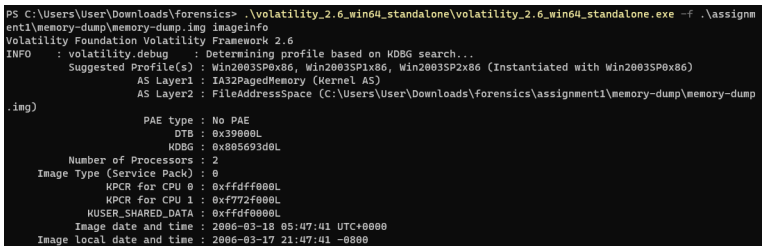
Ng Jong Ray, Edward A02126695U e0540252@u.nus.edu

Task 1:

1. Command used : *volatility_2.6_win64_standalone.exe -f memory-dump.img imageinfo*
   OS Version: Windows 2003
   The 2 most-likely version profiles: Win2003SP0x86, Win2003SP1x86

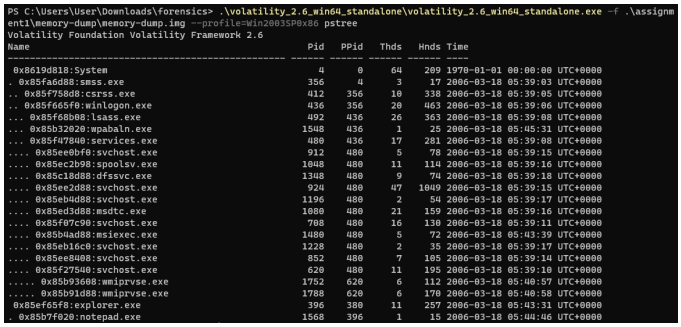


2. Using the same commands as above,
   Address Space Type: IA-32 paging address space
   Processor Type: Intel Architecture
   32 bits

3. Command used : *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 pslist*

Offset(V)	Name	PID	PPID	Thds	Hnds	Sess	Wow64	Start	Exit
0x8619d818	System	4	0	64	209	------	0		
0x85fa6d88	smss.exe	356	4	3	17	------	0	2006-03-18 05:39:03 UTC+0000	
0x85f758d8	csrss.exe	412	356	10	338	0	0	2006-03-18 05:39:05 UTC+0000	
0x85f665f0	winlogon.exe	436	356	20	463	0	0	2006-03-18 05:39:06 UTC+0000	
0x85f47840	services.exe	480	436	17	281	0	0	2006-03-18 05:39:08 UTC+0000	
0x85f68b08	lsass.exe	492	436	26	363	0	0	2006-03-18 05:39:08 UTC+0000	
0x85f27540	svchost.exe	620	480	11	195	0	0	2006-03-18 05:39:10 UTC+0000	
0x85f07c90	svchost.exe	708	480	16	130	0	0	2006-03-18 05:39:11 UTC+0000	
0x85ee8408	svchost.exe	852	480	7	105	0	0	2006-03-18 05:39:14 UTC+0000	
0x85ee0bf0	svchost.exe	912	480	5	78	0	0	2006-03-18 05:39:15 UTC+0000	
0x85ee2d88	svchost.exe	924	480	47	1049	0	0	2006-03-18 05:39:15 UTC+0000	
0x85ec2b98	spoolsv.exe	1048	480	11	114	0	0	2006-03-18 05:39:16 UTC+0000	
0x85ed3d88	msdtc.exe	1080	480	21	159	0	0	2006-03-18 05:39:16 UTC+0000	
0x85eb4d88	svchost.exe	1196	480	2	54	0	0	2006-03-18 05:39:17 UTC+0000	
0x85eb16c0	svchost.exe	1228	480	2	35	0	0	2006-03-18 05:39:17 UTC+0000	
0x85c18d88	dfssvc.exe	1348	480	9	74	0	0	2006-03-18 05:39:18 UTC+0000	
0x85b93608	wmiprvse.exe	1752	620	6	112	0	0	2006-03-18 05:40:57 UTC+0000	
0x85b91d88	wmiprvse.exe	1788	620	6	170	0	0	2006-03-18 05:40:58 UTC+0000	
0x85ef65f8	explorer.exe	396	380	11	257	0	0	2006-03-18 05:43:31 UTC+0000	
0x85b4ad88	msiexec.exe	1480	480	5	72	0	0	2006-03-18 05:43:39 UTC+0000	
0x85b7f020	notepad.exe	1568	396	1	15	0	0	2006-03-18 05:44:46 UTC+0000	
0x85b32020	wpabaln.exe	1548	436	1	25	0	0	2006-03-18 05:45:31 UTC+0000	

