iGNITE Technologies

# DIGITAL FORENSIC FTK IMAGER

WWW.HACKINGARTICLES.IN

# Table Of Content

# Abstract

FTK Imager is an open-source software by AccessData that is used for creating accurate copies of the original evidence without actually making any changes to it. The Image of the original evidence is remaining the same and allows us to copy data at a much faster rate, which can be soon be preserved and can be analyzed further.

The FTK imager also provides you with the inbuilt integrity checking function which generates a hash report which helps in matching the hash of the evidence before and after creating the image of the original Evidence.

# Introduction To Images And FTK Imager

The data acquisition of a Hard Drive is known as an **image**, a forensic image perhaps when performed in an investigation. Creating a forensics image is one of the **most crucial steps** involved in **digital forensic investigation**.

However, this imaged disk needs to be applied to the hard drive to work. One cannot restore a hard drive by placing the disk image files on it as it needs to be opened and installed on the drive using an **imaging program.**
A single hard drive can store many disk images on it. Disk images can also be stored on flash drives with a larger capacity.

## Fun fact!

You can create a forensic image from either a **running** or **dead machine**. It is a literal **snapshot** in time that has integrity checking.

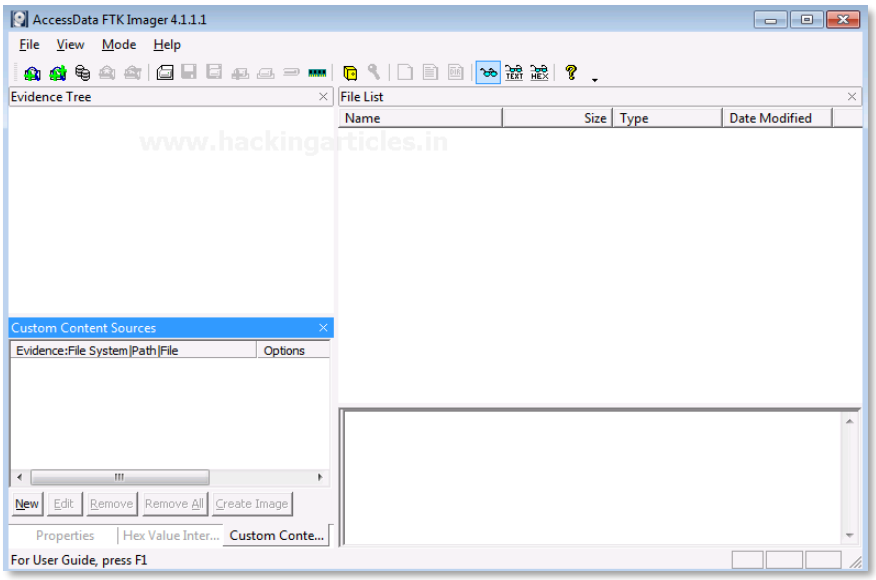
We often need to **verify the integrity of** the forensics image, as it provides a means for us to maintain **evidence integrity**, and ensure that it **is not tampered with.**

Although FTK imager is generally utilized as an imager and preview tool, it has capabilities enough to assist forensic investigators during the examination of digital devices with other matters as well.

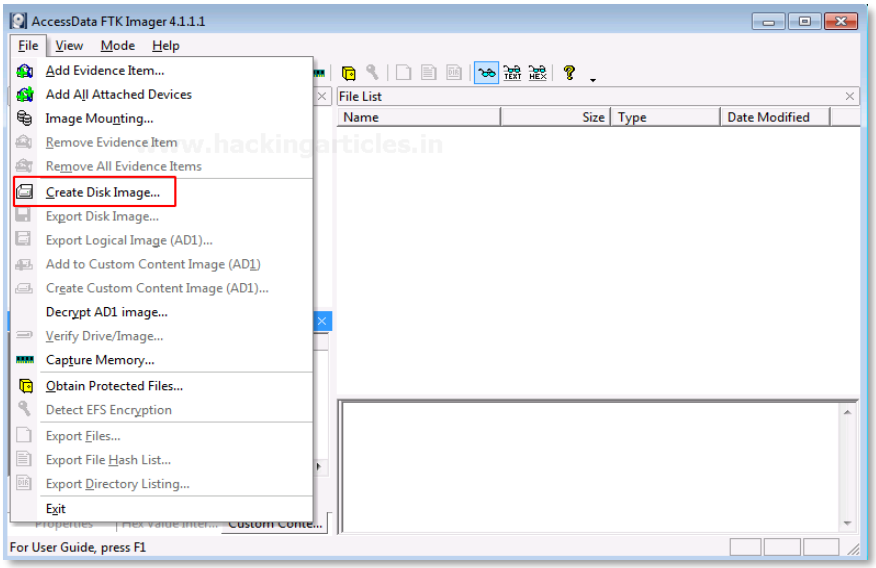
So let's get started, we'll be exploring the options FTK imager offers us in the **File** tab.

# Creating A Forensics Image

Open FTK Imager by AccessData after installing it, and you will see the window pop-up which is the first page to which this tool opens.

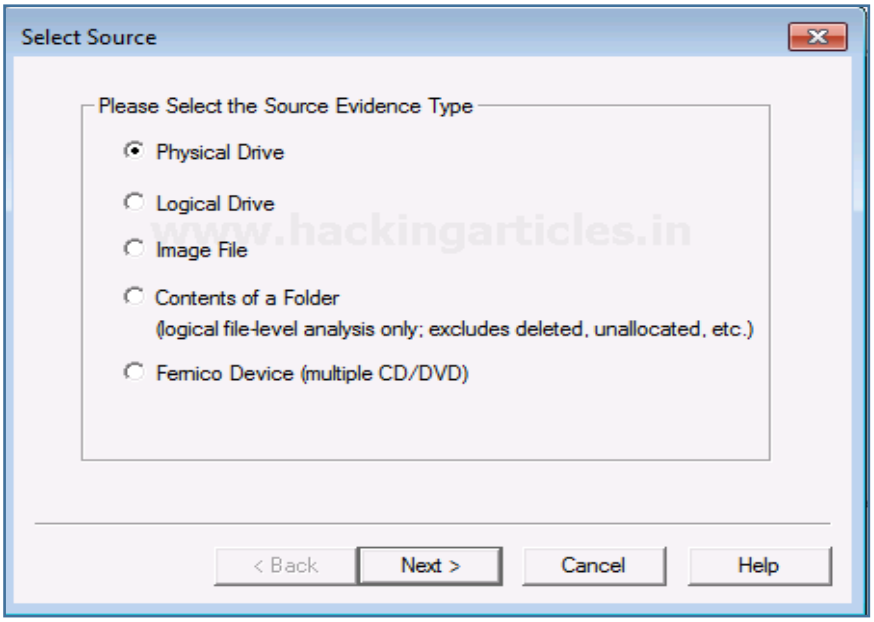



Now, to create a Disk Image. Click on File > Create Disk Image.

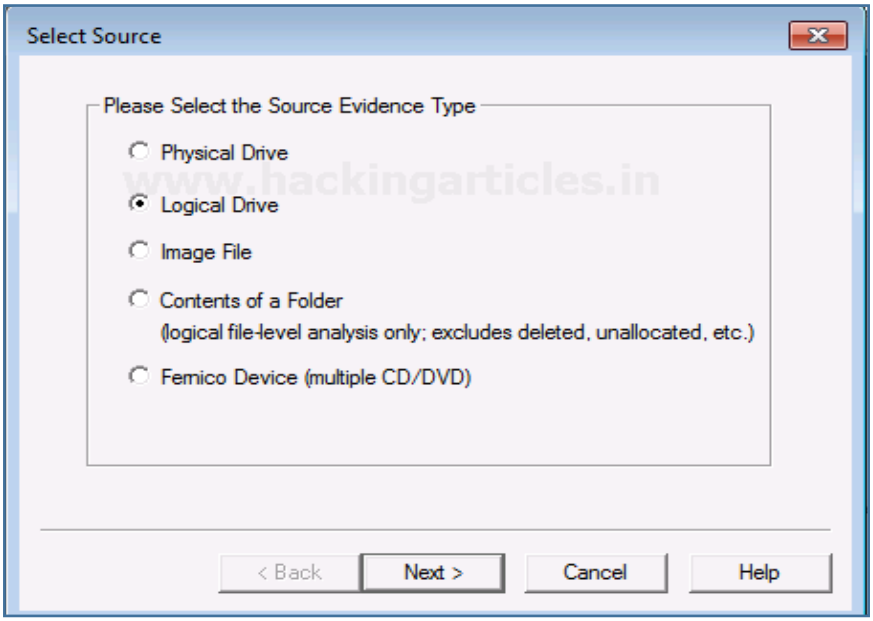


Now you can choose the source based on the drive you have. It can be a physical or a logical Drive depending on your evidence.

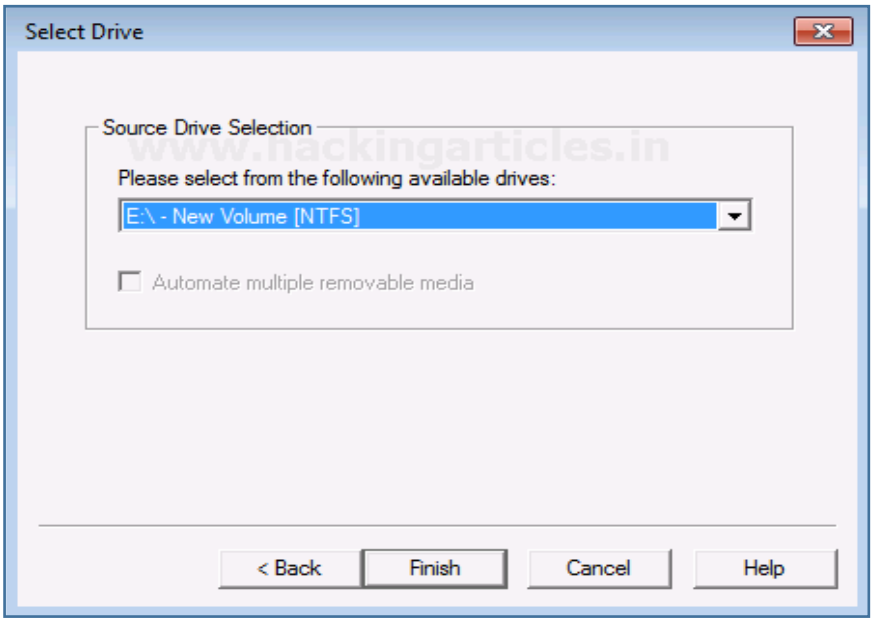
A **Physical Drive** is the primary storage hardware or the component within a device, which is used to store, retrieve, and organize data.



