

AUTOPSY

Arkansas Strike Team

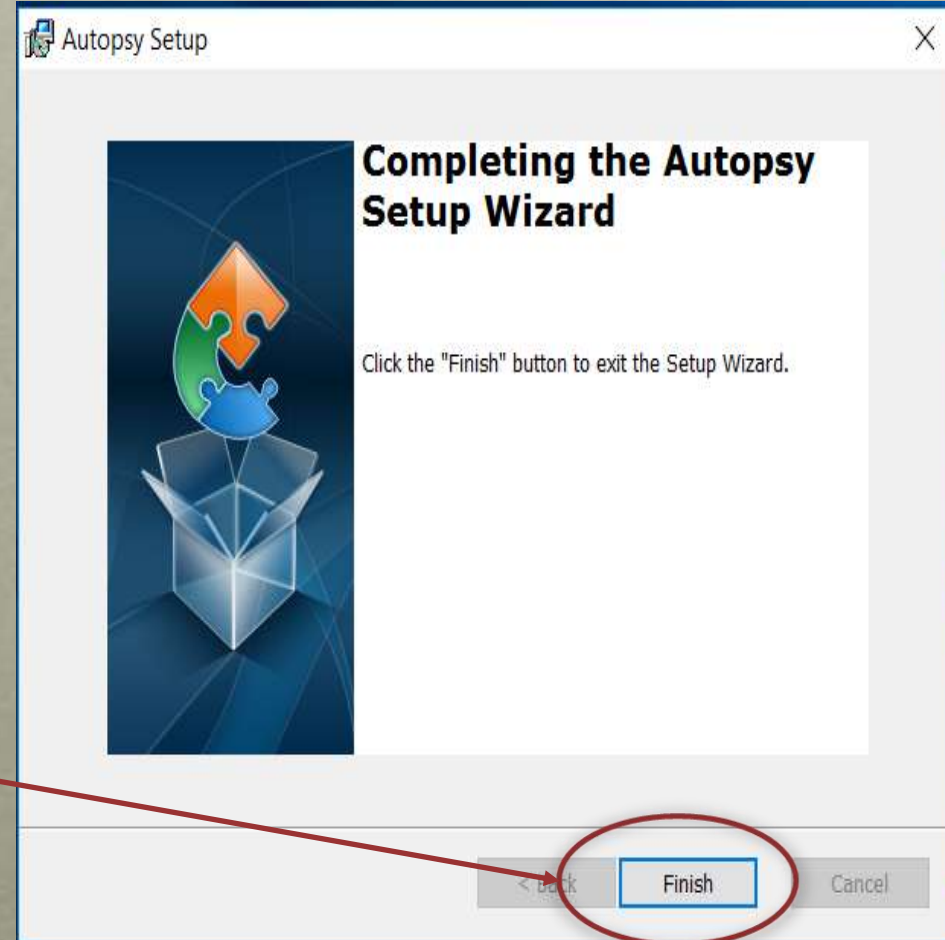
September 2021

AUTOPSY

- **Autopsy** is a FREE forensic tool. It is a digital forensics platform and graphical interface to The Sleuth Kit and other digital forensics tools. It is used by law enforcement, military, and corporate examiners to investigate what happened on a computer.
- Download Autopsy from the website:
<http://sleuthkit.org/autopsy/download.php>

INSTALLATION

- Run Autopsy msi file (autopsy-4.3.0-64bit.exe)
- Click through the dialog boxes until you click a button that says *Finish*



AUTOPSY WORKFLOW

- 1. Create a Case**
- 2. Adding a Data Source**
- 3. Analyze with Ingest Modules**
- 4. Manual Analysis**
- 5. Report Generation**

LAUNCH AUTOPSY

- Autopsy should now be fully installed
- Double click on the icon



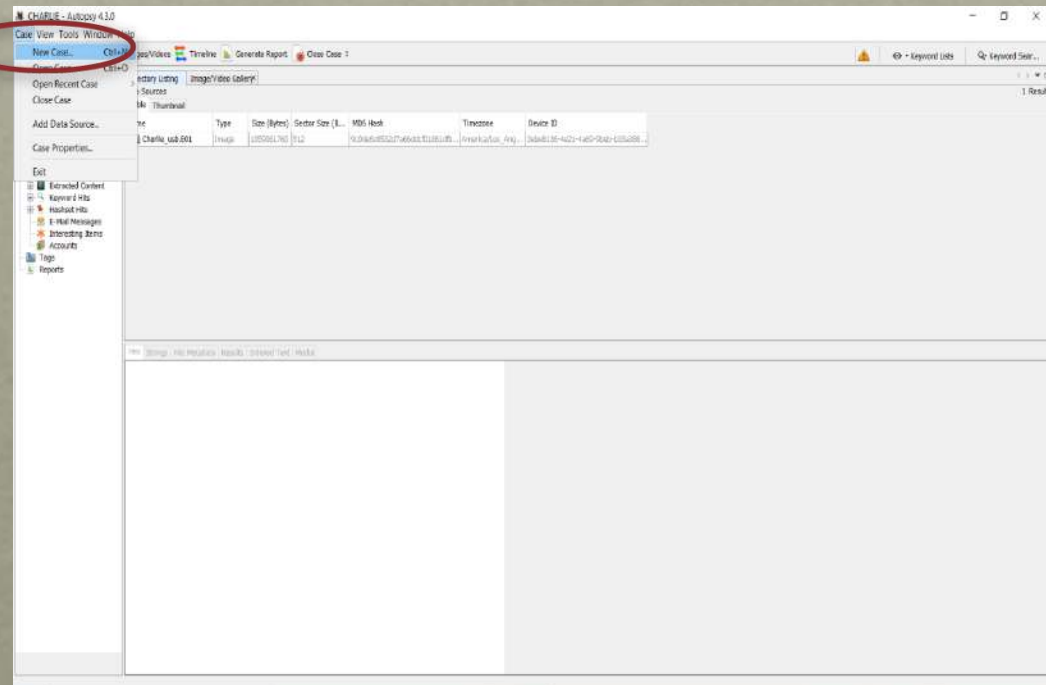
CREATE NEW CASE

- Click **Create New Case**



or

- Click **CASE**
→ New Case



NEW CASE INFORMATION

New Case Information

Steps

1. **Case Info**
2. Additional Information

Case Info

Enter New Case Information:

Case Name:

Base Directory:

Case Type: Single-user Multi-user

Case data will be stored in the following directory:

< Back Next > Finish Cancel Help

New Case Information

Steps

1. Case Info
2. **Additional Information**

Additional Information

Optional: Set Case Number and Examiner

Case Number:

Examiner:

< Back Next > **Finish** Cancel Help

ADDING A DATA SOURCE

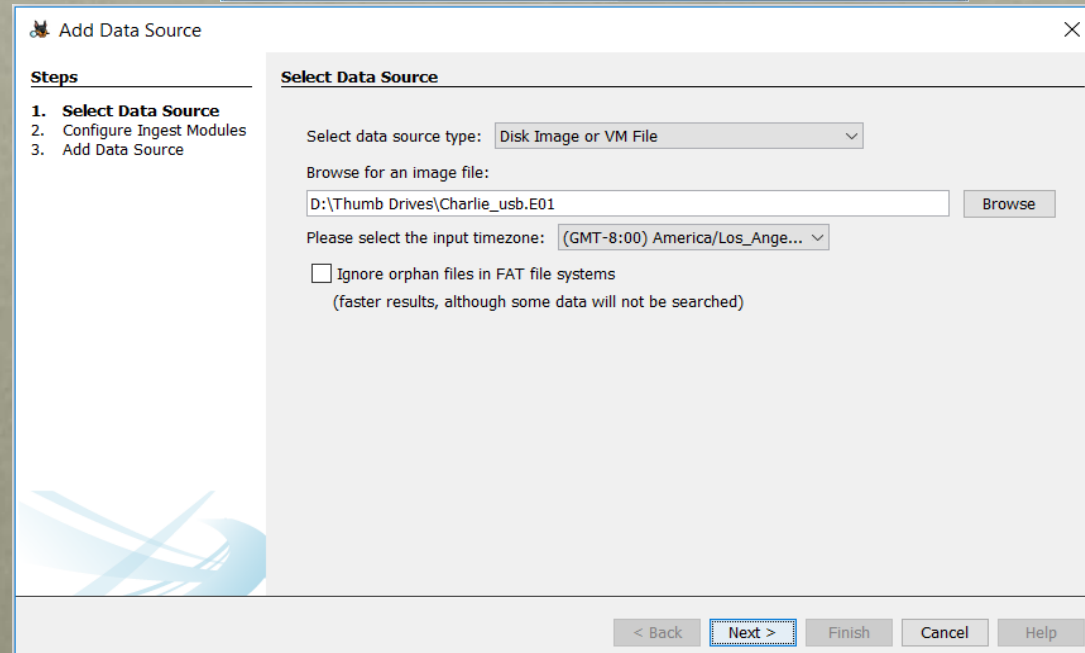
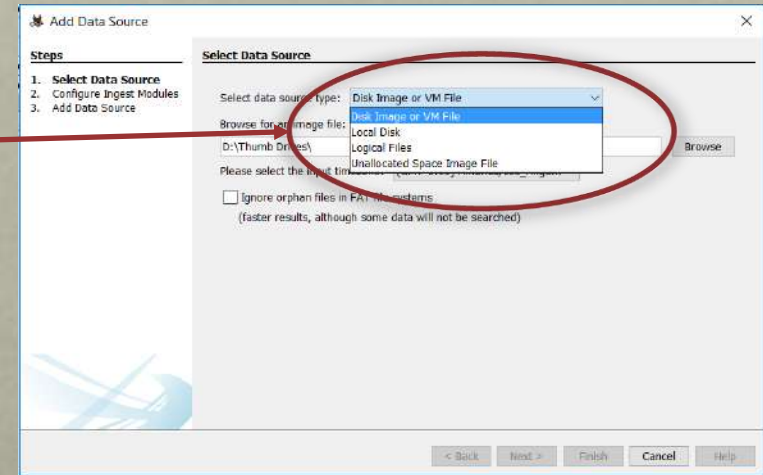
- There are four options.

1. Disk Image or VM File

2. Local Disk

3. Logical Files

4. Unallocated Space Image File



THREE TYPES OF DATA SOURCES

1. Disk Image: A file (or set of files) that is a byte-for-byte copy of a hard drive or flash drive

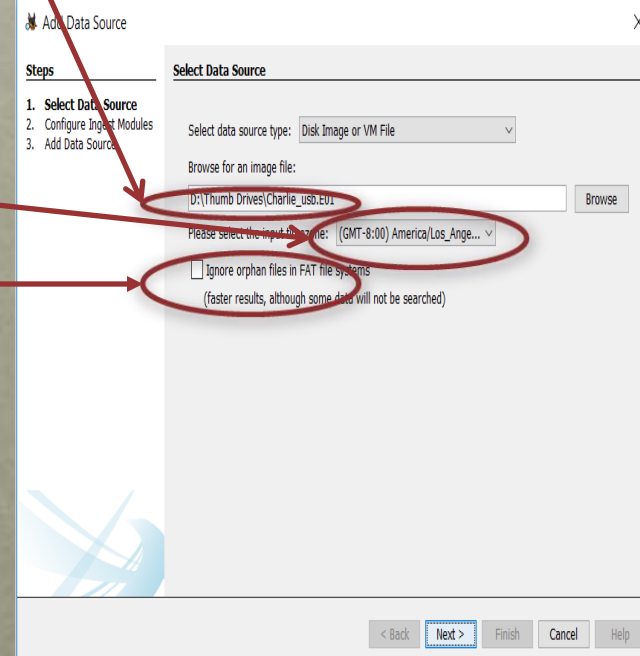
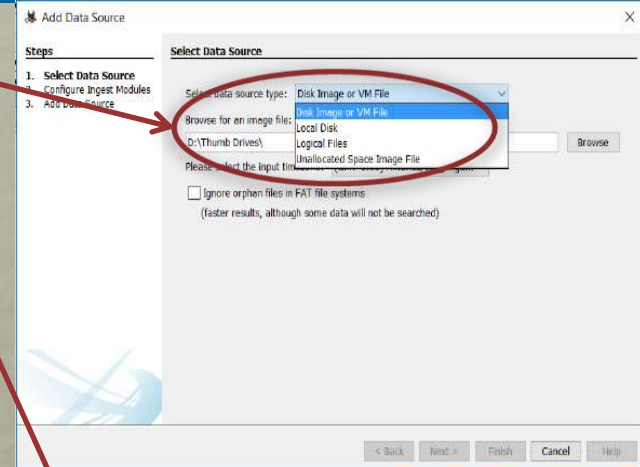
- Raw Single (For example: *.img, *.dd, *.raw, *.bin)
- Raw Split (For example: *.001, *.002, *.aa, *.ab, etc)
- EnCase (For example: *.e01, *.e02, etc)
- Virtual Machines (For example: *.vmdk, *.vhd)