4. Command used : *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 pstree*
   Text-Editor application executable name: notepad.exe
   PID: 1568



Ng Jong Ray, Edward A02126695U e0540252@u.nus.edu

5. Using the same command, looking for the PPID
   Command used : *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 pstree*

```
 0x85ef65f8:explorer.exe                       396    380     11    257 2006-03-18 05:43:31 UTC+0000
. 0x85b7f020:notepad.exe                      1568    396      1     15 2006-03-18 05:44:46 UTC+0000
```

   PID: 396
   Name of executable: explorer.exe
   Time: 2006-03-18 05:43:31 UTC+0000
6. Command used : *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 dlllist --pid=1568*

Base	*Size*	*LoadCount*	*Path*
0x01000000	*0x14000*	*0xffff*	*C:\WINDOWS\system32\notepad.exe*
0x77f40000	*0xba000*	*0xffff*	*C:\WINDOWS\system32\ntdll.dll*
0x77e40000	*0xf4000*	*0xffff*	*C:\WINDOWS\system32\kernel32.dll*
0x762b0000	*0x47000*	*0xffff*	*C:\WINDOWS\system32\comdlg32.dll*
0x77290000	*0x49000*	*0xffff*	*C:\WINDOWS\system32\SHLWAPI.dll*
0x77c00000	*0x44000*	*0xffff*	*C:\WINDOWS\system32\GDI32.dll*
0x77d00000	*0x8f000*	*0xffff*	*C:\WINDOWS\system32\USER32.dll*
0x77da0000	*0x90000*	*0xffff*	*C:\WINDOWS\system32\ADVAPI32.dll*
0x77c50000	*0xa4000*	*0xffff*	*C:\WINDOWS\system32\RPCRT4.dll*
0x77ba0000	*0x54000*	*0xffff*	*C:\WINDOWS\system32\msvcrt.dll*
0x70ad0000	*0xe6000*	*0xffff*	*C:\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450B\COMCTL32.dll*
0x77380000	*0x7dd000*	*0xffff*	*C:\WINDOWS\system32\SHELL32.dll*
0x73070000	*0x26000*	*0xffff*	*C:\WINDOWS\system32\WINSPOOL.DRV*
0x71b70000	*0x33000*	*0x1*	*C:\WINDOWS\system32\UxTheme.dll*

7. Command Used: *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 --pid=1568 envars*
   Username: Administrator
   Windows domain: BATTLESTAR

```
1568 notepad.exe          0x00010000 PROCESSOR_LEVEL            15
1568 notepad.exe          0x00010000 PROCESSOR_REVISION         0209
1568 notepad.exe          0x00010000 ProgramFiles               C:\Program Files
1568 notepad.exe          0x00010000 SESSIONNAME                Console
1568 notepad.exe          0x00010000 SystemDrive                C:
1568 notepad.exe          0x00010000 SystemRoot                 C:\WINDOWS
1568 notepad.exe          0x00010000 TEMP                       C:\DOCUME~1\ADMINI~1\LOCALS~1\Temp
1568 notepad.exe          0x00010000 TMP                        C:\DOCUME~1\ADMINI~1\LOCALS~1\Temp
1568 notepad.exe          0x00010000 USERDOMAIN                 BATTLESTAR
1568 notepad.exe          0x00010000 USERNAME                   Administrator
1568 notepad.exe          0x00010000 USERPROFILE                C:\Documents and Settings\Administrator
1568 notepad.exe          0x00010000 windir                     C:\WINDOWS
```