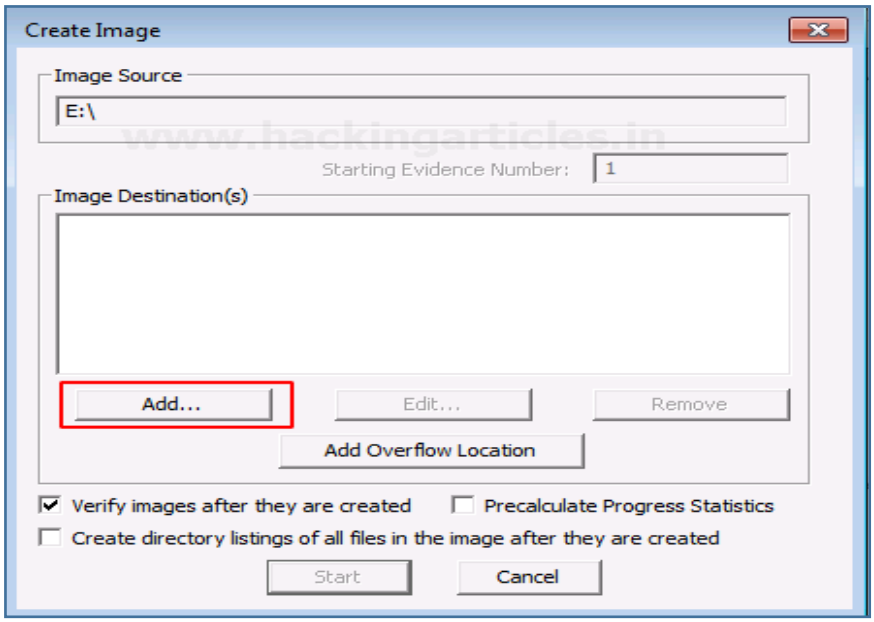

A **Logical Drive** is generally a drive space that is created over a physical hard disk. A logical drive has its parameters and functions because it operates independently.



Now choose the source of your drive that you want to create an image copy of.




Add the Destination path of the image that is going to be created. From the forensic perspective, It should be copied in a separate hard drive and multiple copies of the original evidence should be created to prevent loss of evidence.



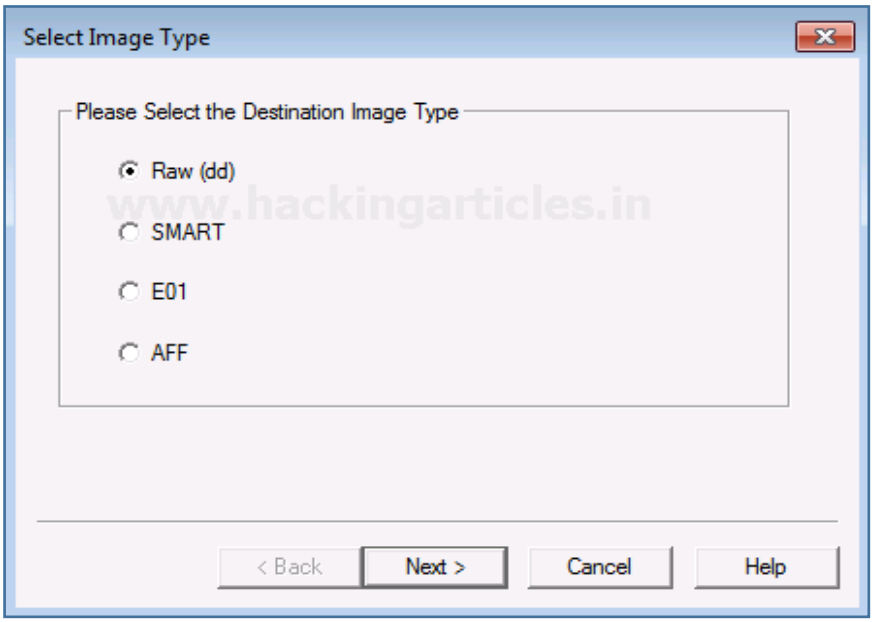
Select the format of the image that you want to create. The different formats for creating the image are:

**Raw(dd)**: It is a bit-by-bit copy of the original evidence which is created without any additions and or deletions. They do not contain any metadata.

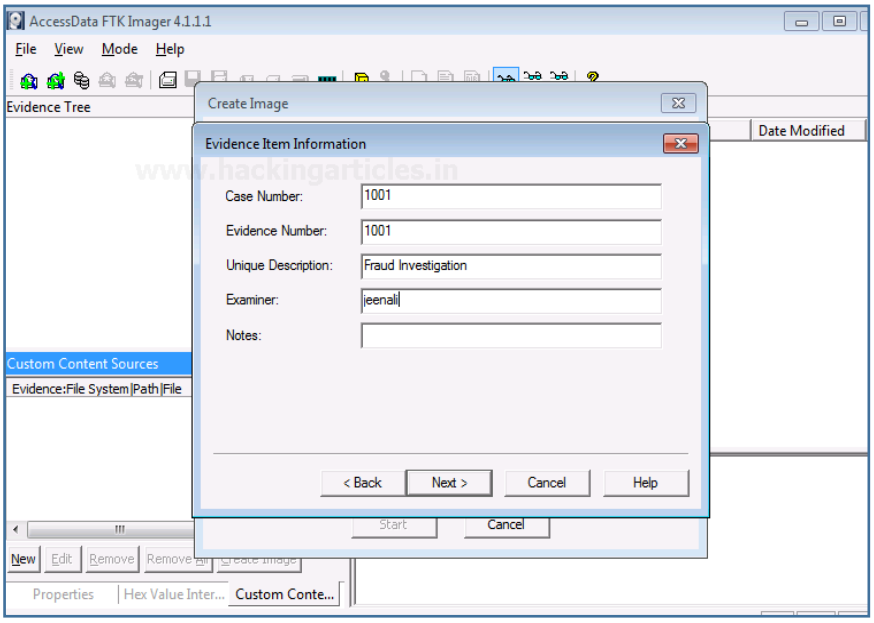
**SMART:** It is an image format that was used for Linux which is not popularly used anymore.

**E01:** It stands for EnCase Evidence File, which is a commonly used format for imaging and is similar to

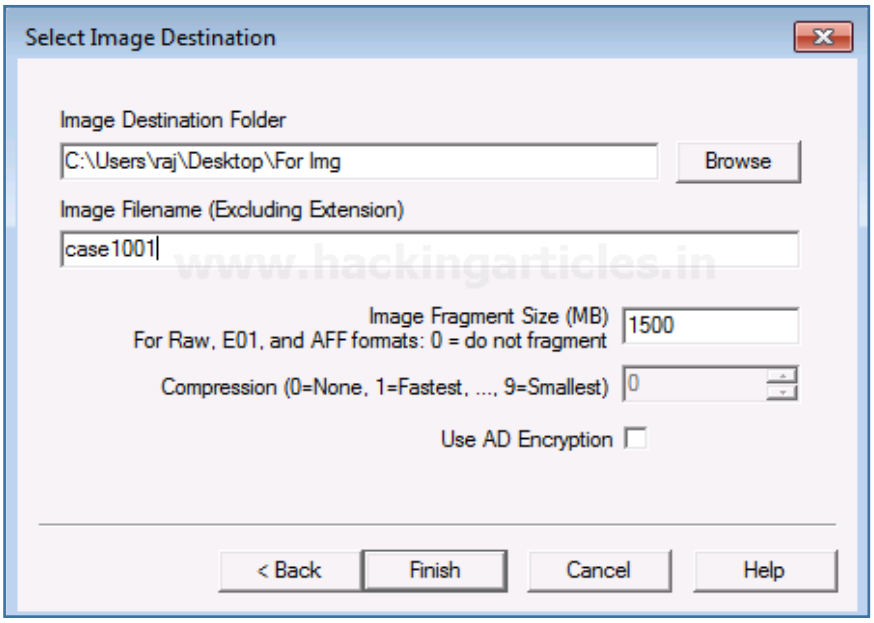
**AFF:** It stands for Advanced Forensic Format that is an open-source format type.



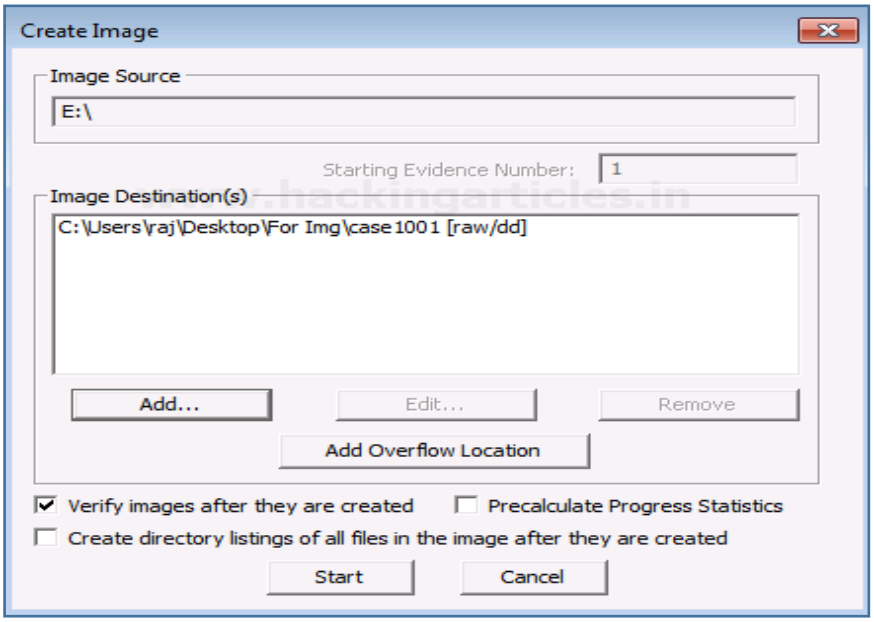

A Now, add the details of the image to proceed.