THREE TYPES OF DATA SOURCES (CONT)

- 2. Local Drive:** Local storage device (USB attached flash drive)
- 3. Logical Files:** Local files or folders

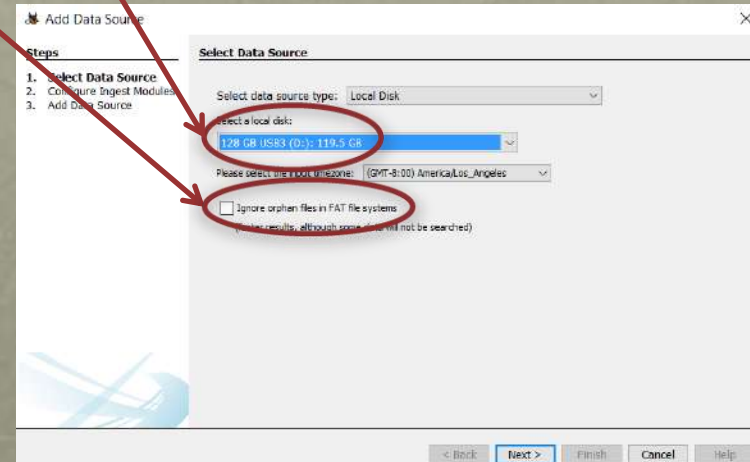
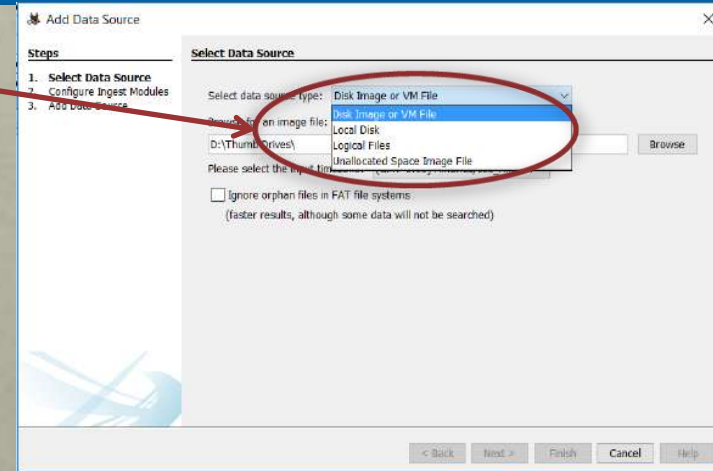
ADDING A DISK IMAGE

1. Select "**Disk Image**" from the pull down.
2. Browse to the first file in the disk image and only the first file and Autopsy will find the rest.
3. Select **Timezone** that the disk image came from. Autopsy will not know how to normalize to UTC.
4. Choose to perform orphan file finding on FAT file systems. This can be a time intensive process because it will require that Autopsy look at each sector in the device.



ADDING A LOCAL DRIVE

1. Select “**Local Drive**” from the pull down of the Data Source Type.
2. Select a local disk from the drop down list
3. Choose to perform orphan file finding on FAT file systems. This can be a time intensive process because it will require that Autopsy look at each sector in the device.

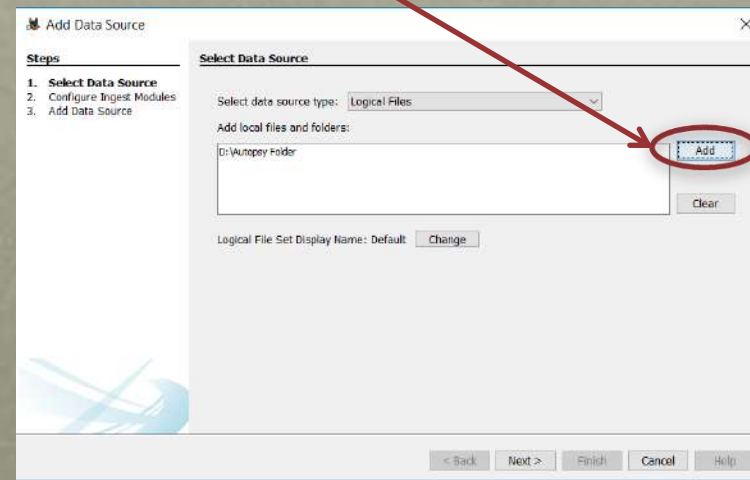
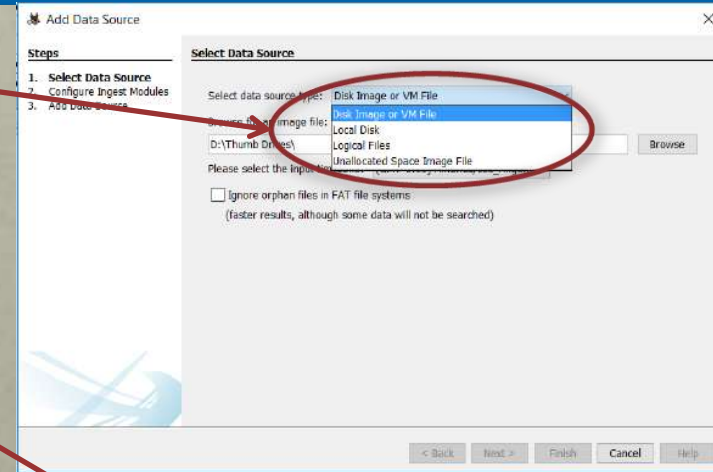


ADDING A LOCAL FILES

1. Select “**Local Files**” from the full down of Data Source Type.

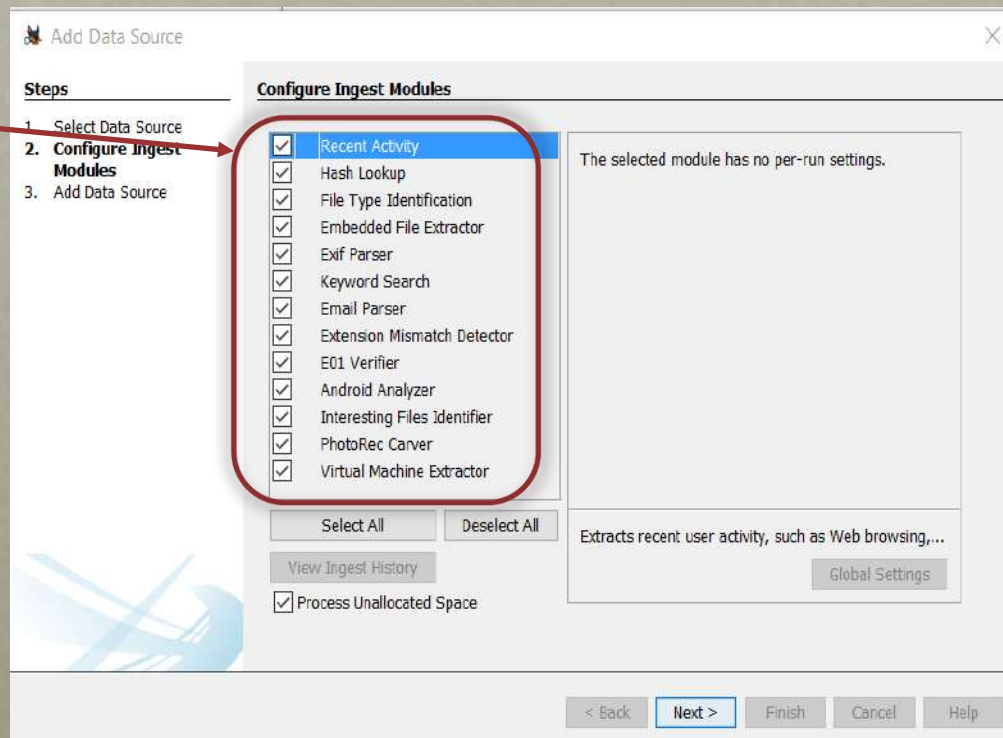
2. Press the “**Add**” button and navigate to a folder (including sub-folders) or file to add.

3. Continue to press “Add” until all files and folders have been selected.



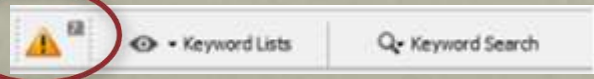
INGEST MODULES

- List of Ingest Modules to enable
- After you configure the ingest modules, you may need to wait for Autopsy to finish its basic examination of the data source



VIEWING INGEST MODULES RESULTS

Click **Yellow Triangle** on the top right



Module	Num	New?	Subject	Timestamp
Hash Lookup	1		No known bad hash database set.	12:53:40
Hash Lookup	1		No known hash database set.	12:53:40
Recent Activity	1		Started Charlie_usb.E01	12:53:40
Recent Activity	1		Finished Charlie_usb.E01 - No errors reported	12:53:40
Recent Activity	1		Charlie_usb.E01 - Browser Results	12:53:40
Embedded File Extrac...	1		Encrypted files in archive detected.	12:53:46
Embedded File Extrac...	1		Encrypted files in archive detected.	12:53:47
Embedded File Extrac...	1		Encrypted files in archive detected.	12:53:49
Embedded File Extrac...	1		Encrypted files in archive detected.	12:53:51
Embedded File Extrac...	1		Encrypted files in archive detected.	12:53:53
File Type Identification	1		File Type Id Results	12:54:37
Keyword Search	1		• Keyword Indexing Results	12:55:24
Extension Mismatch D...	1		• File Extension Mismatch Results	12:55:24
PhotoRec Carver	1		• PhotoRec Results	12:55:24
E01 Verifier	1		• Starting Charlie_usb.E01	12:55:24
E01 Verifier	1		• Charlie_usb.E01 verified	12:55:29

Sort by: Time Total: 16 Unique: 16

INGEST MODULES (CONT)

- **Recent Activity Module** extracts user activity as saved by web browsers and the OS. Also runs Regripper on the registry hive
- **File Type Identification Module** determines file types based on signatures and reports them based on MIME type. It stores the results in the Blackboard and many modules depend on this. It uses the Tika open source library. You can define your own custom file types in Tools, Options, File Types

INGEST MODULES (CONT)

- **Hash Database Lookup Module** uses hash databases to ignore known files from the NIST NSRL. Use the "Advanced" button to add and configure the hash databases to use during this process. You will get updates on known bad file hits as the ingest occurs. You can later add hash databases via the Tools -> Options menu in the main UI. NIST NSRL can be downloaded from

<http://sourceforge.net/projects/autopsy/files/NSRL/>

INGEST MODULES (CONT)

- **Hash Embedded File Extraction Module** opens ZIP, RAR, other archive formats, Doc, Docx, PPT, PPTX, XLS, and XLSX and sends the derived files from those files back through the ingest pipeline for analysis.
- **EXIF Parser Module** extracts EXIF information from JPEG files and posts the results into the tree in the main UI.