8. Command Used: *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 --pid=1568 handles*
   Files:
   \Device\HarddiskVolume1\Documents and Settings\Administrator
   \Device\HarddiskVolume1\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450B

```
volatility_2.6_win64_standalone.exe: error: no such option: --pid
PS C:\Users\User\Downloads\forensics> .\volatility_2.6_win64_standalone\volatility_2.6_win64_standalone.exe -f .\assignment1\memory-dump\memory-dump.img --profile=Win2003SP0x86 --pid=1568 handles
Volatility Foundation Volatility Framework 2.6
Offset(V)     Pid     Handle     Access Type            Details
---------- ------ ---------- ---------- ---------------- -------
0xe1001760   1568        0x4        0x3 KeyedEvent       CritSecOutOfMemoryEvent
0x85b7a180   1568        0x8   0x1f0003 Event
0xe12309e8   1568        0xc        0x3 Directory        KnownDlls
0x85b862b8   1568       0x10   0x100020 File             \Device\HarddiskVolume1\Documents and Settings\Administrator
0x85b7cda8   1568       0x14   0x100020 File             \Device\HarddiskVolume1\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450B
0xe1662e00   1568       0x18   0x1f0001 Port
0x85bccca0   1568       0x1c  0x21f0003 Event
0x85f6e7b8   1568       0x20    0xf037f WindowStation    WinSta0
0x85f69080   1568       0x24    0xf01ff Desktop          Default
0x85f6e7b8   1568       0x28    0xf037f WindowStation    WinSta0
0xe175b288   1568       0x2c  0x20f003f Key              MACHINE
0x85b478e8   1568       0x30   0x1f0003 Event
0x85b34228   1568       0x34   0x100020 File             \Device\HarddiskVolume1\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450B
0xe14febd8   1568       0x38  0x20f003f Key              USER\S-1-5-21-1264845060-2747189687-326860554W-500
0x85ef3158   1568       0x40   0x100020 File             \Device\HarddiskVolume1\WINDOWS\WinSxS\x86_Microsoft.Windows.Common-Controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450B
```

9. Command Used: *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 psscan*

Executable Name	PID	Exit Time
dllhost.exe	1156	2006-03-18 05:38:32 UTC+0000

spoolsv.exe	1644	2006-03-18 05:38:31 UTC+0000
setup.exe	336	2006-03-18 05:38:31 UTC+0000

10. Command Used: *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 sockscan*
    UDP port number: 17
    PID: 924

```
PS C:\Users\User\Downloads\forensics> .\volatility_2.6_win64_standalone\volatility_2.6_win64_standalone.exe -f .\assignm
ent1\memory-dump\memory-dump.img --profile=Win2003SP0x86 sockscan
Volatility Foundation Volatility Framework 2.6
Offset(P)       PID   Port  Proto Protocol        Address         Create Time
---------- -------- ------ ------ ---------- --------------- -----------
0x06014ea8      924    123     17 UDP            127.0.0.1       -
0x06032ea8        4   1026      6 TCP            0.0.0.0         -
0x06226a28      304   1025      6 TCP            0.0.0.0         -
0x062aa778      492   4500     17 UDP            0.0.0.0         -
0x062cf700      924   1026      6 TCP            0.0.0.0         -
0x063b7008        4    445     17 UDP            0.0.0.0         -
```

    Command Used to find executable name: *volatility_2.6_win64_standalone.exe -f memory-dump.img --profile=Win2003SP0x86 –pid=924 pslist*
    Executable Name: svchost.exe

Ng Jong Ray, Edward A02126695U e0540252@u.nus.edu

Task 2:

1. Command Used to display layout of disk: *mmls disk-dump.E01*
   Sector 0-0 Primary Table
   Sector 0-31 Unallocated
   Sector 32-3914751 Win95 FAT32

```
timmybeef@timmybeef-IdeaPad-U330p:~/Desktop/ifs4102/Assignments/Assignment-1$ mmls disk-dump.E01
DOS Partition Table
Offset Sector: 0
Units are in 512-byte sectors

     Slot      Start        End          Length       Description
000:  Meta      0000000000   0000000000   0000000001   Primary Table (#0)
001:  -------   0000000000   0000000031   0000000032   Unallocated
002:  000:000   0000000032   0003914751   0003914720   Win95 FAT32 (0x0c)
```