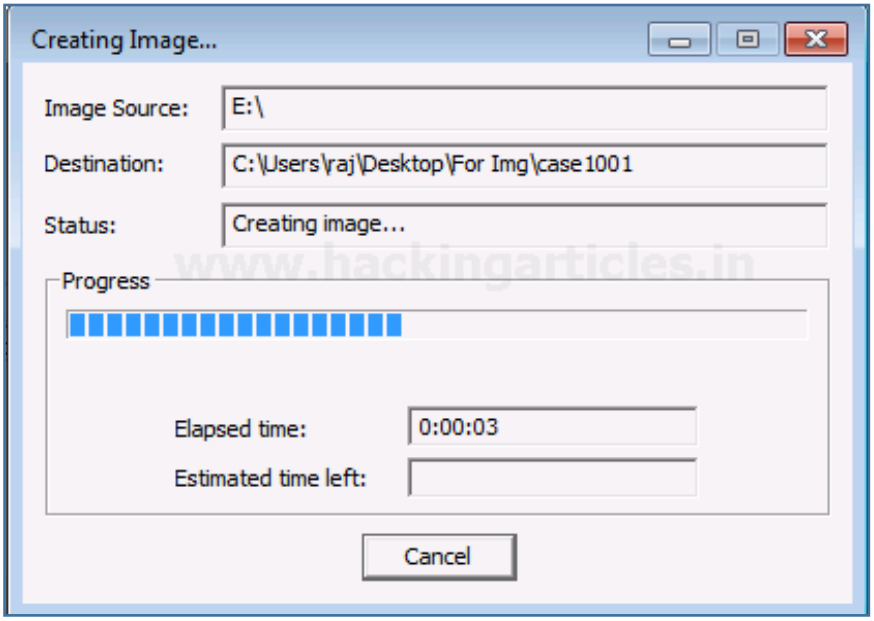
Now finally add the destination of the image file, name the image file and then click on Finish.



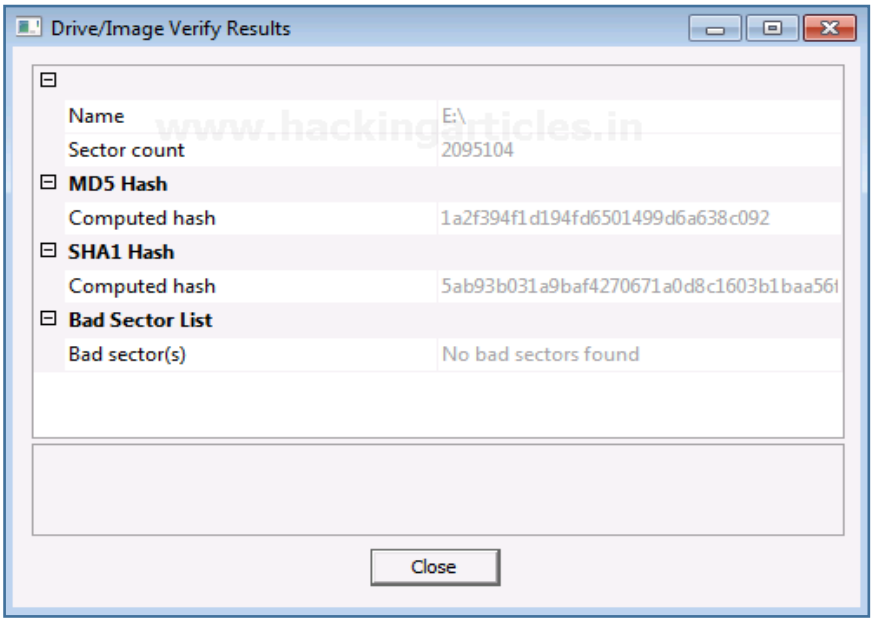

Once you have added the destination path, you can now start with the Imaging and also click on the verify option to generate a hash.



Now let us wait for a few minutes for the image to be created.




After the image is created, a Hash result is generated which verifies the MD5 Hash, SHA1 Hash, and the presence of any bad sector.

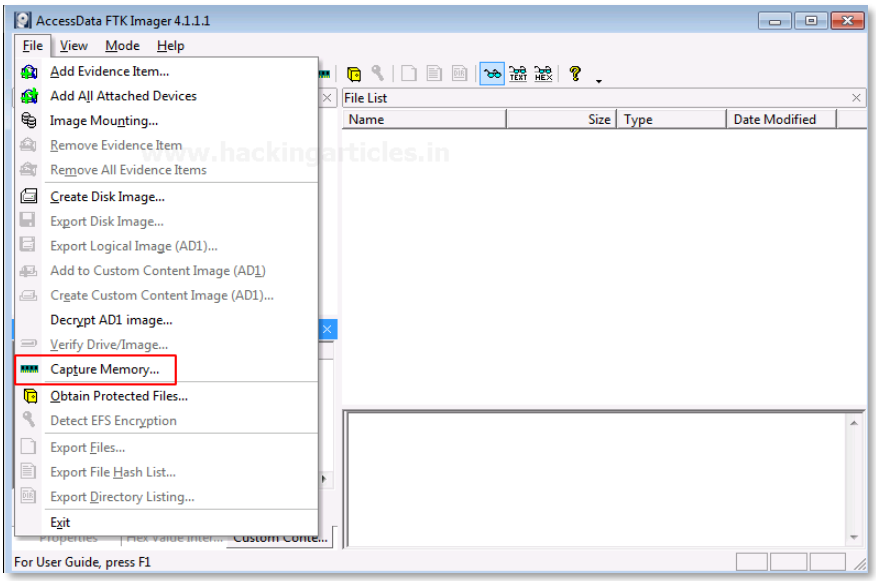


# Capturing Memory

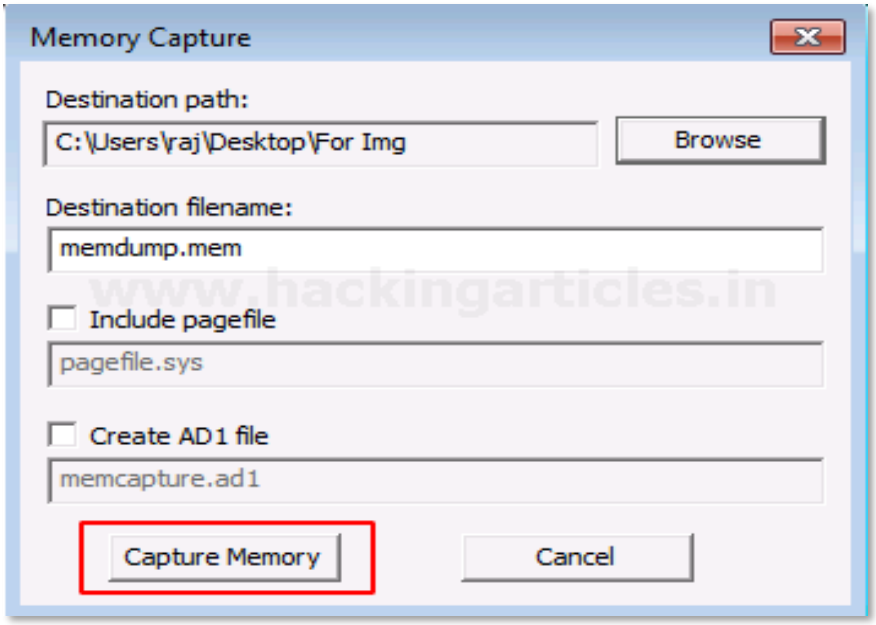
It is the method of capturing and dumping the contents of a volatile content into a non-volatile storage device to preserve it for further investigation. A ram analysis can only be successfully conducted when the acquisition has been performed accurately without corrupting the image of the volatile memory. In this phase, the investigator has to be careful about his decisions to collect the volatile data as it won't exist after the system undergoes a reboot.

Now, let us begin with capturing the memory.

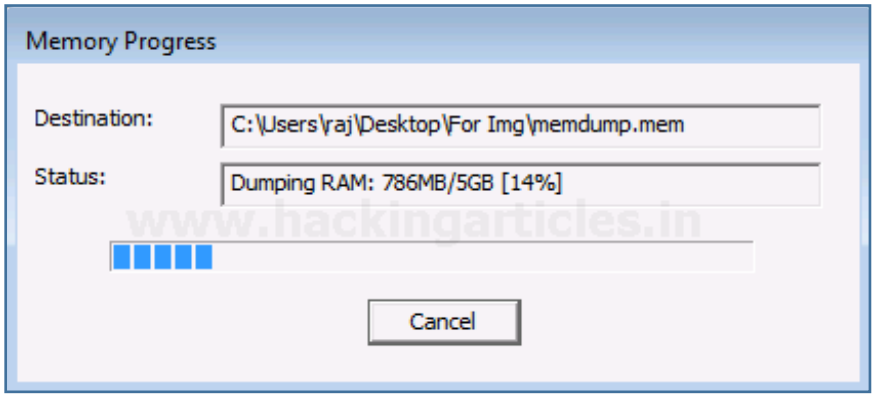
To capture the memory, click on **File > Capture Memory**.

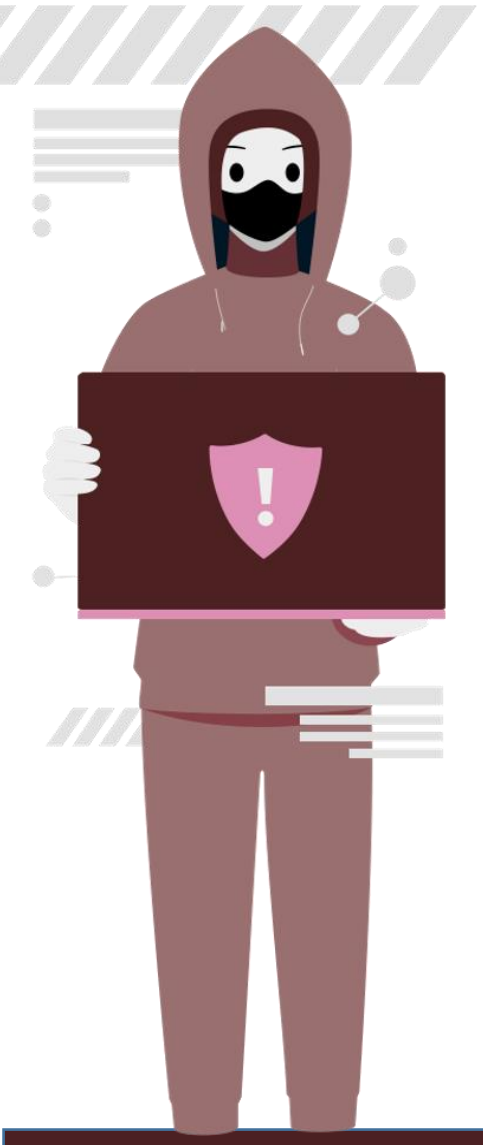



Choose the destination path and the destination file name, and click on capture memory.