INGEST MODULES (CONT)

- **Keyword Search Module** uses keyword lists to identify files with specific words in them. You can select the keyword lists to search for automatically and you can create new lists using the "Advanced" button. You do not need to wait for all files to be indexed before performing a keyword search, however you will only get results from files that have already been indexed when you perform your search

INGEST MODULES (CONT)

- **Extension Mismatch Detector Module** uses the results from the File Type Identification and flags files that have an extension not traditionally associated with the file's detected type. Ignores 'known' (NSRL) files. You can customize the MIME types and file extensions per MIME type in Tools, Options, File Extension Mismatch

INGEST MODULES (CONT)

- **Email Parser Module** identifies Thunderbird MBOX files and PST format files based on file signatures, extracting the e-mails from them, adding the results to the Blackboard
- **E01 Verifier Module** computes a checksum on E01 files and compares with the E01 file's internal checksum to ensure they match

INGEST MODULES (CONT)

- **Extension Mismatch Detector Module** uses the results from the File Type Identification and flags files that have an extension not traditionally associated with the file's detected type. Ignores 'known' (NSRL) files. You can customize the MIME types and file extensions per MIME type in Tools, Options, File Extension Mismatch

INGEST MODULES (CONT)

- **Android Analyzer Module** allows you to parse common items from Android devices. Places artifacts into the BlackBoard
- **PhotoRec Carver Module** carves files from unallocated space and sends them through the file processing chain

INGEST MODULES (CONT)

- **Interesting Files Identifier Module** searches for files and directories based on user-specified rules in Tools, Options, Interesting Files. It works as a "File Alerting Module". It generates messages in the inbox when specified files are found

USER INTERFACE (UI) LAYOUT

- Tree Viewer
- Result Viewer
- Content Viewer
- Keyword Search
- Status Area

The screenshot shows the CHARLIE - Autopsy 4.3.0 interface. The main window is titled "CHARLIE - Autopsy 4.3.0" and contains a menu bar (Case, View, Tools, Window, Help) and a toolbar with buttons for "Add Data Source", "View Images/Videos", "Timeline", "Generate Report", and "Close Case".

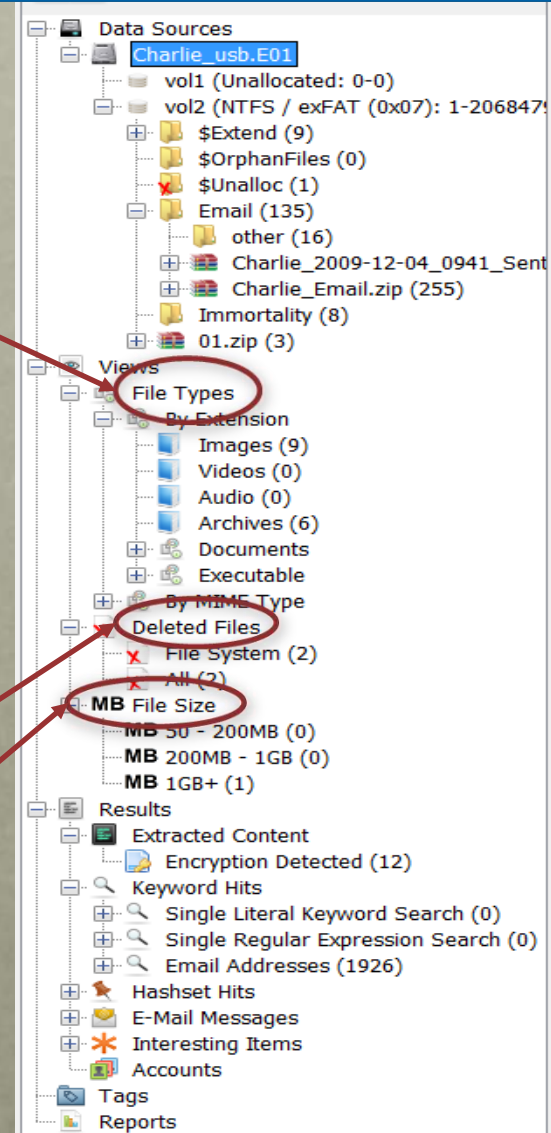
Key UI components are highlighted with red boxes and labels:

- Keyword Search:** A red box at the top right contains the text "Keyword Search".
- Tree Viewer:** A red box on the left side highlights the "Data Sources" tree view, which shows a file system structure including "vol1 (Unallocated: 0-0)", "vol2 (NTFS / exFAT (0x07): 1-2009-04)", and "Views" (File Types, By Extension, Images, Videos).
- Result Viewer:** A red box in the center highlights a table of search results. The table has columns: Name, Location, Modified Time, Change Time, Access Time, Created Time, Size, Flags(Dir), MD5 Hash, and Flags. The results list files like "astronaut.jpg", "astronaut1.jpg", "Charlie_2009-12-03_1216_Sent_micrscope1.jpg", "micrscope1.jpg", "micrscope1.jpg", "Charlie_2009-12-03_1216_Sent_astronaut1.jpg", and "Charlie_2009-12-03_1216_Sent_astronaut1.jpg".
- Content Viewer:** A red box at the bottom right highlights a large image of an astronaut in a white spacesuit walking on a dark, rocky surface.
- Status Area:** A red box at the bottom right corner contains the text "Status Area".

TREE VIEWER

Views filter all the files in the case by some external property of the file

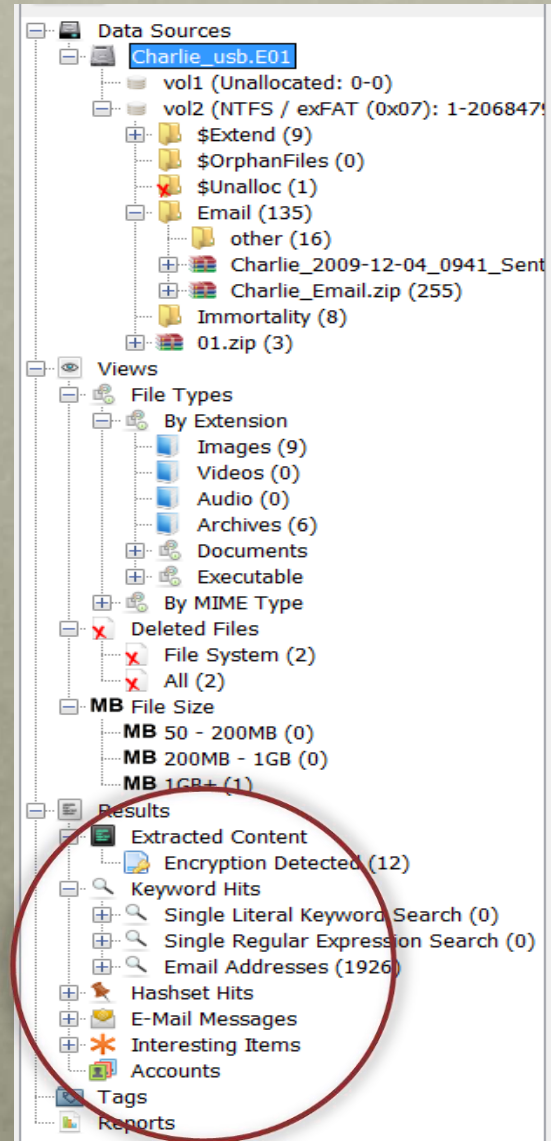
- **File Type** Sorts files by file extension.
- **Recent Files** Displays files that are accessed within the last seven days the user had the device.
- **Deleted Files** Displays files that have been deleted but the names have been recovered.
- **File Size** Sorts files by size.



TREE VIEWER

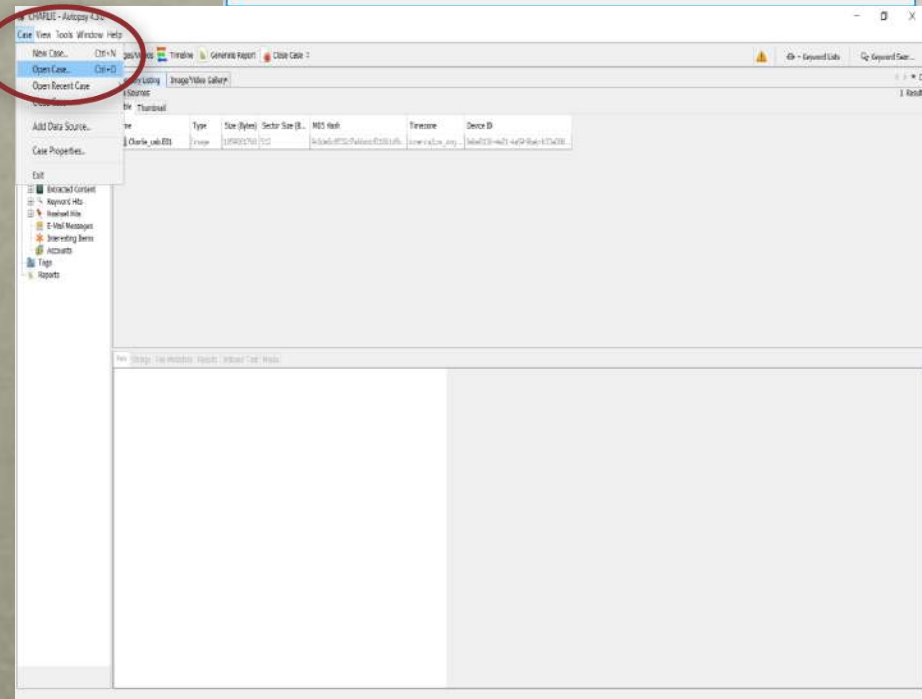
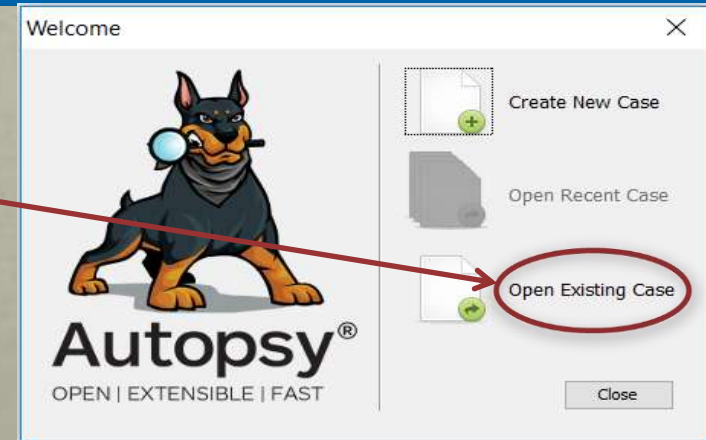
RESULTS

- **Extracted Content:** Many ingest modules will place results here; EXIF data, GPS locations, or Web History for example
- **Keyword Hits:** Keyword search hits show up here
- **Hashset Hits:** Hashset hits show up here
- **E-Mail Messages:** Email messages show up here
- **Interesting Items:** Things deemed interesting show up here
- **Tags:** Any item you tag shows up here so you can find it again easily