2. Using the information in mmls above to find the file system
   Command Used to find file system type of accessible partition: *mmls disk-dump.E01*
   File-System Type: FAT32
3. Use *img_stat disk-dump.E01* to find out the image type: ewf
   Command used to find Volume ID and Label: *fsstat -i ewf -o 32 disk-dump.E01*
   Volume ID: 0x6ed6ab58
   Volume Label: Practice

```
timmybeef@timmybeef-IdeaPad-U330p:~/Desktop/ifs4102/Assignments/Assignment-1$ fsstat -i ewf -o 32 disk-dump.E01
FILE SYSTEM INFORMATION
--------------------------------------------
File System Type: FAT32

OEM Name: MSDOS5.0
Volume ID: 0x6ed6ab58
Volume Label (Boot Sector): NO NAME
Volume Label (Root Directory): PRACTICE
File System Type Label: FAT32
Next Free Sector (FS Info): 84622
Free Sector Count (FS Info): 3830098
```

4. Command used to find Volume ID and Label: *fsstat -i ewf -o 32 disk-dump.E01*
   Sector Size: 512 bytes
   Cluster Size: 1024 bytes

```
CONTENT INFORMATION
--------------------------------------------
Sector Size: 512
Cluster Size: 1024
Total Cluster Range: 2 - 1940977
```

5. Command used to find Volume ID and Label: *fsstat -i ewf -o 32 disk-dump.E01*
   Number of sectors in data area: 3914719-32768+1 = 3881952

```
File System Layout (in sectors)
Total Range: 0 - 3914719
* Reserved: 0 - 2439
** Boot Sector: 0
** FS Info Sector: 1
** Backup Boot Sector: 6
* FAT 0: 2440 - 17603
* FAT 1: 17604 - 32767
* Data Area: 32768 - 3914719
** Cluster Area: 32768 - 3914719
*** Root Directory: 32768 - 32769
```

6. Command used to find user-created directories: *fls -i ewf -f fat32 -o 32 disk-dump.E01*
   Name of user created directories: Personal, Work, Practice

```
┌──(test㉿kali)-[~/Desktop]
└─$ fls -i ewf -f fat32 -o 32 disk-dump.E01
d/d 10: Home
r/r 3:  PRACTICE    (Volume Label Entry)
d/d 6:  System Volume Information
d/d 8:  Personal
d/d 12: Work
d/d 14: Practice
v/v 62111235:   $MBR
v/v 62111236:   $FAT1
v/v 62111237:   $FAT2
V/V 62111238:   $OrphanFiles
```

7. Command used to find deleted file and directories: *fls -i ewf -f fat32 -o 32 -rpd disk-dump.E01*

r/r * 168: Home/New Microsoft Excel Worksheet.xlsx
r/r * 172: Home/New Microsoft Excel Worksheet.xlsx
r/r * 177: Home/New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP
r/r * 182: Home/New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP
r/r * 184: Home/List.xlsx
r/r * 186: Home/~$List.xlsx
r/r * 187: Home/_F5A0100
r/r * 188: Home/_278CD2D.tmp
r/r * 191: Home/_XAMPLES.txt
r/r * 193: Home/_PTIONS.txt
r/r * 204: Work/SecTools.Org Top Network Security Tools.html
r/r * 820456: Work/2021 Awards – Forensic 4_cast.html
r/r * 229: Practice/_hadow.txt
r/r * 230: Practice/_assword.txt

```
┌──(test㉿kali)-[~/Desktop]
└─$ fls -i ewf -f fat32 -o 32 -rpd disk-dump.E01
r/r * 168:      Home/New Microsoft Excel Worksheet.xlsx
r/r * 172:      Home/New Microsoft Excel Worksheet.xlsx
r/r * 177:      Home/New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP
r/r * 182:      Home/New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP
r/r * 184:      Home/List.xlsx
r/r * 186:      Home/~$List.xlsx
r/r * 187:      Home/_F5A0100
r/r * 188:      Home/_278CD2D.tmp
r/r * 191:      Home/_XAMPLES.txt
r/r * 193:      Home/_PTIONS.txt
r/r * 204:      Work/SecTools.Org Top Network Security Tools.html
r/r * 820456:   Work/2021 Awards – Forensic 4_cast.html
r/r * 229:      Practice/_hadow.txt
r/r * 230:      Practice/_assword.txt
```