Now let us wait for a few minutes till the ram is being captured.



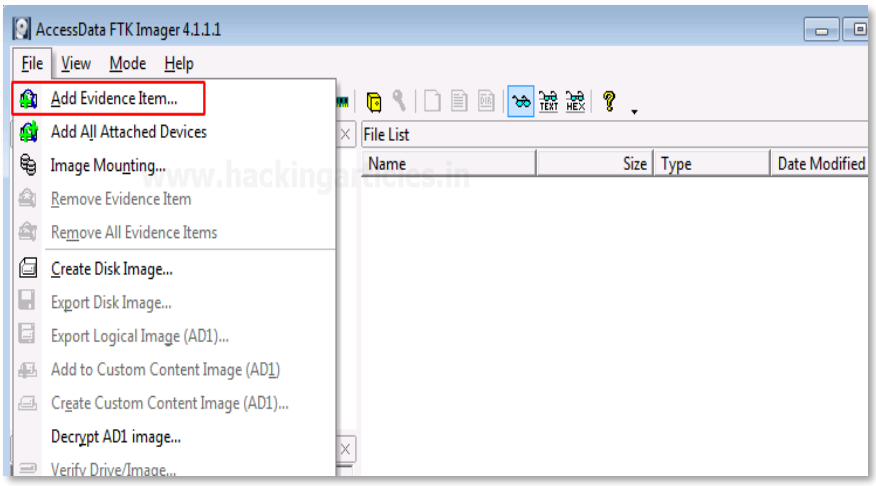
**Fun fact!**

You can get lucky with RAM captures at time as they contain:

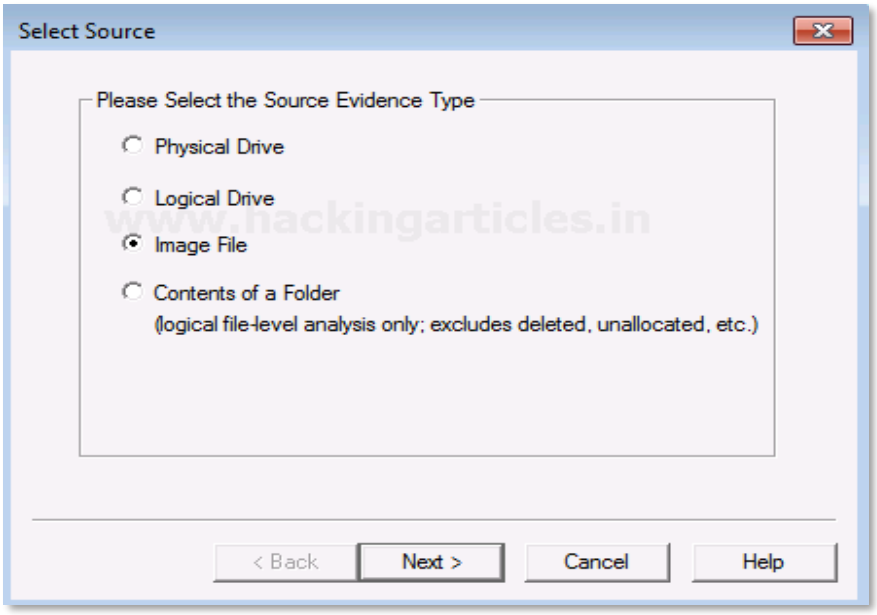
- Passwords
- Credentials
- Unsaved documents

# Analyzing Image Dump

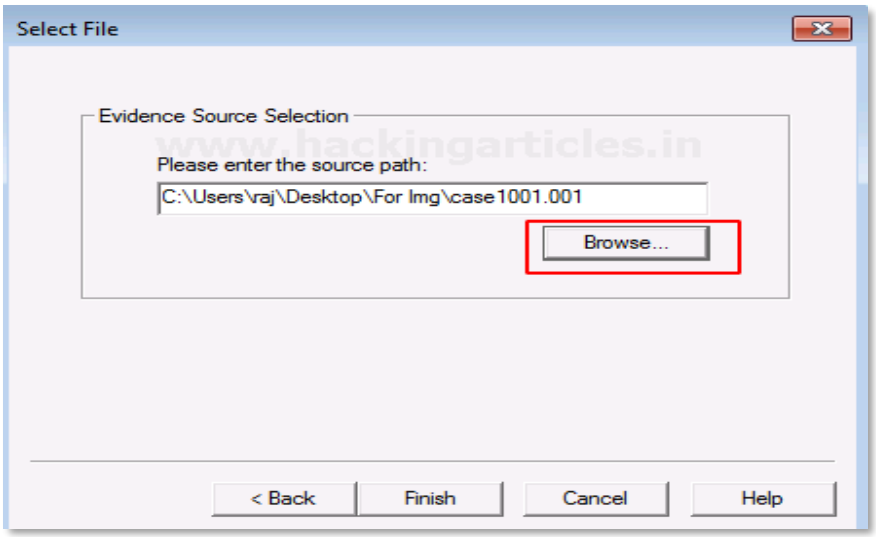
I Now let us analyze the Dump RAW Image once it has been acquired using FTK imager. To start with analysis, click on **File> Add Evidence Item.**



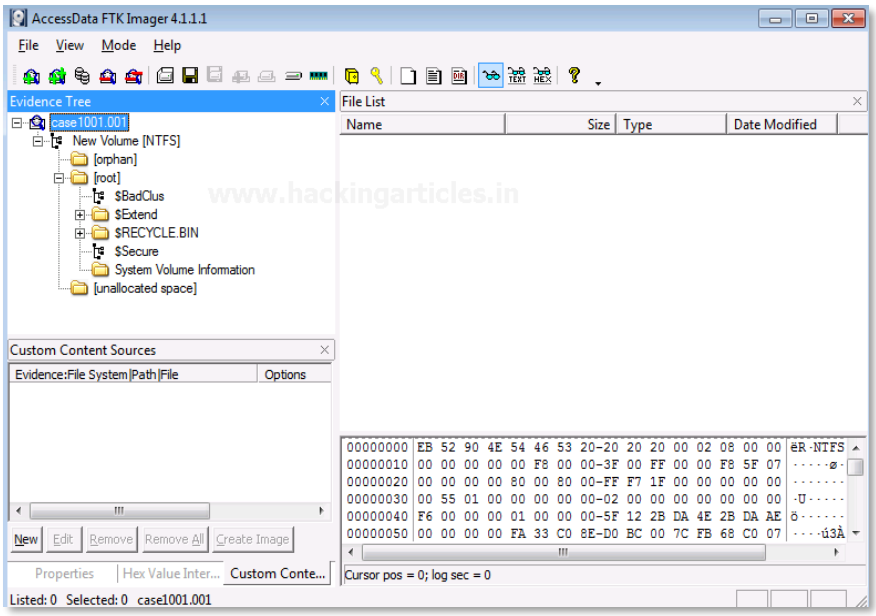

Now select the source of the dump file that you have already created, so here you have to select the image file option and click on Next.



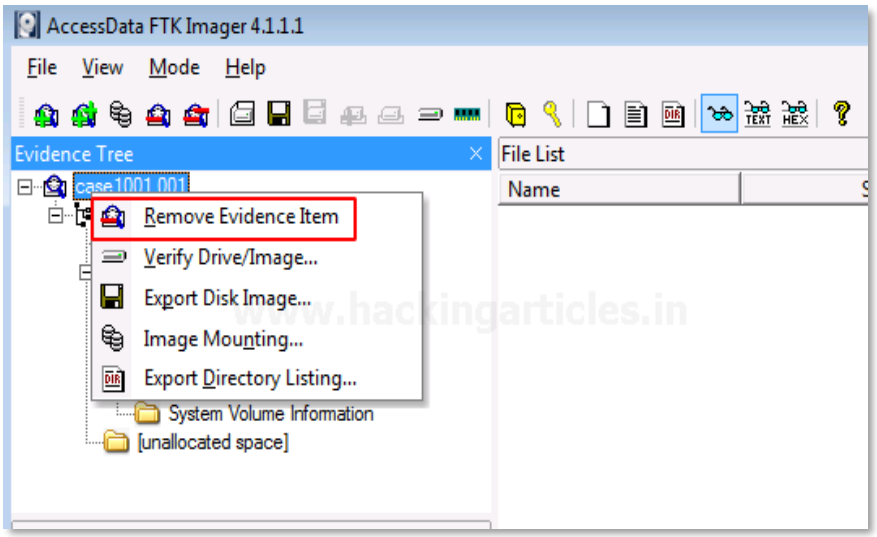
Choose the path of the image dump that you have captured by clicking on Browse.




Once the image dump is attached to the analysis part, you will see an evidence tree which has the contents of the files of the image dump. This could have deleted as well as overwritten data.