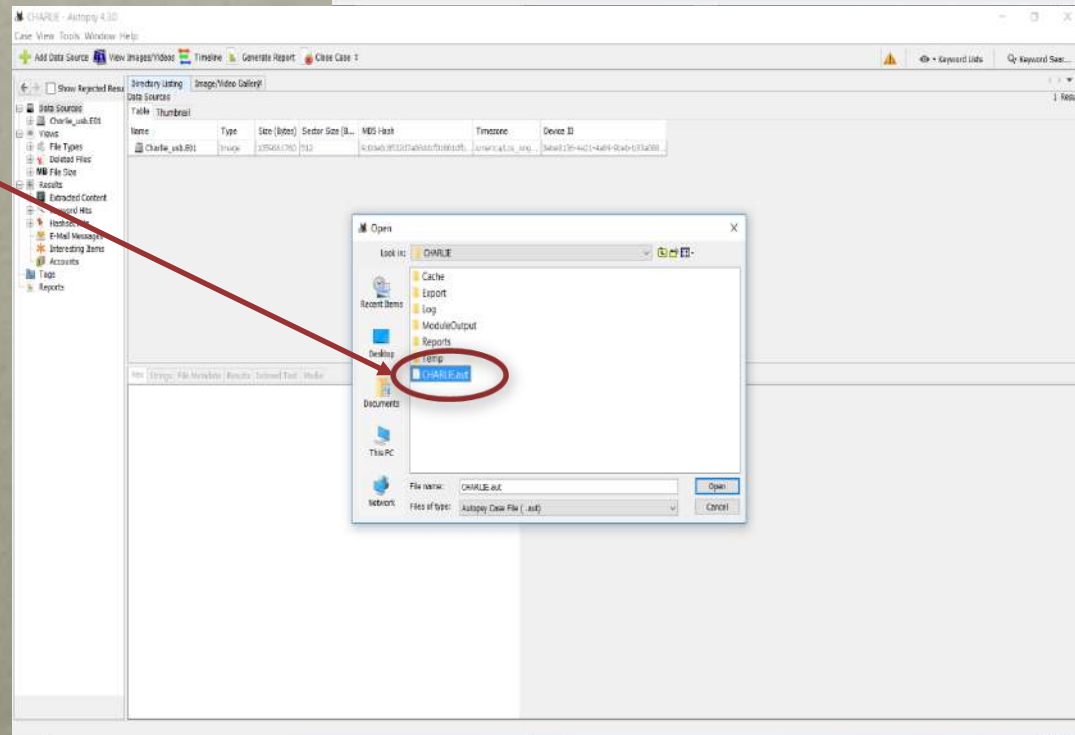
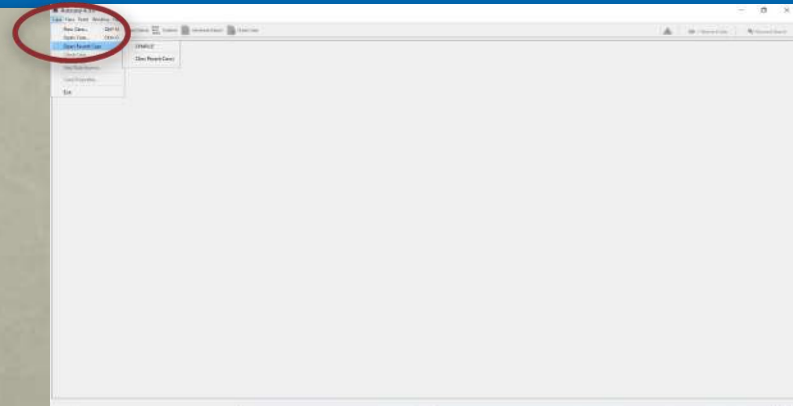
OPENING A CASE

- Click "Open Existing Case" or "Open Recent Case" from the opening splash screen.
- Choose the "Case", "Open Case" menu item or "Case", "Open Recent Case"



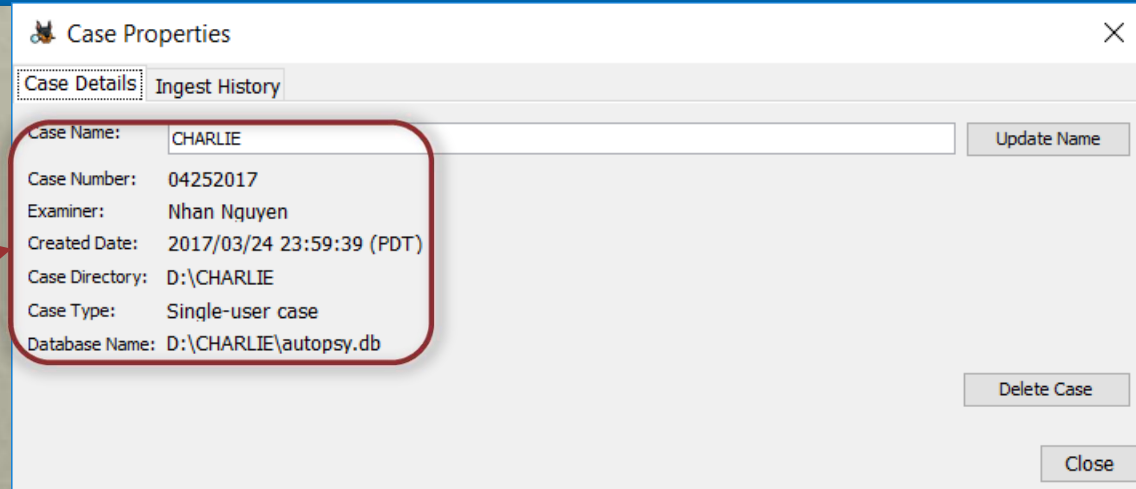
OPENING A CASE (CONT)

- Navigate to a folder containing the Autopsy case file.



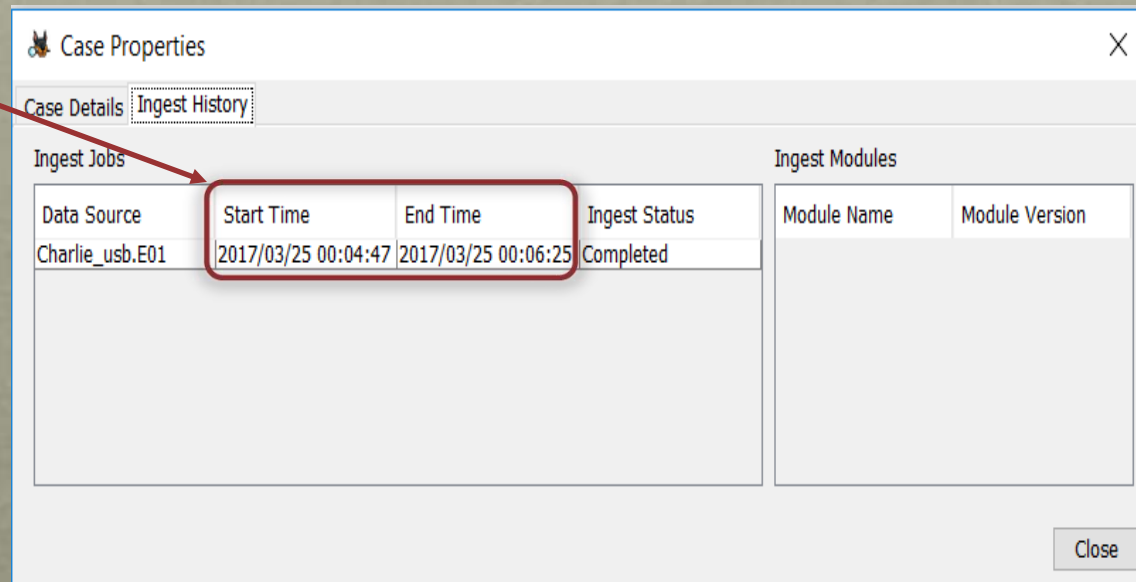
CASE PROPERTIES

- Go to Case → Case Properties
- It shows the processing Start/End time



The screenshot shows the 'Case Properties' dialog box with the 'Case Details' tab selected. The 'Ingest History' sub-tab is also visible. The 'Case Name' field is highlighted with a red box and contains the text 'CHARLIE'. Other fields include Case Number (04252017), Examiner (Nhan Nguyen), Created Date (2017/03/24 23:59:39 (PDT)), Case Directory (D:\CHARLIE), Case Type (Single-user case), and Database Name (D:\CHARLIE\autopsy.db). Buttons for 'Update Name', 'Delete Case', and 'Close' are visible.

Case Name:	CHARLIE	Update Name
Case Number:	04252017	
Examiner:	Nhan Nguyen	
Created Date:	2017/03/24 23:59:39 (PDT)	
Case Directory:	D:\CHARLIE	
Case Type:	Single-user case	
Database Name:	D:\CHARLIE\autopsy.db	



The screenshot shows the 'Case Properties' dialog box with the 'Ingest History' tab selected. The 'Ingest Jobs' table is highlighted with a red box and contains one row of data. The 'Ingest Modules' table is empty. Buttons for 'Close' are visible.

Data Source	Start Time	End Time	Ingest Status	Module Name	Module Version
Charlie_usb.E01	2017/03/25 00:04:47	2017/03/25 00:06:25	Completed		

SHOW SCREEN EDITER

- Go to **View** → **Show Screen Editor**
- Only shows **Result Viewer**

CHARLIE - Autopsy 4.3.0

Case View Tools Window Help

Images

Table Thumbnail

Name	Location	Modified Time	Change Time	Access Time	Created Time	Size	Flags(Dr)	MDS Hash	Flags(Meta)	Mode	User-ID	Group-ID	Meta Ad
astronaut.jpg	/img_Charlie_subE01/vcl_vc2/astronaut.jpg	2009-11-24 13:33:33	2009-11-24 13:40:13	2009-12-10 14:26:04	2009-11-24 13:40:13	713418	Allocated	40c396c30e0236603ca72a687...	Allocated	rwxrwxrwx	0	0	37
astronaut1.jpg	/img_Charlie_subE01/vcl_vc2/astronaut1.jpg	2009-11-24 13:45:42	2009-11-24 13:44:00	2009-12-10 14:26:04	2009-11-24 13:47:38	722717	Allocated	45eade24b3a29b21fe303310ccb...	Allocated	rwxrwxrwx	0	0	40
Charlie_2009-12-07_1144_Sent_microscope1.jpg	/img_Charlie_subE01/vcl_vc2/Email/other/Charl...	2009-12-10 14:39:36	2009-12-10 14:37:55	2009-12-10 14:29:36	2009-12-10 14:29:37	136274	Allocated	46e2c4a2c48c4389ca7986b2173...	Allocated	rwxrwxrwx	0	0	141
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_subE01/vcl_vc2/Email/Charlie_20...	2009-12-04 13:50:24	2009-12-04 13:50:24	2009-12-10 14:29:36	2009-12-04 13:50:23	722717	Allocated	45eade24b3a29b21fe303310ccb...	Allocated	rwxrwxrwx	0	0	125
microscope.jpg	/img_Charlie_subE01/vcl_vc2/microscope.jpg	2009-11-24 13:07:51	2009-11-24 13:56:55	2009-11-24 14:09:36	2009-11-24 13:40:20	136274	Allocated	695a8fcd4922fddc53078e4c09...	Allocated	rwxrwxrwx	0	0	38
microscope1.jpg	/img_Charlie_subE01/vcl_vc2/microscope1.jpg	2009-11-24 14:19:21	2009-11-24 14:19:21	2009-11-24 14:19:24	2009-11-24 14:09:13	136274	Allocated	46e2c4a2c48c4389ca7986b2173...	Allocated	rwxrwxrwx	0	0	42
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_subE01/vcl_vc2/Email/Charlie_Em...	2009-12-04 12:50:26	0000-00-00 00:00:00	0000-00-00 00:00:00	0000-00-00 00:00:00	722717	Allocated	45eade24b3a29b21fe303310ccb...	Allocated	r-----	0	0	0
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_subE01/vcl_vc2/Email/Charlie_Em...	2009-12-04 12:50:26	0000-00-00 00:00:00	0000-00-00 00:00:00	0000-00-00 00:00:00	722717	Allocated	45eade24b3a29b21fe303310ccb...	Allocated	r-----	0	0	0
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_subE01/vcl_vc2/Email/Charlie_Em...	2009-12-04 12:50:26	0000-00-00 00:00:00	0000-00-00 00:00:00	0000-00-00 00:00:00	722717	Allocated		Allocated	r-----	0	0	0

CHARLIE - Autopsy 4.3.0


Case View Tools Window Help

Images


Table Thumbnail

Page: 1 of 1


Pages: [Left Arrow] [Right Arrow] Go to Page: [Input Field] Images: 1-9 [Small Thumbnails] [Dropdown Arrow]




astronaut.jpg




astronaut1.jpg




Charlie_2009-12...




Charlie_2009-12...




microscope.jpg




microscope1.jpg



Charlie_2009-12...