8. Command used to find file metadata of Personal directory: *fls -i ewf -f fat32 -o 32 disk-dump.E01 | grep Personal*
   File metadata number: 8

```
┌──(test㉿kali)-[~/Desktop]
└─$ fls -i ewf -f fat32 -o 32 disk-dump.E01 | grep Personal
d/d 8:  Personal
```

9. Command used to find file name of inode 190: *ffind -i ewf -f fat32 -o 32 disk-dump.E01 190*
   File name: List.docx

```
┌──(test㉿kali)-[~/Desktop]
└─$ ffind -i ewf -f fat32 -o 32 disk-dump.E01 190
/Home/List.docx
```

10. What are the recorded MAC times of a folder named `Home` that resides at the root directory according to the times recorded within its file metadata??????
    Command Used: *fls -i ewf -f fat32 -o 32 -l disk-dump.E01 10*
    Last Modification Time: 2023-02-05 19:59:40 (+08)
    Last Access Time: 2023-02-05 00:00:00 (+08)
    Last Changed Time: 0000-00-00 00:00:00 (UTC)

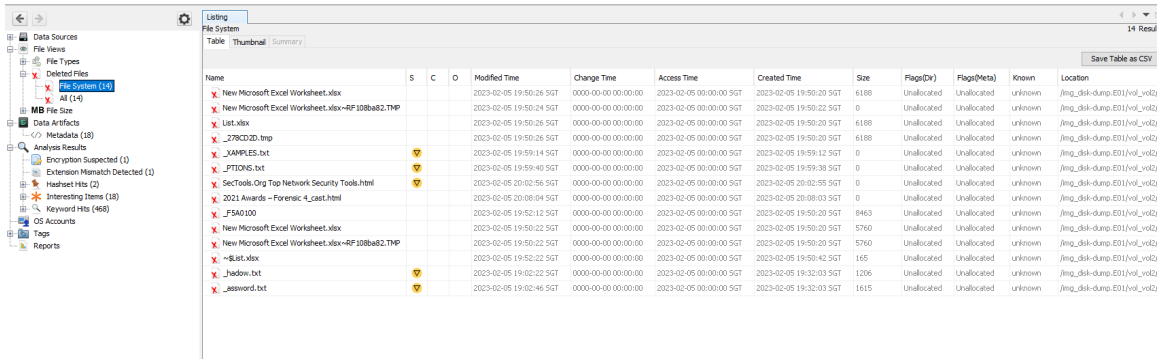
```
r/r * 168:      New Microsoft Excel Worksheet.xlsx      2023-02-05 19:50:22 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       5760
0       0
r/r * 172:      New Microsoft Excel Worksheet.xlsx      2023-02-05 19:50:26 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       6188
0       0
r/r * 177:      New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP        2023-02-05 19:50:24 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:22 (+08)
0       0       0
r/r * 182:      New Microsoft Excel Worksheet.xlsx~RF108ba82.TMP        2023-02-05 19:50:22 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)
5760    0       0
r/r * 184:      List.xlsx       2023-02-05 19:50:26 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       6188    0
0
r/r * 186:      ~$List.xlsx     2023-02-05 19:52:22 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:42 (+08)       165     0
0
r/r * 187:      _F5A0100        2023-02-05 19:52:12 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       8463    0
0
r/r * 188:      _278CD2D.tmp    2023-02-05 19:50:26 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       6188    0
0
r/r 190:        List.docx       2023-02-05 19:52:12 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:50:20 (+08)       8463    0
0
r/r * 191:      _XAMPLES.txt    2023-02-05 19:59:14 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:59:12 (+08)       0       0
0
r/r 192:        EXAMPLES.txt    2023-02-05 19:59:14 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:59:12 (+08)       15013   0       0
r/r * 193:      _PTIONS.txt     2023-02-05 19:59:40 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:59:38 (+08)       0       0
0
r/r 194:        OPTIONS.txt     2023-02-05 19:59:40 (+08)       2023-02-05 00:00:00 (+08)       0000-00-00 00:00:00 (UTC)       2023-02-05 19:59:38 (+08)       41575   0       0
```