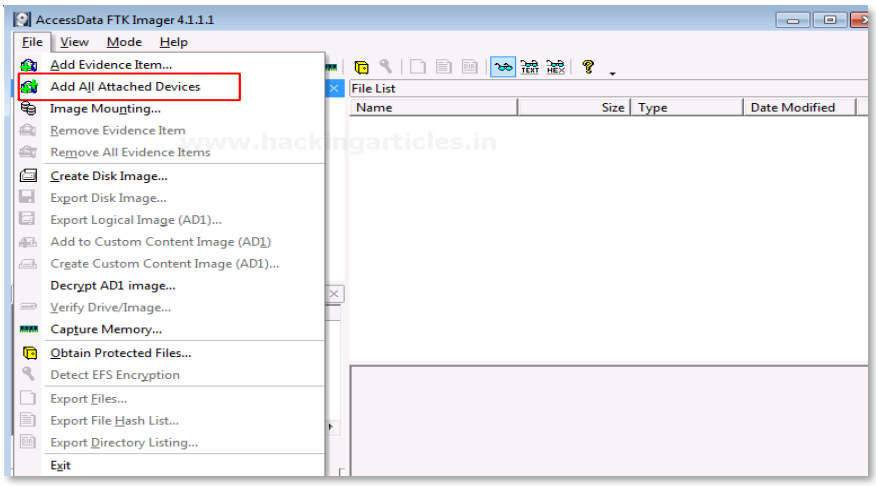


To analyze other things further, we will now remove this evidence item by right-clicking on the case and click on **Remove Evidence Item**

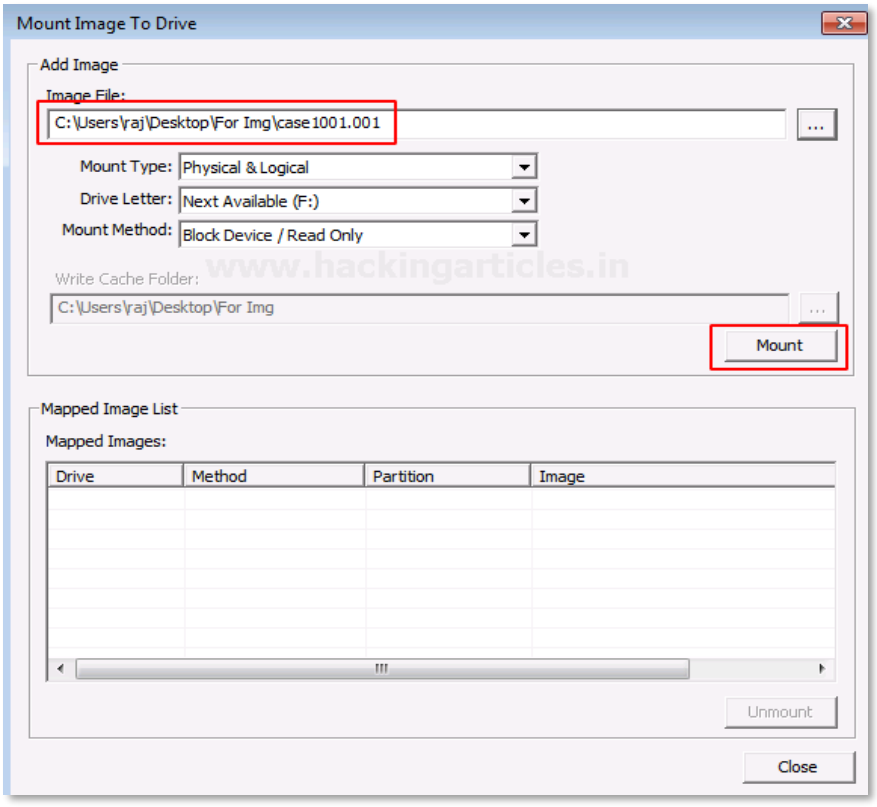


# Mounting Image To Drive

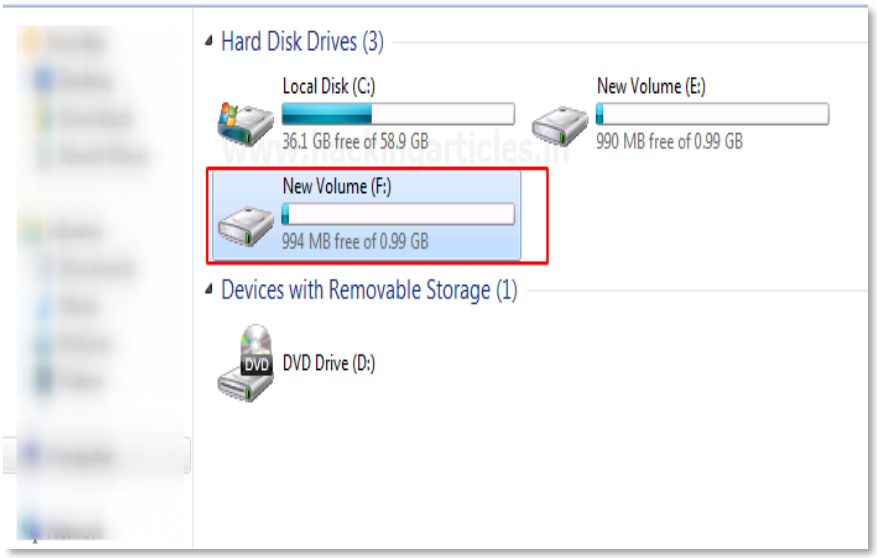
To mount the image as a drive in your system, click on **File > Image Mounting**




Once the Mount Image to Drive window appears, you can add the path to the image file that you want to mount and click on Mount.



Now you can see that the image file has now been mounted as a drive.

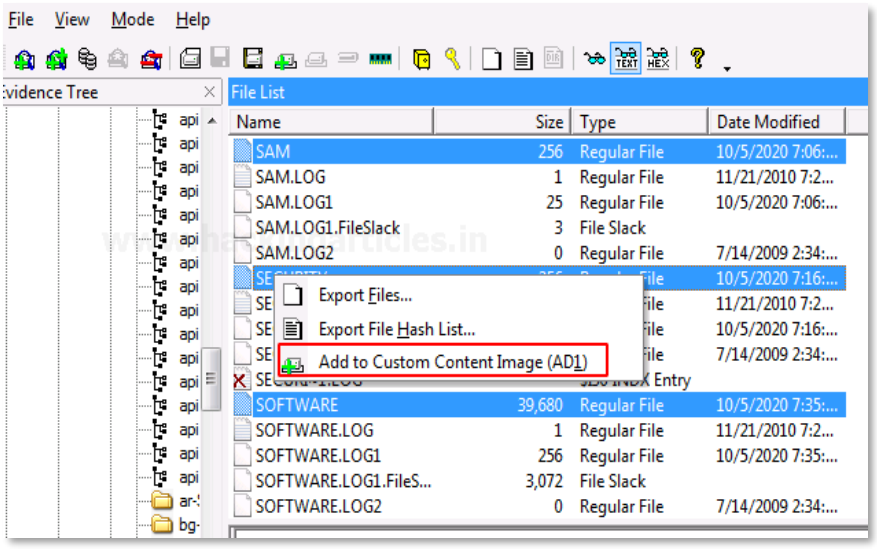



## Fun fact!

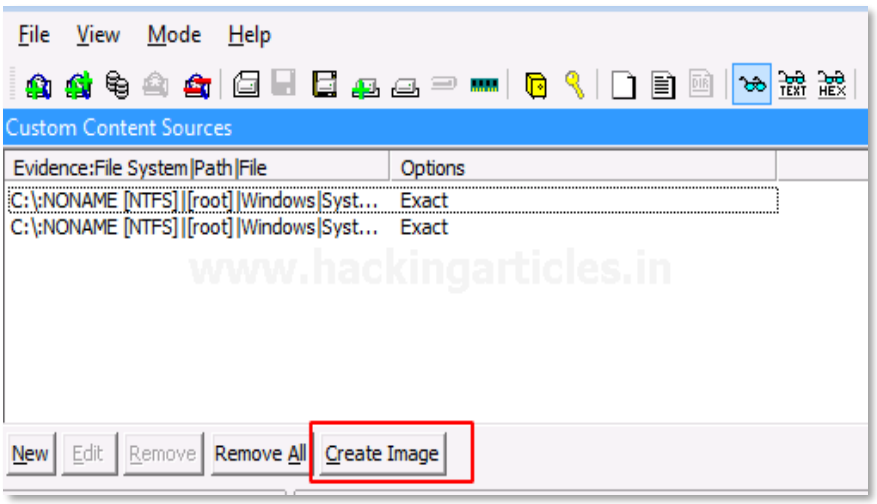
Mounting the image to a drive allows you to copy files or directories from the image file onto existing hard disks, **making the workflow much easier!**
However you still won't be able to delete or add files thought.

# Custom Content Image with AD Encryption

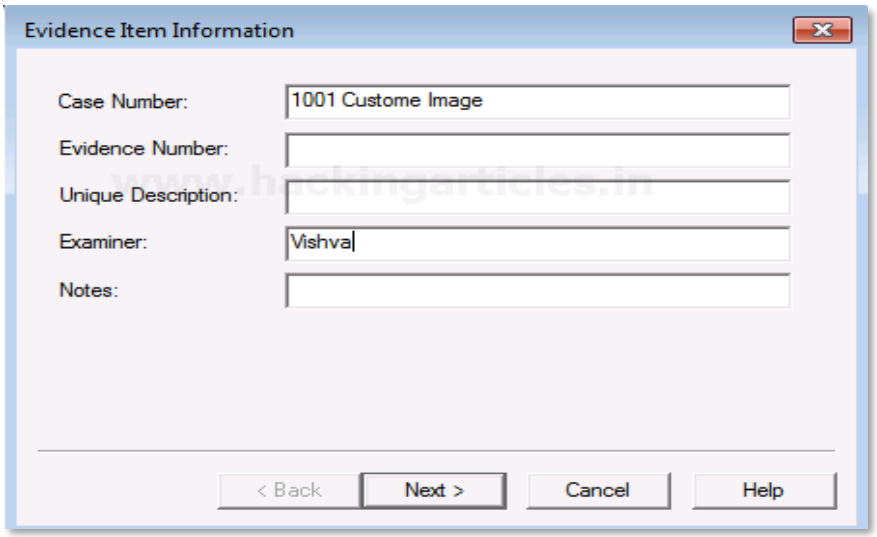
FTK imager has a feature that allows it to encrypt files of a particular type according to the requirement of the examiner. Click on the files that you want to add to the custom content Image along with AD encryption.



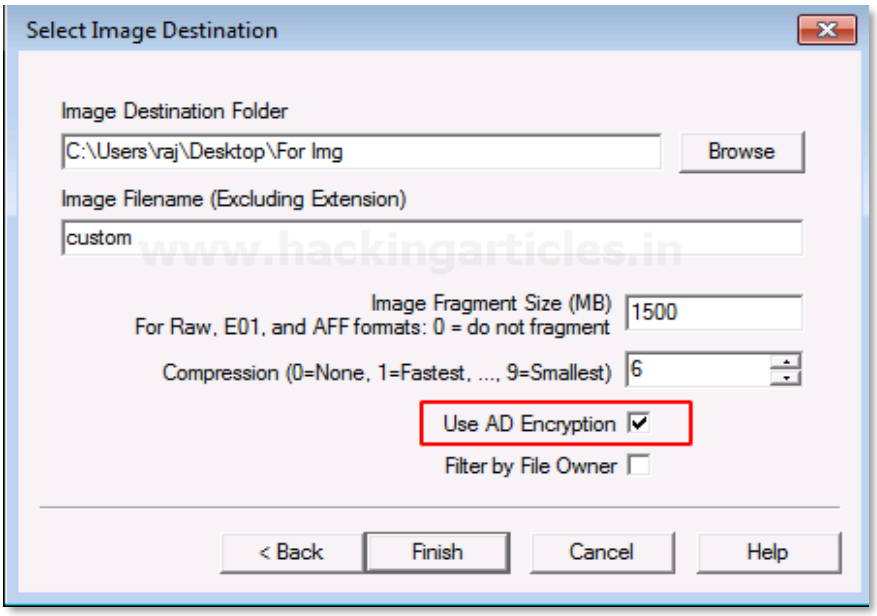

All the selected files will be displayed in a new window and then click on Create Image to proceed.