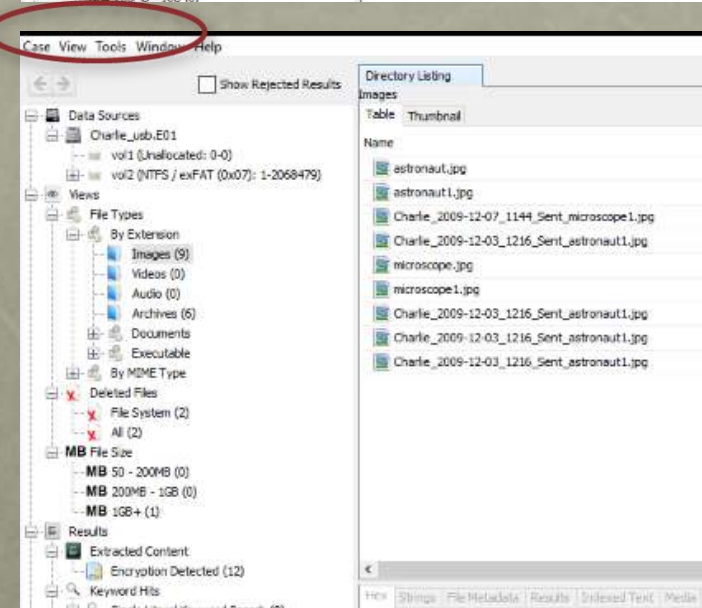
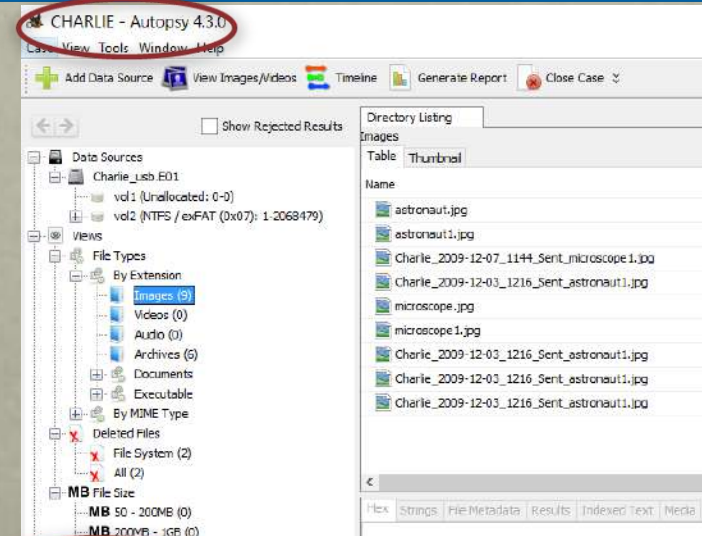
Charlie_2009-12...



Charlie_2009-12...

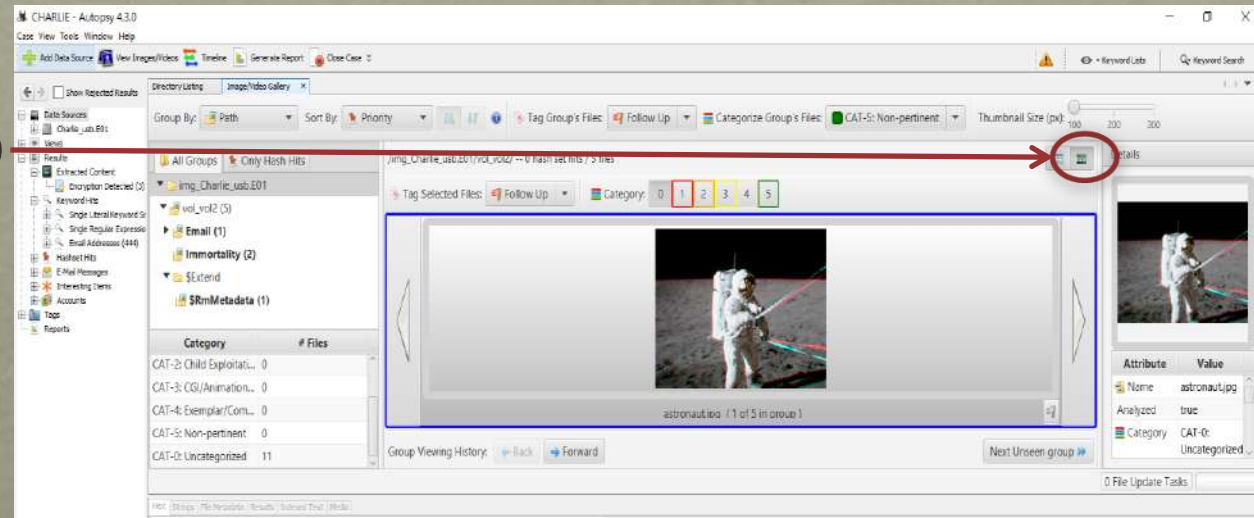
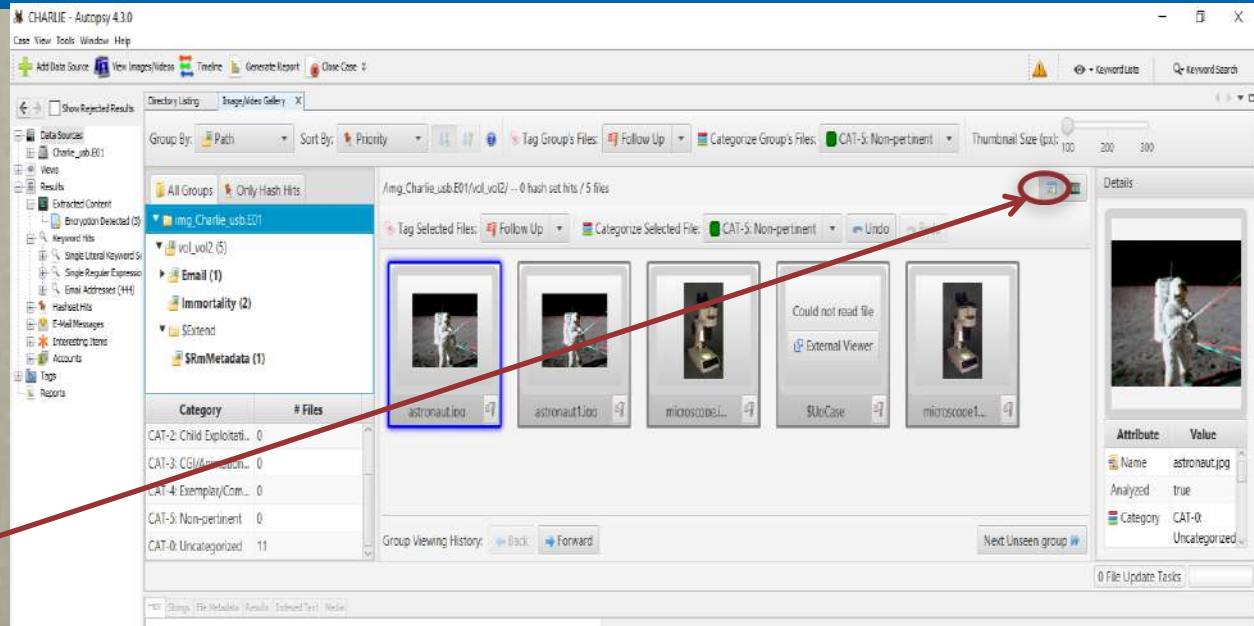
FULL SCREEN

- Go to **View** → **Full Screen**
- Full screen does not show the case name and version



VIEW IMAGES/VIDEOS

- Go to **Tools** → **View Images/Videos**
- Click **Photo Gallery**
- Click **Filmstrip**



VIEW IMAGES/VIDEOS IN HEX VIEW

- The header for the .JPG image is JFIF
- The .JPG image is viewed in HEX view

The screenshot shows the CHARLIE - Autopsy 4.3.0 interface. The left sidebar displays a tree view of data sources and file types. The main window shows a directory listing of images, with the file 'Charlie_2009-12-07_1144_Sent_microscope1.jpg' selected. The hex view at the bottom shows the raw data of the selected file, with the 'JFIF' header circled in red. A red arrow points from the 'JFIF' header in the hex view to the selected file in the directory listing.

Name	Location
astronaut.jpg	/img_Charlie_usb.E01/vol2/astronaut.jpg
astronaut1.jpg	/img_Charlie_usb.E01/vol2/astronaut1.jpg
Charlie_2009-12-07_1144_Sent_microscope1.jpg	/img_Charlie_usb.E01/vol2/Email/other/Charlie_2009-1
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol2/Email/Charlie_2009-12-03_
microscope.jpg	/img_Charlie_usb.E01/vol2/microscope.jpg
microscope1.jpg	/img_Charlie_usb.E01/vol2/microscope1.jpg
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol2/Email/Charlie_Email.zip/Cha
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol2/Email/Charlie_Email.zip/Cha
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol2/Email/Charlie_Email.zip/Cha

```
0x00000000: FF D8 FF E0 00 10 4A 46 49 46 00 01 01 01 00 90 .....JFIF.....
0x00000010: 00 90 00 00 FF DB 00 43 08 01 01 01 01 01 01 01 .....C.....
0x00000020: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000030: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000040: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000050: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....C.....
0x00000060: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000070: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000080: 70 61 73 78 77 6F 72 64 3D 69 6D 6D 6F 72 74 61 .....password=immorta
0x00000090: 6C 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....1.....
0x000000a0: 00 11 08 02 65 01 73 03 01 22 00 02 11 01 08 11 .....e.s.....
0x000000b0: 01 FF C4 00 1F 00 00 01 05 01 01 01 01 01 01 01 .....
0x000000c0: 0A 0B FF C4 00 B5 10 00 02 03 04 05 06 07 08 09 .....
0x000000d0: 05 04 04 00 01 01 7D 01 02 03 04 11 05 12 21 .....}.....!
0x000000e0: 31 41 06 13 51 61 07 22 71 14 32 81 91 A1 08 28 .....1A.Qa."q.2...#
0x000000f0: 42 B1 C1 15 52 D1 F0 24 33 62 72 82 09 0A 16 11 .....B...R..$3br...
0x00000100: 18 19 1A 25 26 27 28 29 2A 34 35 36 37 38 39 3A .....%*( ) *456789
0x00000110: 43 44 45 46 47 48 49 4A 53 54 55 56 57 58 59 5A .....CDEFHIJSTUVWXYZ
0x00000120: 63 64 65 66 67 68 69 6A 73 74 75 76 77 78 79 7A .....cdefghijstuvwxyz
0x00000130: 83 84 85 86 87 88 89 8A 92 93 94 95 96 97 98 99 .....
0x00000140: 9A 2A A3 A4 A5 A6 A7 A9 A9 AA B2 B3 B4 B5 B6 B7 .....
0x00000150: B8 B9 BA C2 C3 C4 C5 C6 C7 C8 C9 CA DC D8 D4 D9 .....
0x00000160: D6 D7 D8 D9 DA DE E2 E3 E4 E5 E6 E7 E8 E9 EA F3 .....
0x00000170: F2 F3 F4 F5 F6 F7 F8 F9 FA FF 04 00 1F 01 00 03 .....
0x00000180: 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 .....
0x00000190: 02 03 04 05 06 07 08 09 0A 0B FF C4 00 B5 11 00 .....
0x000001a0: 01 02 04 04 04 04 04 07 05 04 04 01 02 77 00 .....
0x000001b0: 01 02 03 11 04 05 21 31 06 12 41 51 07 61 71 13 .....11.AQ.aq.....
0x000001c0: 22 32 81 08 14 22 91 A1 B1 C1 09 23 33 52 01 15 .....*2..B...$3R...
0x000001d0: 62 72 01 0A 16 24 34 A1 25 F1 17 18 19 1E 26 27 .....br...$4...$*
0x000001e0: 28 29 2A 35 36 37 38 39 3A 43 44 45 46 47 48 49 .....()*$*456789:CDEFGHI
0x000001f0: 4A 53 54 55 56 57 58 59 5A 63 64 65 66 67 68 69 .....JSTUVWXYZcdefghi
0x00000200: 6A 73 74 75 76 77 78 79 7A 83 84 85 86 87 88 .....jstuvwxyz.....
0x00000210: 89 9A 92 93 94 95 96 97 98 99 9A 9B A3 A4 A5 A6 .....
0x00000220: A7 A8 A9 AA AB B2 B3 B4 B5 B6 B7 B8 B9 BA CC C3 C4 .....
0x00000230: C5 C6 C7 C8 C9 CA D2 D3 D4 D5 D6 D7 D8 D9 DA DE .....
0x00000240: E3 E4 E5 E6 E7 E8 E9 EA EB EC F4 F5 F6 F7 F8 F9 .....
0x00000250: FA FF DA 00 00 00 00 02 11 03 11 00 3F 00 FE .....?.....
```

VIEW IMAGES/VIDEOS IN FILE METADATA VIEW

- The **.JPG** image is viewed in File Metadata view
- The Date/Time and MD5 of this **.JPG** image is shown here

The screenshot shows the Autopsy 4.3.0 interface. The left pane displays the file tree with 'Data Sources' expanded to 'Charlie_usb.E01' and 'Views' expanded to 'File Types' and 'Images (9)'. The 'Results' pane shows 'Extracted Content' with 'Encryption Detected (12)'. The 'Keyword Hits' pane shows 'Single Literal Keyword Search (6)'. The 'Time Machine' pane shows 'Single Regular Expression Search (0)'. The 'Email Addresses (1926)' pane shows 'Bfritz31@gmail.com (3)'. The 'Hashset Hits' pane shows 'E-Mail Messages' and 'Interaction Theme'.