Ng Jong Ray, Edward A02126695U e0540252@u.nus.edu

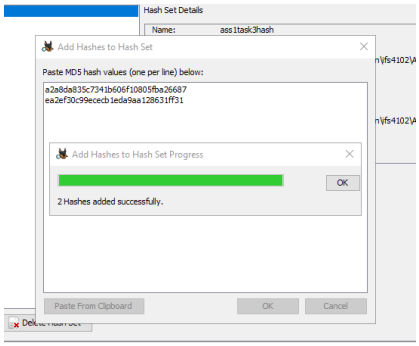
Task 3:

1. Using the “Views” section of the tree viewer, there are 14 deleted files, and finding the files with the .txt extension are below

Full path names of files	Last Modified Time:
/img_disk-dump.E01/vol_vol2/Home/_PTIONS.txt	2023-02-05 19:59:40 SGT
/img_disk-dump.E01/vol_vol2/Home/_XAMPLES.txt	2023-02-05 19:59:14 SGT
/img_disk-dump.E01/vol_vol2/Practice/_hadow.txt	2023-02-05 19:02:22 SGT
/img_disk-dump.E01/vol_vol2/Practice/_assword.txt	2023-02-05 19:02:46 SGT



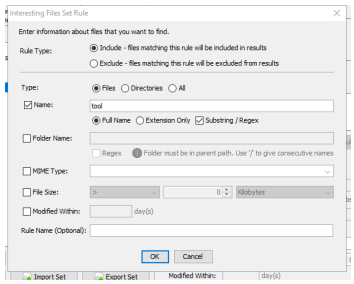
2. Using “Run Ingest Modules” under Tools, we will use the Hash Lookup modules. Creating a new hash set and then adding the hashes to the hash set to search for.



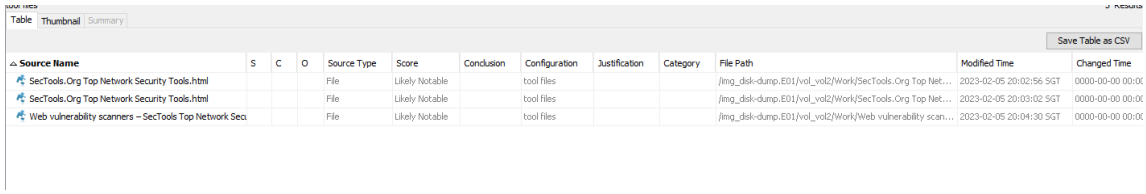
Ea2ef30c99ececb1eda9aa128631ff31 : /img_disk-dump.E01/vol_vol2/Practice/ca_setup.jpg
A2a8da835c7341b606f10805fba26687 : /img_disk-dump.E01/vol_vol2/Work/Sales-data-1.zip/x64/ophcrack.exe

Ng Jong Ray, Edward A02126695U e0540252@u.nus.edu

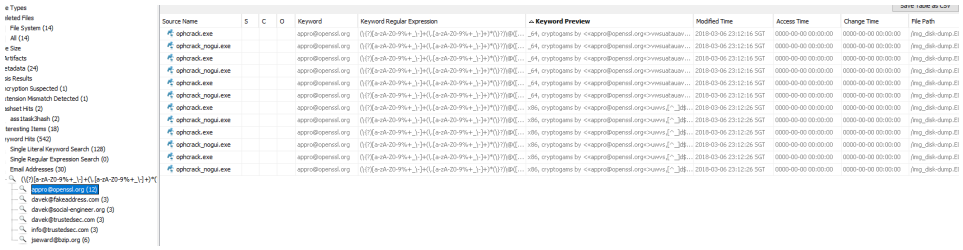
3. “Interesting Files Identifier” adding a global setting and a new rule that includes the name “tool” as a substring.