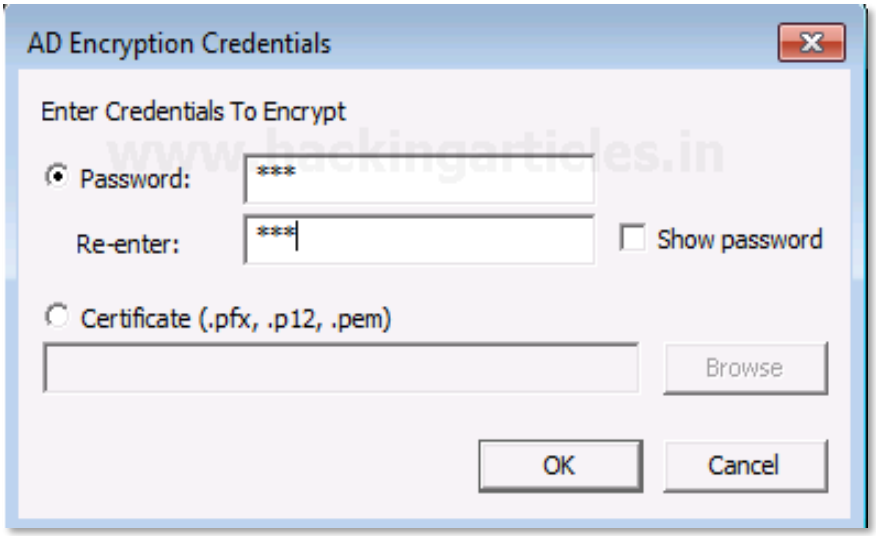
Fill in the required details for the evidence that is to be created.



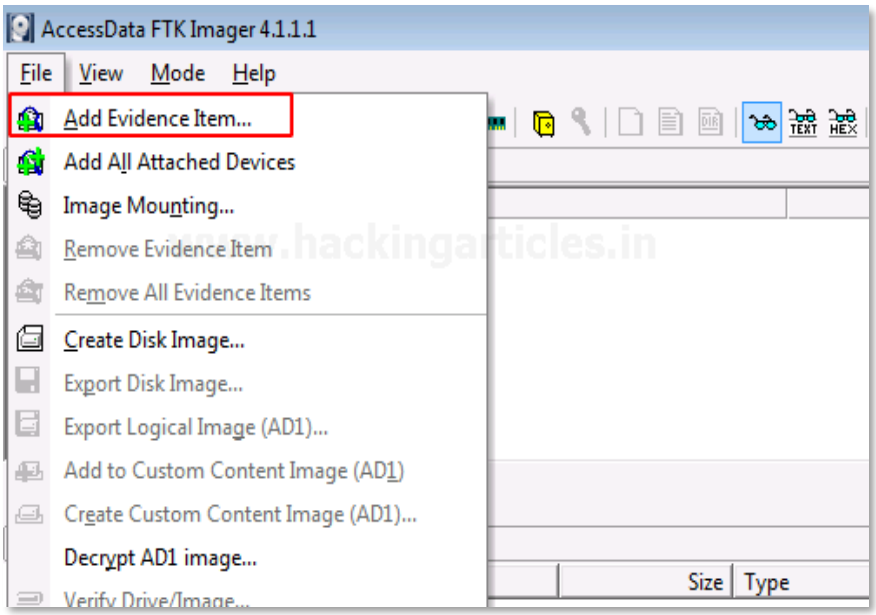

Now add the destination of the image file that is to be created, name the image file and then check the box with AD encryption, and then click on Finish.



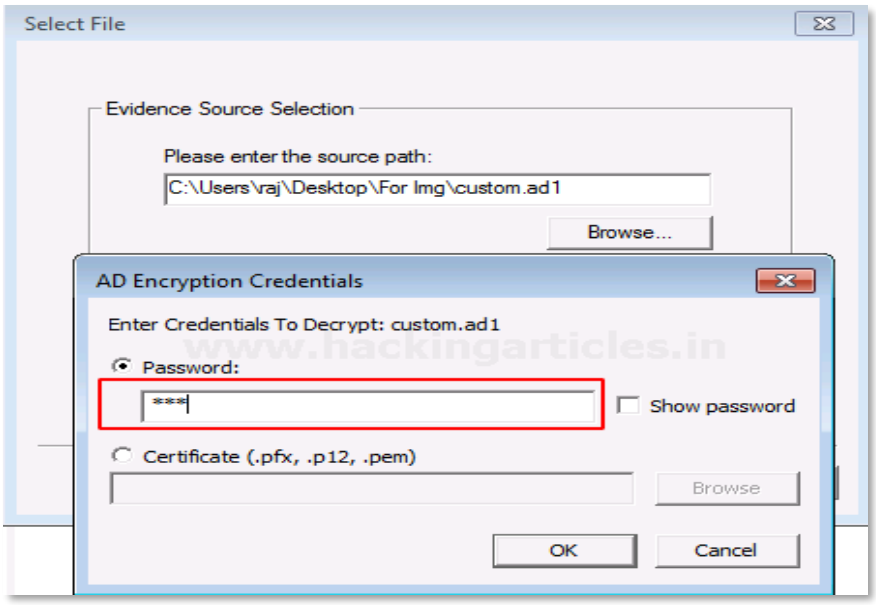
A new window will pop-up to encrypt the image, Now renter and re-enter the password that you want to add for your image.



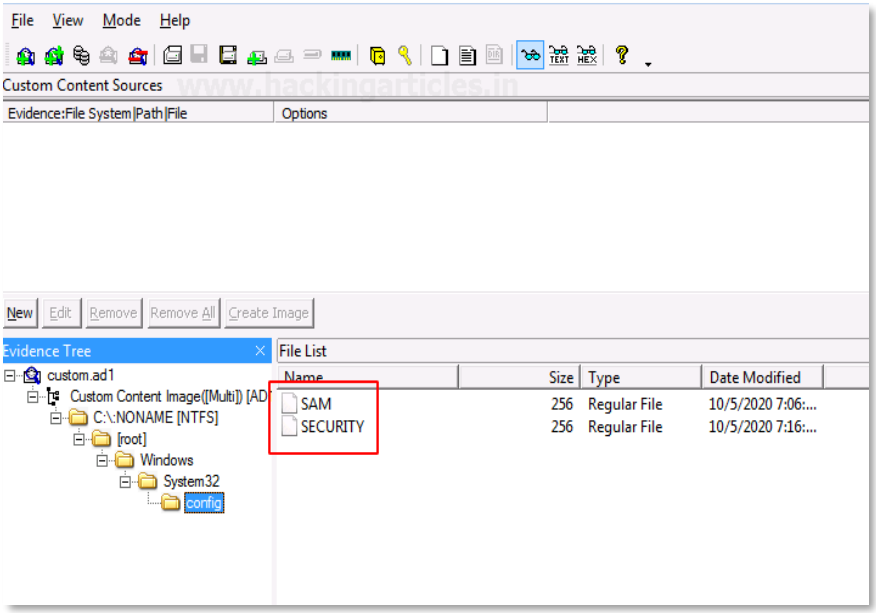

Now to see the encrypted files, click on **File> Add Evidence Item**...



The window to decrypt the encrypted files will appear once you add the file source. Enter the password and click OK.

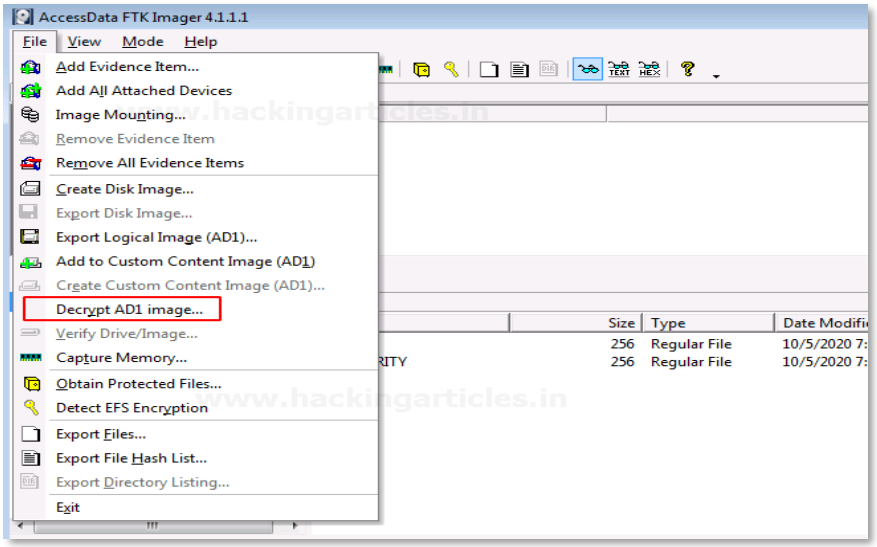



You will now see the two encrypted files on entering the valid passwords.