The 'Directory Listing' pane shows a table of files. The file 'Charlie_2009-12-07_1144_Sent_microscope1.jpg' is highlighted. The 'File Metadata' pane shows the following information:

Name	Location	Modified Time
astronaut.jpg	/img_Charlie_usb.E01/vol_vol2/astronaut.jpg	2009-11-24 13:33:33 PST
astronaut1.jpg	/img_Charlie_usb.E01/vol_vol2/astronaut1.jpg	2009-11-24 13:43:42 PST
Charlie_2009-12-07_1144_Sent_microscope1.jpg	/img_Charlie_usb.E01/vol_vol2/Email/other/Charlie_2009-1...	2009-12-10 14:29:38 PST
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-12-03_...	2009-12-04 12:50:24 PST
microscope.jpg	/img_Charlie_usb.E01/vol_vol2/microscope.jpg	2009-11-24 13:27:51 PST
microscope1.jpg	/img_Charlie_usb.E01/vol_vol2/microscope1.jpg	2009-11-24 14:19:21 PST
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Cha...	2009-12-04 12:50:26 PST
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Cha...	2009-12-04 12:50:26 PST
Charlie_2009-12-03_1216_Sent_astronaut1.jpg	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Cha...	2009-12-04 12:50:26 PST

The 'File Metadata' pane shows the following information:

Hex	Strings	File Metadata	Results	Indexed Text	Media
Name		/img_Charlie_usb.E01/vol_vol2/Email/other/Charlie_2009-12-07_1144_Sent_microscope1.jpg			
Type		File System			
MIME Type		image/jpeg			
Size		136274			
File Name Allocation		Allocated			
Metadata Allocation		Allocated			
Modified		2009-12-10 14:29:38 PST			
Accessed		2009-12-10 14:29:38 PST			
Created		2009-12-10 14:29:37 PST			
Changed		2009-12-10 14:37:59 PST			
MD5		4be2c4abb48c4389ca798e6c21736ea1			
Hash Lookup Results		UNKNOWN			
Internal ID		175			

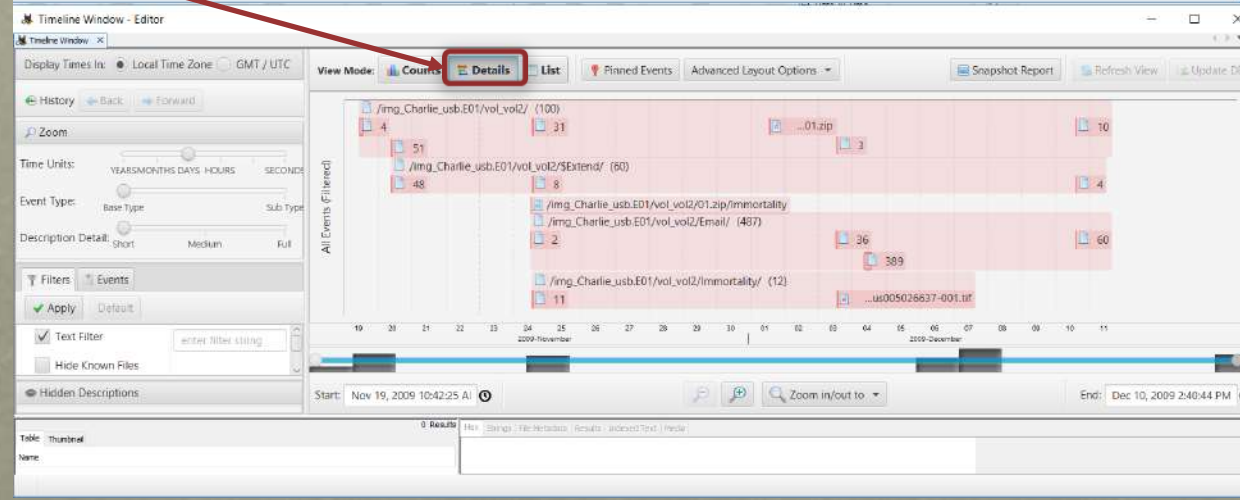
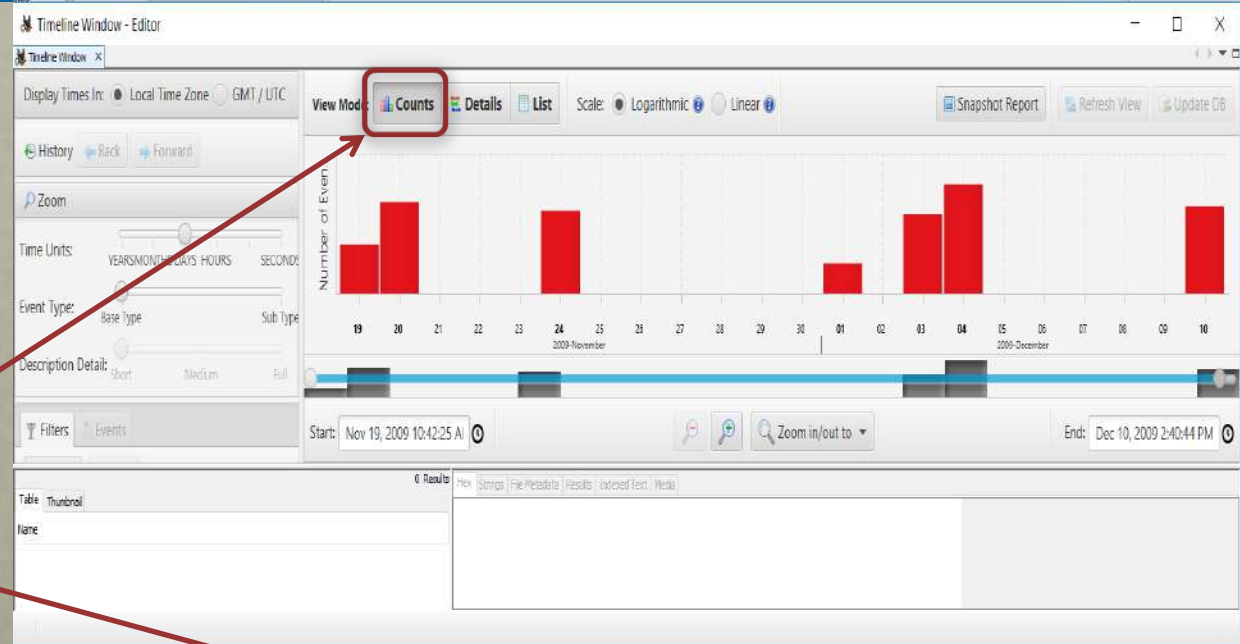
From The Sleuth Kit istat Tool:

MFT Entry Header Values:
Entry: 141 Sequence: 2
\$LogFile Sequence Number: 17838836
Allocated File
Links: 2

\$STANDARD_INFORMATION Attribute Values:
Flags: Archive
Owner ID: 0
Security ID: 261 ()
Last User Journal Update Sequence Number: 108912
Created: 2009-12-10 14:29:37.796875000 (Pacific Standard Time)
File Modified: 2009-12-10 14:29:38.390625000 (Pacific Standard Time)

TIMELINE

- Go to Tools → Timeline
- Counts View
- Details View



TIMELINE (CONT)

- List View shows 346 Events

The screenshot displays the 'Timeline Window - Editor' interface. The 'View Mode' is set to 'List', which is highlighted with a red box. A red arrow points from the text 'List View shows 346 Events' to this 'List' button. Another red arrow points from the same text to a red circle around the number '346 events' in the top right corner of the window. The main area shows a table of events with columns for Date/Time, Event Type, Description, Known, Tagged, and Hash Hit. The table contains multiple rows of event data, including file system activity and web activity.

Date/Time	Event Type	Description	Known	Tagged	Hash Hit
2009-11-24 14:19:21	M_C_	/img_Charlie_usb.E01/vol_vol2/microscope1.jpg	unknown		
2009-11-24 14:19:24	_A_	/img_Charlie_usb.E01/vol_vol2/microscope1.jpg	unknown		
2009-12-01 13:18:30	_C_	/img_Charlie_usb.E01/vol_vol2/01.zip	unknown		
2009-12-03 12:19:14	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1102_Received.txt	unknown		
2009-12-03 12:19:28	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1122_Received.txt	unknown		
2009-12-03 12:19:44	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1338_Received.txt	unknown		
2009-12-03 12:19:56	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1433_Received.txt	unknown		
2009-12-03 12:20:12	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1553_Received.txt	unknown		
2009-12-03 12:20:26	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-17_0845_Received.txt	unknown		
2009-12-03 12:20:38	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-17_1030_Received.txt	unknown		
2009-12-03 12:21:10	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-17_1039_Received.txt	unknown		
2009-12-03 12:21:24	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-17_1040_Received.txt	unknown		
2009-12-03 12:21:42	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-17_1033_Received.txt	unknown		
2009-12-03 13:16:47	_A_	/img_Charlie_usb.E01/vol_vol2/Immortality/us005026637-001.tif	unknown		
2009-12-03 13:16:59	_B_	/img_Charlie_usb.E01/vol_vol2/Email	unknown		
2009-12-03 13:17:01	M_C_	/img_Charlie_usb.E01/vol_vol2/	unknown		
2009-12-03 13:19:12	M_B_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-16_1102_Received.txt	unknown		
2009-12-03 13:19:27	M_B_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-16_1122_Received.txt	unknown		
2009-12-03 13:19:43	MA_B	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-16_1338_Received.txt	unknown		
2009-12-03 13:19:55	MA_B	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-16_1433_Received.txt	unknown		
2009-12-03 13:20:10	MA_B	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-16_1553_Received.txt	unknown		
2009-12-03 13:20:25	_B_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-17_0845_Received.txt	unknown		
2009-12-03 13:20:26	MA_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-17_0845_Received.txt	unknown		
2009-12-03 13:20:37	M_B_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_2009-11-17_1030_Received.txt	unknown		

SNAPSHOT REPORT

- Click **Snapshot** button
- Click **Open Report** button to see the Summary

The screenshot displays the Timeline Window - Editor interface. The main window shows a table of events with columns for Date/Time, Event Type, and Description. A timeline at the bottom visualizes the event sequence. Two dialog boxes are overlaid on the interface:

- Dialog 1:** A "Timeline" dialog box with the title "Enter a report name for the Timeline Snapshot Report." It contains a text input field with the value "CHARLIE Timeline Snapshot Report" and "OK" and "Cancel" buttons.
- Dialog 2:** A "Timeline" dialog box with the title "Success". It contains the text "Report saved at" followed by the file path "D:\CHARLIE\Reports\CHARLIE Timeline Snapshot Report\Timeline Snapshot\index.html" and an "Open Report" button.

Red arrows from the text in the list above point to the "Snapshot Report" button in the top right of the main window and the "Open Report" button in the second dialog box.

Date/Time	Event Type	Description
2009-11-24 14:19:21	M_C_	/img_Charlie_usb.E01/vol_vol2/microscope1.jpg
2009-11-24 14:19:24	_A_	/img_Charlie_usb.E01/vol_vol2/microscope1.jpg
2009-12-01 13:18:30	_C_	/img_Charlie_usb.E01/vol_vol2/01.zip
2009-12-03 12:19:14	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1338_Received.txt
2009-12-03 12:19:28	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1338_Received.txt
2009-12-03 12:19:44	M_	/img_Charlie_usb.E01/vol_vol2/Email/Charlie_Email.zip/Charlie_2009-11-16_1338_Received.txt

SNAPSHOT REPORT (CONT)

- This is a Timeline Snapshot Report Summary

The screenshot shows the 'Autopsy Forensic Report: CHARLIE Timeline Snapshot Report' page. The left sidebar contains 'Report Navigation' with 'Case Summary' and 'Timeline Snapshot' (selected). The main content area displays the following information:

Autopsy Forensic Report: CHARLIE Timeline Snapshot Report
Timeline report generated on 2024-12-20 09:30:30

Case: CHARLIE
Case Number: No case number
Examiner: Nhan Nguyen
Number of Images: 1

Image Information:

Charlie_usb.E01
Timezone: America/Los_Angeles
Path: D:\Thumb Drives\Charlie_usb.E01

Below the text is a cartoon illustration of a black and tan dog sitting and holding a blue balloon in its mouth.

