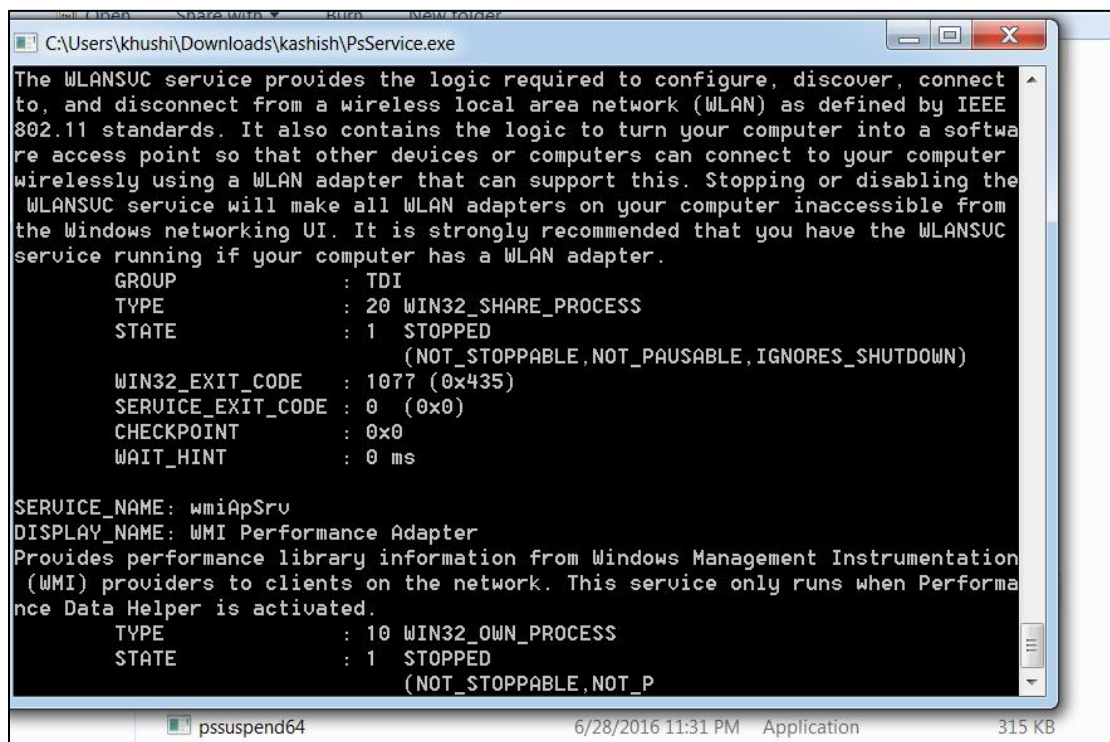
❖ Disk2vhd v2.01

Disk2vhd is a utility that creates VHD (Virtual Hard Disk - Microsoft's Virtual Machine disk format) versions of physical disks for use in Microsoft Virtual PC or Microsoft Hyper-V virtual machines (VMs). The difference between Disk2vhd and other physical-to-virtual tools is that we can run Disk2vhd on a system that's online. Disk2vhd uses Windows' Volume Snapshot capability, introduced in Windows XP, to create consistent point-in-time snapshots of the volumes we want to include in a conversion.



❖ PsService v2.25

PsService is a service viewer and controller for Windows. Like the SC utility that's included in the Windows NT and Windows 2000 Resource Kits, *PsService* displays the status, configuration, and dependencies of a service, and allows us to start, stop, pause, resume and restart them. Unlike the SC utility, *PsService* enables us to logon to a remote system using a different account, for cases when the account from which we run it doesn't have required permissions on the remote system.



❖ Autologon v3.10

Autologon enables us to easily configure Windows' built-in autologon mechanism. Instead of waiting for a user to enter their name and password, Windows uses the credentials we enter with Autologon, which are encrypted in the Registry, to log on the specified user automatically.

Autologon is easy enough to use. Just run *autologon.exe*, fill in the dialog, and hit *Enable*. To turn off auto-logon, hit *Disable*. Also, if the shift key is held down before the system performs an autologon, the autologon will be disabled for that logon. We can also pass the username, domain and password as command-line arguments