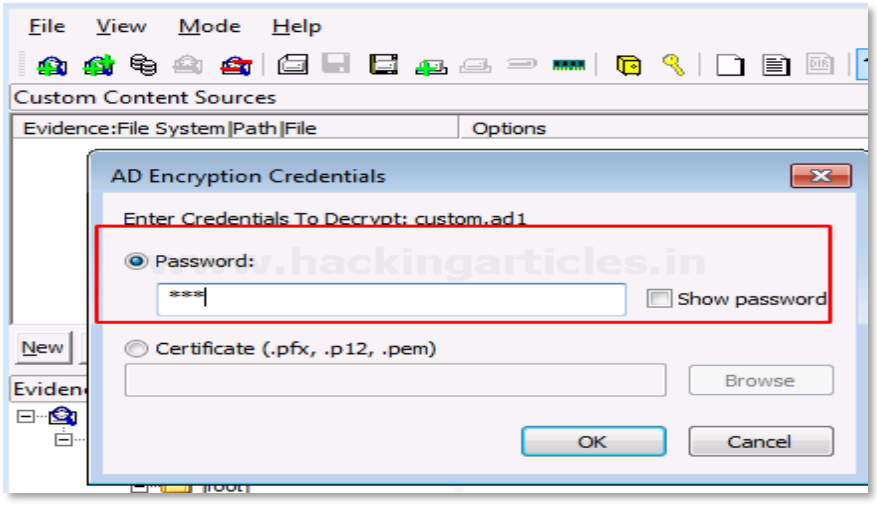


# Decrypt AD1 Image

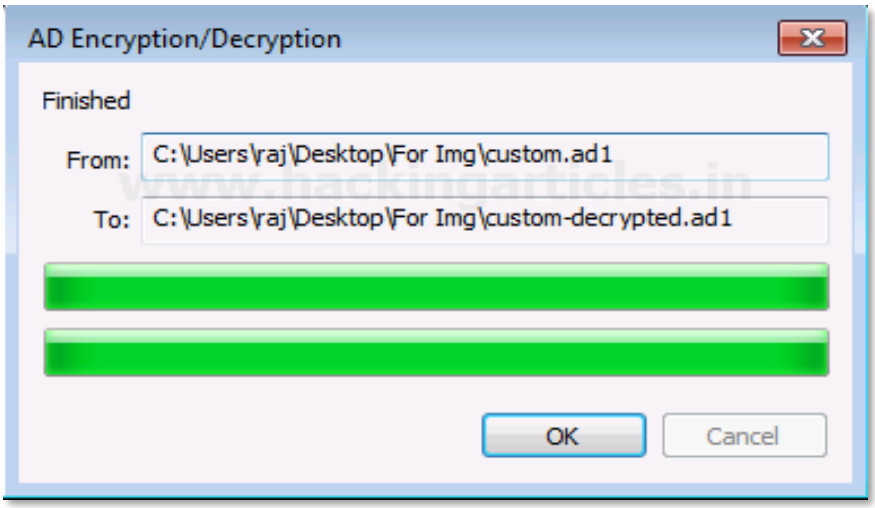
To decrypt the custom content image, click on **File> Decrypt AD1 Image.**



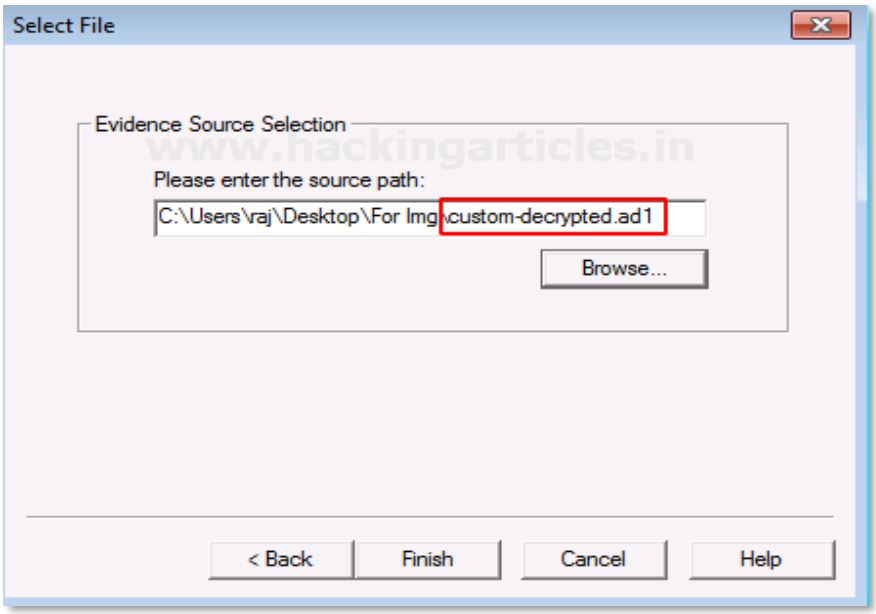

Now you need to enter the password for the image file that was encrypted and click on Ok.



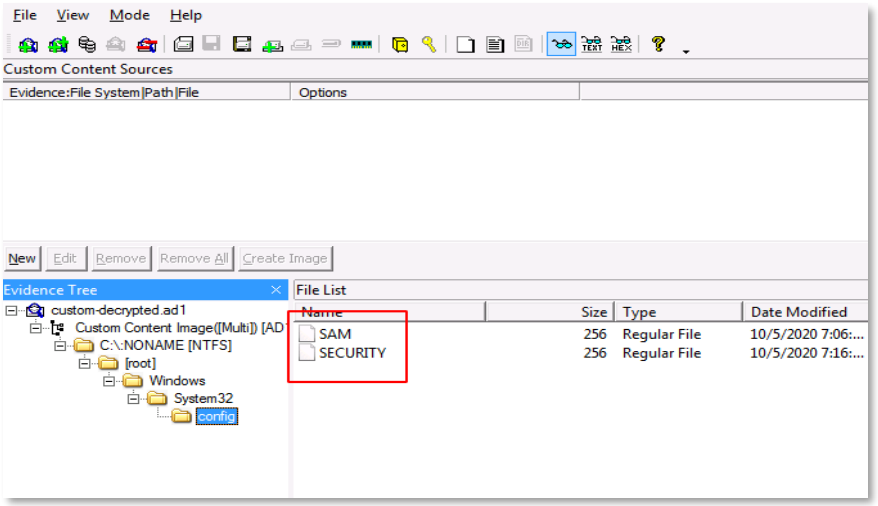
Now, wait for a few minutes till the decrypted image is created.




To view the decrypted custom content image, add the path of the decrypted file and click on Finish.

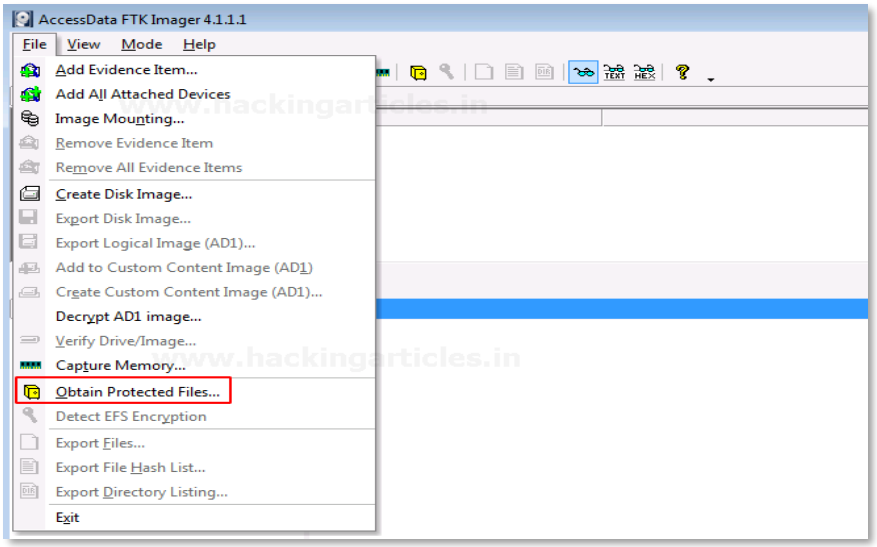


You will now be able to see the encrypted files by using the correct password to decrypt it.

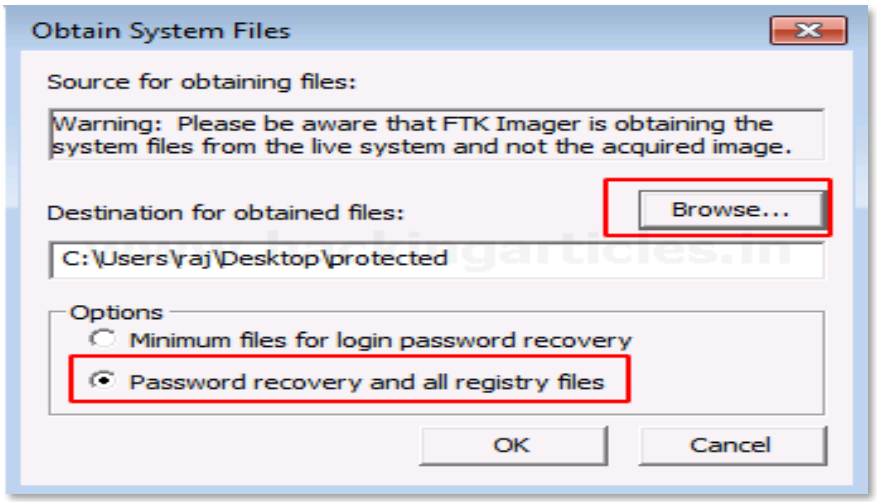


# Obtain Protected Files

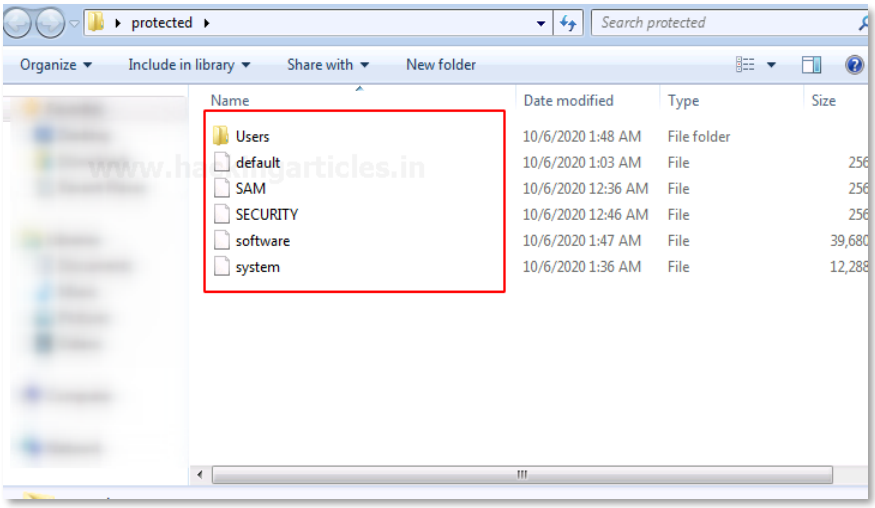
Certain files are protected on recovery, to obtain those files, click on **File> Obtain Protected Files**




A new window will pop and click on browse to add the destination of the file that is protected and click on the option that says password recovery and all registry files and click on OK.