/img_disk-dump.E01/vol_vol2/Work/SecTools.Org Top Network Security Tools.html
d41d8cd98f00b204e9800998ecf8427e (deleted file hash)
/img_disk-dump.E01/vol_vol2/Work/SecTools.Org Top Network Security Tools.html
/img_disk-dump.E01/vol_vol2/Work/Web vulnerability scanners – SecTools Top Network Security Tools.html

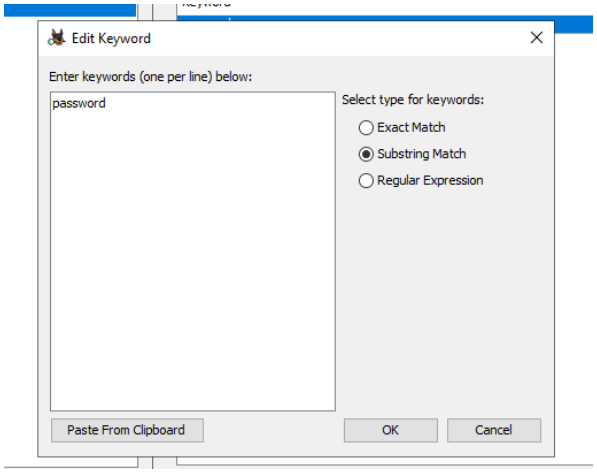


4.



appro@openssl.org	/img_disk-dump.E01/vol_vol2/Work/Sales-data-1.zip/x64/ophcrack_nogui.exe
	/img_disk-dump.E01/vol_vol2/Work/Sales-data-1.zip/x64/ophcrack.exe
davek@fakeaddress.com	/img_disk-dump.E01/vol_vol2/Personal/SET.pdf
davek@social-engineer.org	/img_disk-dump.E01/vol_vol2/Personal/SET.pdf
davek@trustedsec.com	/img_disk-dump.E01/vol_vol2/Personal/SET.pdf
info@trustedsec.com	/img_disk-dump.E01/vol_vol2/Personal/SET.pdf
jseward@bzip.org	/img_disk-dump.E01/vol_vol2/Work/Sales-data-1.zip/x64/ophcrack.exe

List Name	Files with Hits
appro@openssl.org (8)	8
davek@fakeaddress.com (2)	2
davek@social-engineer.org (2)	2
davek@trustedsec.com (2)	2
info@trustedsec.com (2)	2
jseward@bzip.org (4)	4



5.

Enter keywords (one per line) below:

password

Select type for keywords:

○ Exact Match
● Substring Match
○ Regular Expression

EXAMPLES.txt	password
	passwords
	password.lst
OPTIONS.txt	password
	passwords

Source Name	S	C	O	Keyword	Keyword Regular Expression	Keyword Preview
EXAMPLES.txt			0	password	password	get a copy of your «password« file. if your syst
EXAMPLES.txt			0	passwords	password	systemuses shadow «passwords«, you may use john's
EXAMPLES.txt			0	password.lst	password	than john'sdefault «password.lst« and edit the "wordl
EXAMPLES.txt			0	password	password	get a copy of your «password« file. if your syst

OPTIONS.txt			0	password	password	line arguments are «password« file names andopti	2
OPTIONS.txt			0	passwords	password	(ratio of candidate «passwords« suppressed does not	2
OPTIONS.txt			0	password	password	line arguments are «password« file names andopti	2
OPTIONS.txt			0	passwords	password	(ratio of candidate «passwords« suppressed does not	2
OPTIONS.txt			0	password	password	line arguments are «password« file names andopti	2
OPTIONS.txt			0	passwords	password	(ratio of candidate «passwords« suppressed does not	2
OPTIONS.txt			0	password	password	line arguments are «password« file names andopti	2
OPTIONS.txt			0	passwords	password	(ratio of candidate «passwords« suppressed does not	2