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The screenshot shows the 'Autopsy Forensic Report: CHARLIE Timeline Snapshot Report' page, specifically the 'Timeline Snapshot' section. The left sidebar contains 'Report Navigation' with 'Case Summary' and 'Timeline Snapshot' (selected). The main content area displays a table of events and a tree view of the event types.

Time	Event Type	Description	Category
2024-11-19 10:42:26 AM	File Modified	C:\Users\Nhan\Documents\Charlie_usb.E01	File
2024-11-19 10:42:26 AM	File Accessed	C:\Users\Nhan\Documents\Charlie_usb.E01	File
2024-11-19 10:42:26 AM	File Created	C:\Users\Nhan\Documents\Charlie_usb.E01	File
2024-11-19 10:42:26 AM	File Deleted	C:\Users\Nhan\Documents\Charlie_usb.E01	File
2024-11-19 10:42:26 AM	File Changed	C:\Users\Nhan\Documents\Charlie_usb.E01	File

Time Range: Thursday, November 19, 2024 10:42:26 AM - 09:50 to Thursday, December 10, 2024 2:40:41 PM - 09:00

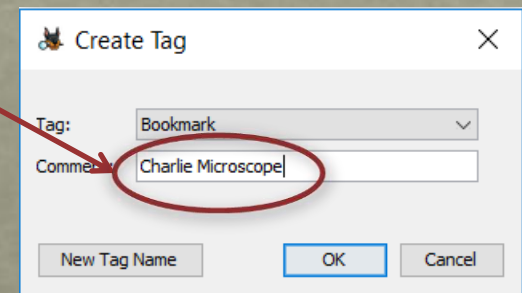
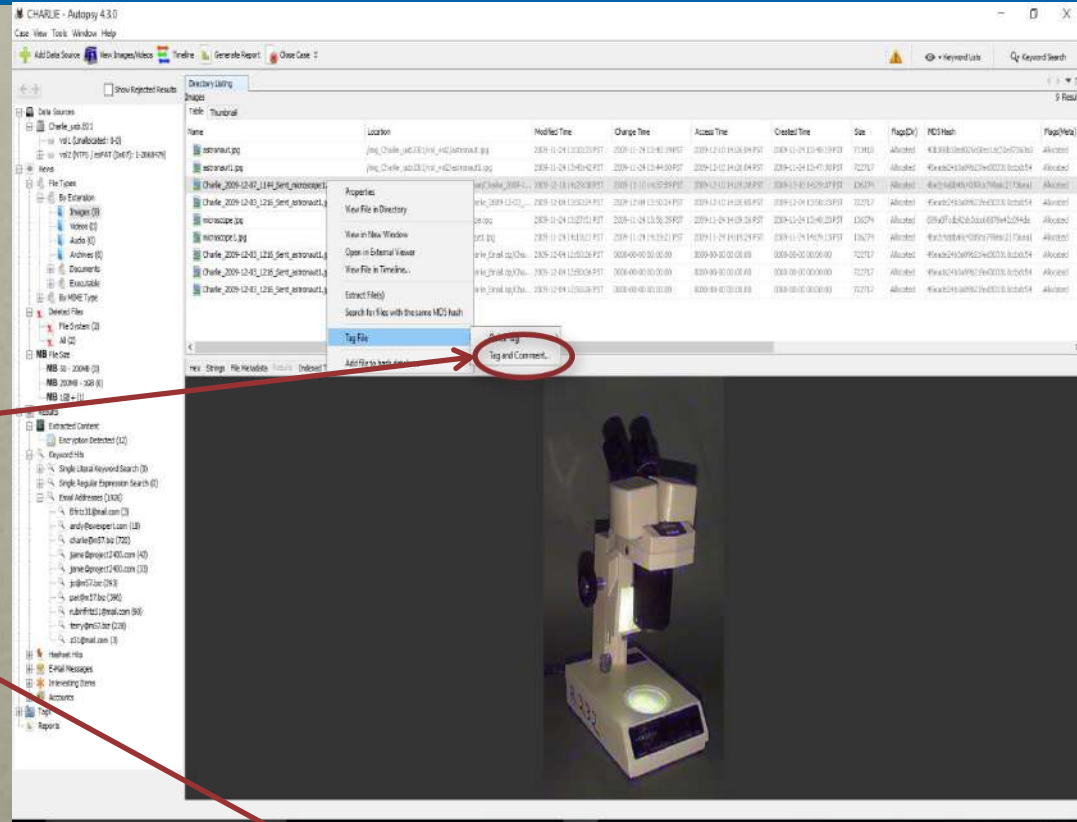
Description Level of Detail: Short

Event Type Zoom Level: Short

- File System [x]
 - File Modified [x]
 - File Accessed [x]
 - File Created [x]
 - File Deleted [x]
 - File Changed [x]
- Web Activity [x]
 - Web Downloads [x]
 - Web Cookies [x]
 - Web Bookmarks [x]
 - Web History [x]
 - Web Searches [x]
- Misc Types [x]
 - Messages [x]
 - GPS History [x]
 - Location History [x]
 - Call [x]
 - Email [x]
 - Recent Documents [x]
 - Installed Programs [x]
 - Call [x]
 - Devices Attached [x]

MANUAL ANALYSIS

- **Bookmark Relevant Files**
- **Right Click** on the file the go to **Tag File** → **Tag and Comment**
- Name the Bookmark file is **Charlie Microscope**



MANUAL ANALYSIS (CONT)

- The **Tag** in the **Tree Viewer** now has one item
- Name the Bookmark file is **Charlie Microscope**

The screenshot displays the Autopsy 4.3.0 interface. On the left, the Tree Viewer shows a 'Bookmark (1)' tag containing a file named 'File Tags (1)'. A red arrow points from this tag to the main results pane. The main pane shows a table with the following data:

File	File Path	Comment	Modified Time	Changed Time	Accessed Time	Created Time	Size
Charlie_2009-12-07_1144_Sent_Microscope1.jpg	/img/Charlie_usb/E01/vol_02/Email/other/Charlie_2009-12-07_1144_Sent_Microscope1.jpg	Charlie Microscope	2009-12-10 14:29:38 PST	2009-12-10 14:37:59 PST	2009-12-10 14:29:38 PST	2009-12-10 14:29:37 PST	136274

Below the table, a thumbnail image of a microscope is visible. A red arrow points from the 'Comment' column of the table to the microscope image.

MANUAL ANALYSIS (CONT)

- Keyword search for “Time Machine”
- There are a total of 6 hits

The screenshot displays the CHARLIE - Autopsy 4.3.0 interface. The top right corner shows the search configuration with "Time Machine" entered in the search box and "Exact Match" selected. Below this is a table of search results. The table has columns for Name, Location, Modified Time, Change Time, Access Time, Created Time, Size, and search statistics. Six results are listed, all with "Time Machine" in the Name column. A red circle highlights the search term in the top right. Another red circle highlights the search results table. A third red circle highlights the extracted content preview, which shows the text of the search results. The preview includes the following text:

```
telegorper patent search. Charlie, I want you to take the time machine -  
patent search. This is our first real job, so let's make sure we do =  
some quality research. Our reputation will depend on the time and  
effort that we put into this contract and on Nitroba's satisfaction with =  
our results. Come by my office and we'll talk details.  
-----NextPart_000_0019_01CA6771.6D4193A0  
Content-Type: text/html;  
charset="iso-8859-1"  
Content-Transfer-Encoding: quoted-printable  
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">  
<HTML><HEAD>  
<META content="text/html; charset=3Diso-8859-1" =  
http-equiv=3DContent-Type>  
<META name=3DGENERATOR content=3D"MSHTML 8.00.6001.18882">  
<STYLE></STYLE>  
</HEAD>  
<BODY bgcolor=3D#ffffff>  
<DIV><FONT size=3D2 face=3DArial>Jo, Charlie;</FONT></DIV>  
<DIV><FONT size=3D2 face=3DArial>&nbsp;</FONT>&nbsp;</DIV>  
<DIV><FONT size=3D2 face=3DArial>We have our first contract &nbsp;&nbsp;&nbsp; =  
Nitroba wants us=20  
to be responsible for the telegorper patent search.&nbsp;&nbsp;&nbsp; Jo, you will be=20  
to take=20  
the time machine patent search.&nbsp;&nbsp;&nbsp; This is our first real job, so =  
let's make=20  
sure we do some quality research.&nbsp;&nbsp;&nbsp; Our reputation will depend on =  
the time=20  
&nbsp;and effort that we put into this contract and on Nitroba's satisfaction with =  
us=20  
results.&nbsp;&nbsp;&nbsp; Come by my office and we'll talk details.</FONT></DIV>  
<DIV><FONT size=3D2 face=3DArial></FONT>
```


REPORT GENERATION

- Go to **Tools** → **Generate Report** or Click **Generate Report** Button

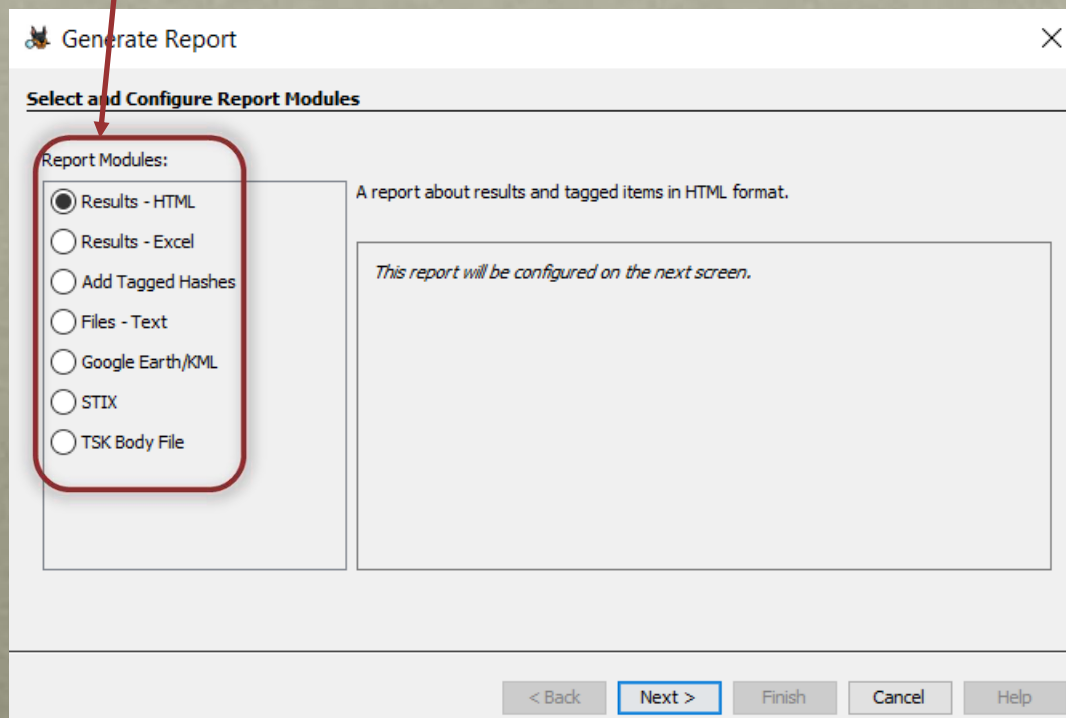
The screenshot displays the Autopsy 4.3.0 interface. The 'Tools' menu is open, and the 'Generate Report' option is highlighted. A red circle is drawn around the 'Generate Report' button in the top toolbar. Another red circle is drawn around the 'Generate Report' option in the 'Tools' menu. A red arrow points from the 'Generate Report' button to the 'Generate Report' option in the menu. The main window shows a file listing with columns for 'Category' and '# Files'. The 'Details' panel on the right shows the file 'astronaut.jpg' with attributes: Name: astronaut.jpg, Analyzed: true, and Category: CAT-0: Uncategorized.