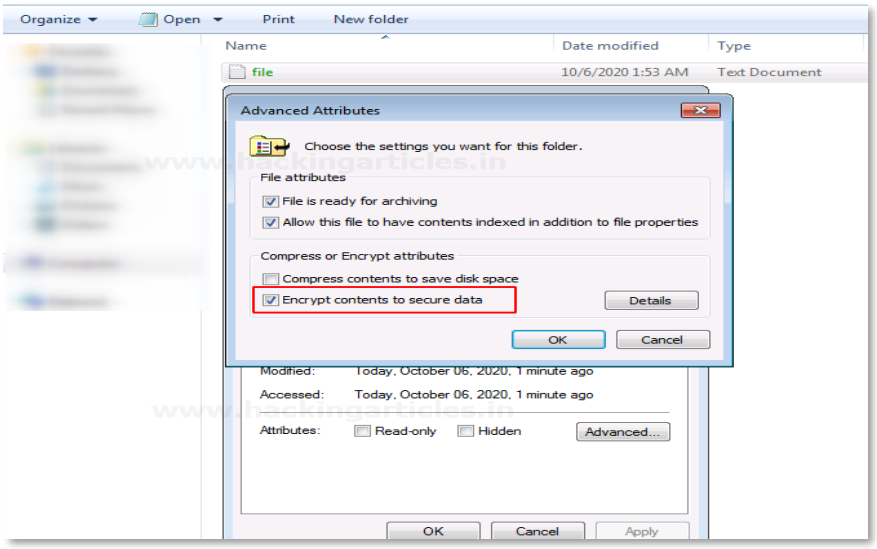


Now you will see all the protected files in one place

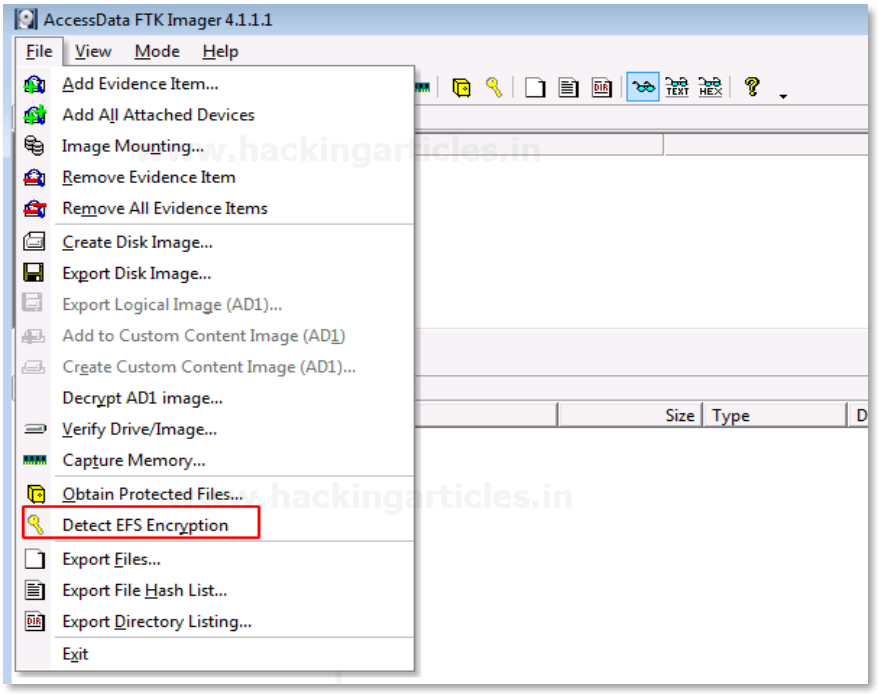


# Detect EFS Encryption

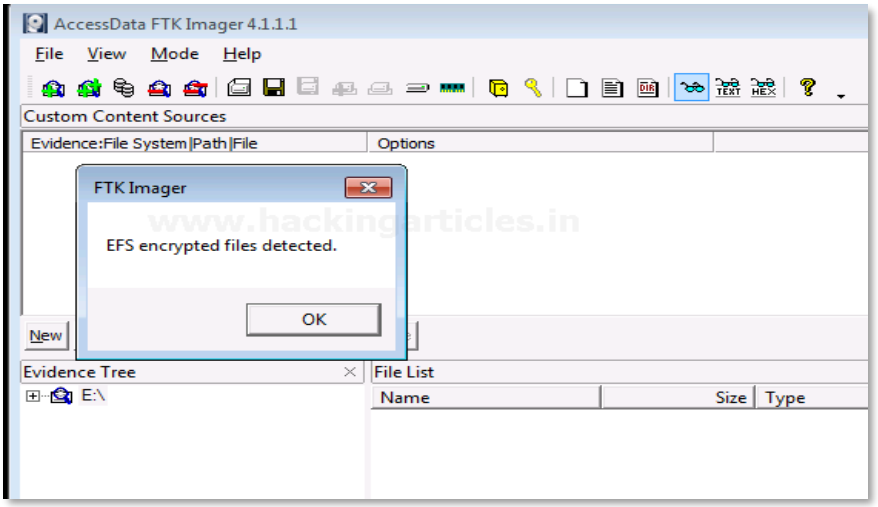
When a folder or a file is encrypted, we can detect it using this feature of the FTK Imager. A file is encrypted in a folder to secure its content.




To detect the EFS encryption, click on **File >Detect EFS Encryption**

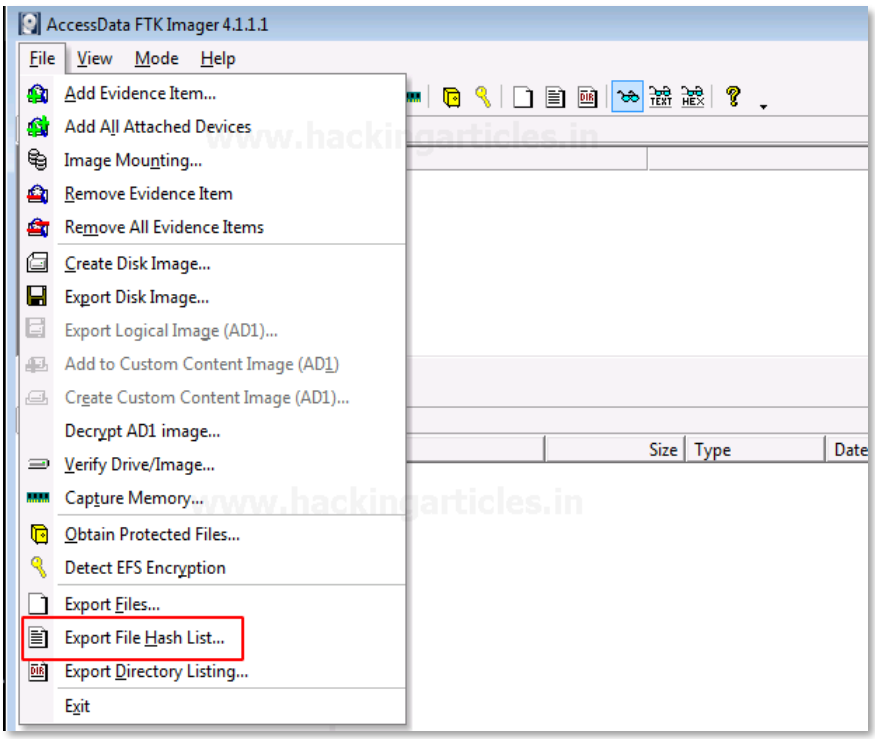


You can see that the encryption is detected.

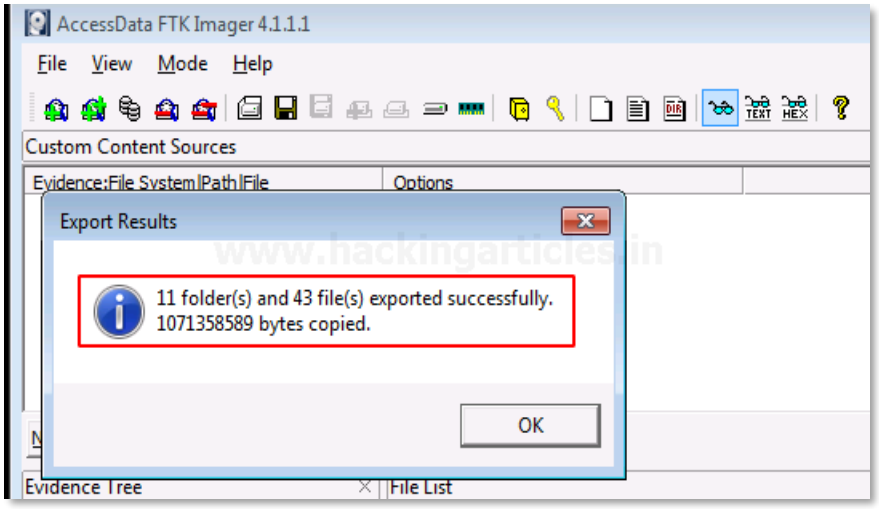


# Export Files

To export the files and folders from the imaged file to your folder, you can click **File > Export Files.**




You can now see the results of the export of the number of files and folders that have been copied to the system.



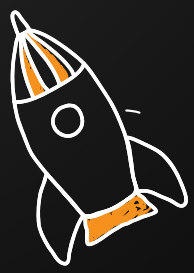
iGNITE Technologies

# JOIN OUR TRAINING PROGRAMS

CLICK HERE

## BEGINNER

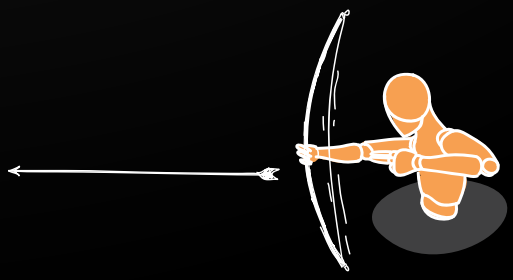
- Ethical Hacking
- Network Pentest
- Bug Bounty
- Wireless Pentest
- Network Security Essentials



## ADVANCED

- Burp Suite Pro
- Android Pentest
- Web Services-API
- Advanced Metasploit
- Pro Infrastructure VAPT
- CTF
- Computer Forensics

## EXPERT



- Red Team Operation
  - APT's - MITRE Attack Tactics
  - Active Directory Attack
  - MSSQL Security Assessment
- Privilege Escalation
  - Windows
  - Linux