Category	# Files
CAT-2: Child Exploitati...	0
CAT-3: CGI/Animation...	0
CAT-4: Exemplar/Com...	0
CAT-5: Non-pertinent	0
CAT-0: Uncategorized	11

Attribute	Value
Name	astronaut.jpg
Analyzed	true
Category	CAT-0: Uncategorized

REPORT GENERATION (CONT)

- There are 6 Report Modules to choose from, but the most common are **HTML** and **Excel**

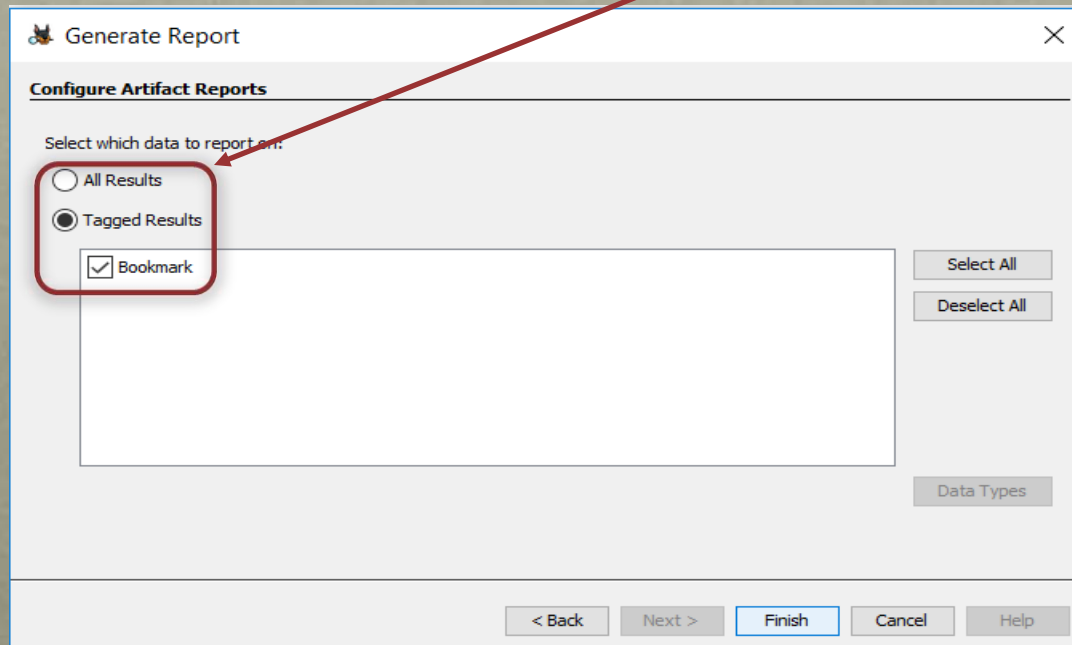


The screenshot shows a dialog box titled "Generate Report" with a close button (X) in the top right corner. Below the title bar is the heading "Select and Configure Report Modules". The main area is divided into two sections. On the left, under the heading "Report Modules:", there is a list of six radio button options: "Results - HTML" (selected), "Results - Excel", "Add Tagged Hashes", "Files - Text", "Google Earth/KML", "STIX", and "TSK Body File". A red rounded rectangle highlights this list, and a red arrow points from the text "HTML and Excel" in the bullet point above to the "Results - HTML" option. On the right, there is a text area containing the description: "A report about results and tagged items in HTML format." Below this is a larger text area with the text: "This report will be configured on the next screen." At the bottom of the dialog box, there are five buttons: "< Back", "Next >" (highlighted with a blue border), "Finish", "Cancel", and "Help".

REPORT GENERATION (CONT)

There are 2 options to choose include in the Report

1. All Results
2. Tagged Results



Generate Report [Close]

Configure Artifact Reports

Select which data to report on:

All Results

Tagged Results

Bookmark

Select All

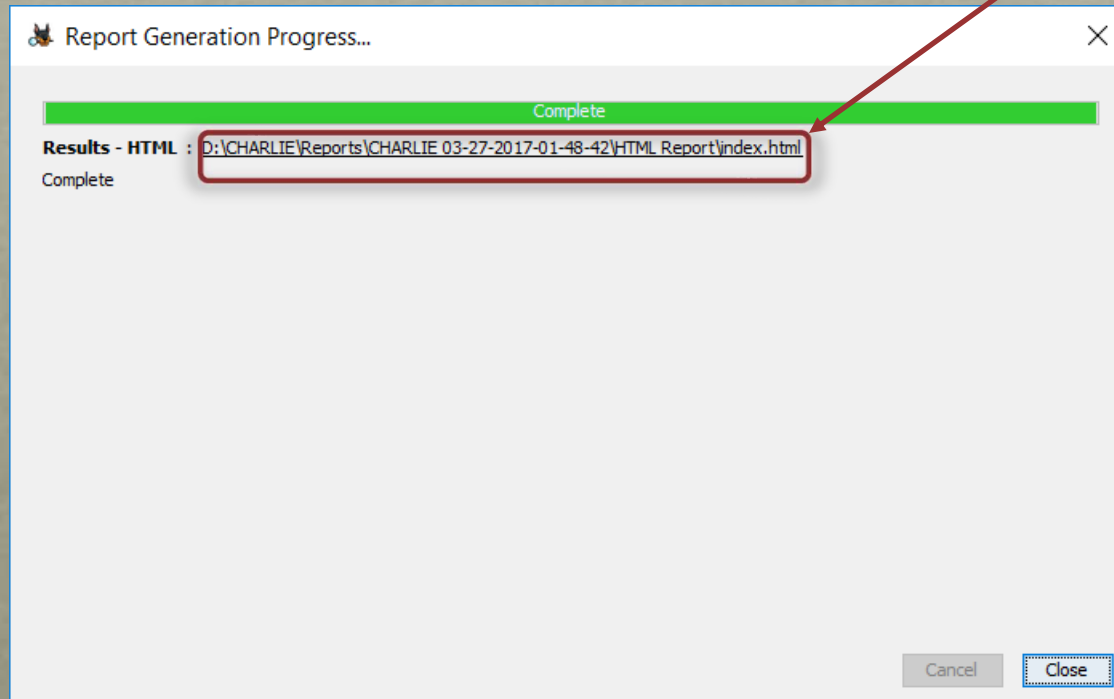
Deselect All

Data Types

< Back Next > **Finish** Cancel Help

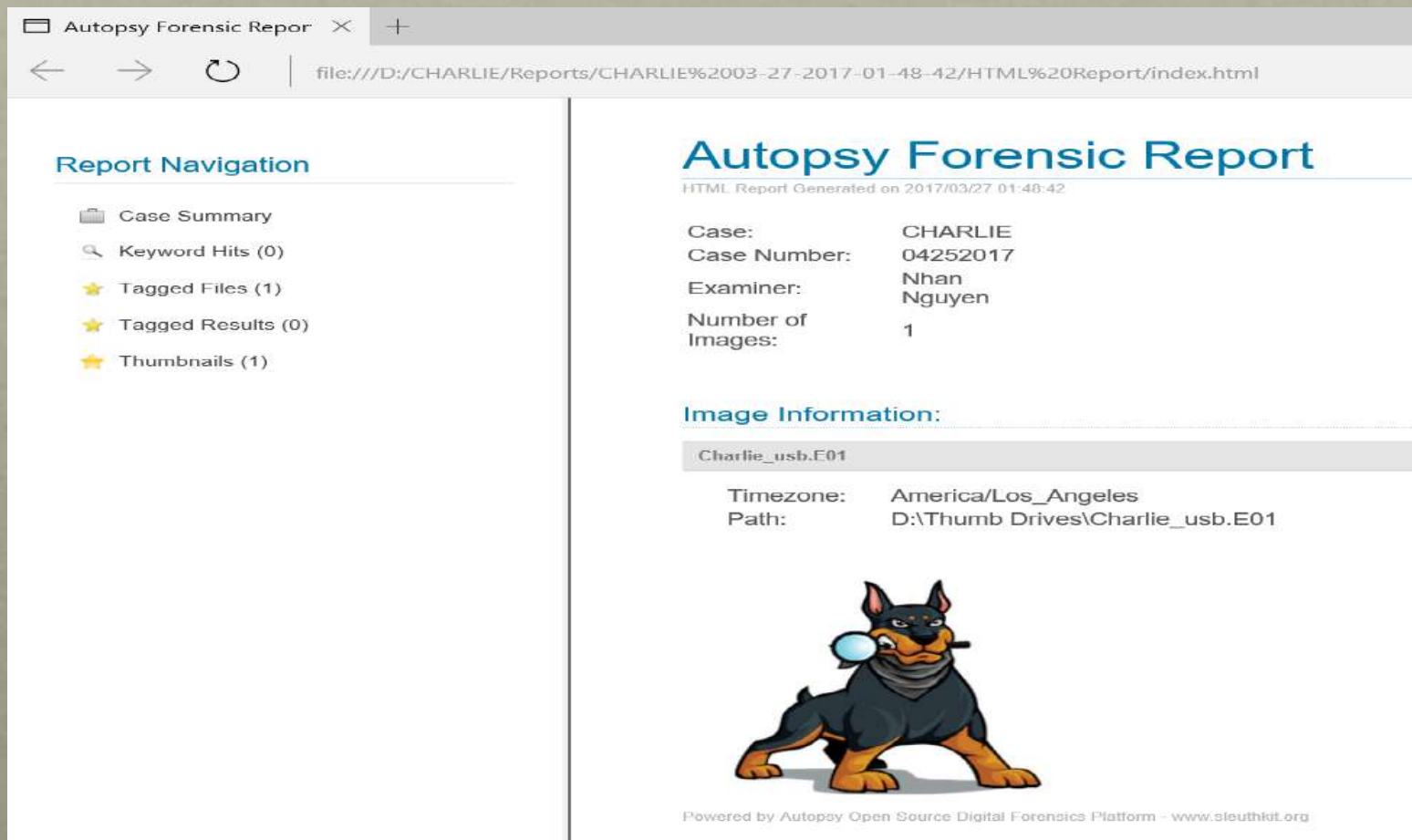
REPORT GENERATION (CONT)

- After the Report is generated, click on the link below to view the Report



REPORT GENERATION (CONT)

- This is a Autopsy Forensic Report



The screenshot shows a web browser window displaying an Autopsy Forensic Report. The browser's address bar shows the file path: file:///D:/CHARLIE/Reports/CHARLIE%2003-27-2017-01-48-42/HTML%20Report/index.html. The report page has a left sidebar titled "Report Navigation" with links to Case Summary, Keyword Hits (0), Tagged Files (1), Tagged Results (0), and Thumbnails (1). The main content area is titled "Autopsy Forensic Report" and includes a sub-header "HTML Report Generated on 2017/03/27 01:48:42". Below this, a table lists case details: Case (CHARLIE), Case Number (04252017), Examiner (Nhan Nguyen), and Number of Images (1). A section titled "Image Information:" follows, with a sub-header "Charlie_usb.E01" and details for Timezone (America/Los_Angeles) and Path (D:\Thumb Drives\Charlie_usb.E01). At the bottom of the report is a cartoon illustration of a black and tan dog wearing a blue magnifying glass. The footer text reads "Powered by Autopsy Open Source Digital Forensics Platform - www.sleuthkit.org".

Autopsy Forensic Report

file:///D:/CHARLIE/Reports/CHARLIE%2003-27-2017-01-48-42/HTML%20Report/index.html

Autopsy Forensic Report


HTML Report Generated on 2017/03/27 01:48:42

Case:	CHARLIE
Case Number:	04252017
Examiner:	Nhan Nguyen
Number of Images:	1

Image Information:

Charlie_usb.E01

Timezone:	America/Los_Angeles
Path:	D:\Thumb Drives\Charlie_usb.E01



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QUESTIONS?