

Research Project (possible topics):

1. Conduct a literature review of steganalysis methods and tools. Create a spreadsheet listing of at least five steganography tools and their features. The spreadsheet should have the following columns:
 - Name of tool
 - Vendor (with URL for purchasing or downloading the tool)
 - Cost (or note that its freeware, if applicable)
 - File formats of data that can be hidden
 - Web site

Include a summary description of what you learned.

2. Research the topic of Cloud Forensics. Describe some of the technical challenges inherent in cloud forensics and some of the unique issues that you may encounter when conducting a cloud investigation.
3. Conduct a study on the different types of digital forensics certifications. Write a 2–3-page report on what you learned.
4. Your manager informs you that she needs to prepare for next year's budget and wants you to create a list of hardware and software for two new workstations and one laptop, all Windows computers. Conduct Internet research and create a spreadsheet listing hardware and software for each computer with estimated costs. For the computers, include specifications such as processor speeds, RAM, internal disk storage, and type of monitor. For software, include an OS, an office suite, and two digital forensics tools.
5. Research the state of North Carolina to determine what licenses are required to work in the digital forensic examiners field. Write a summary of the licensing requirements. If NC does not have any license requirements, research one of the following states: Michigan, Texas, or Georgia.
6. Your supervisor has asked you to research current acquisition tools. Using your preferred Internet search engine and the vendors you are currently familiar with, prepare a report containing the following information for each tool and state which tool you prefer to use:
 - Forensics vendor name
 - Acquisition tool name and latest version number
 - Features of the vendor's productWith this data collected, prepare a spreadsheet listing vendor in rows. For the column headings, list the following features:

- Raw format
 - Proprietary format
 - AFF format
 - Other proprietary formats the tool can read
 - Compression of image files
 - Remote network acquisition capabilities
 - Method used to validate (MD5, SHA-1, and so on)
7. You work for a mid-size corporation known for its inventions that does a lot of copyright and patent work. You're investigating an employee suspected of selling and distributing animations created for your corporation. During your investigation of the suspect's drive, you find some files with the unfamiliar extension **.xde**. The network administrator mentions that other **.xde** files have been sent through an FTP server to another site. Describe your findings after conducting an Internet search for this file extension. Prepare a report that lists what items should be included to ensure the preservation of digital evidence when the warrant is carried out.
 8. With improvements in cryptanalysis, quantum computing methods are now used. Review three to five current articles discussing the use of quantum computing for password cracking. Write a 2–3-page report that summarizes the advantages and possible limitations of quantum computing for this purpose.
 9. *X1 Social Discovery* is a forensics package for online social networks (OSNs). The orientation videos advise that investigators create a Facebook or similar OSN profile without friends, groups, or associates attached to it. Go to www.x1.com/products/x1_social_discovery/ and download the user information and 14-day free trial. Write a report that argues for and against the safeguards that are recommended before you use this tool to gather information on a social media account.
 10. To examine a cloud environment, you must have the latest knowledge on cloud encryption. Conduct online research and write a 2–3-page report about the current vendors and services for encrypting data stored in the cloud. List the vendors, their products, and what type of cloud service level each tool is intended for, such as PaaS, IaaS, or SaaS.
 11. The attorney who retained you has given you a list of digital forensics terms and asked you to write definitions for these terms. These definitions will be given to the jury to help them better understand the case's subject matter. Do research online to define the following terms, making sure you target your definitions to nontechnical readers.
 - Hashes for Cyclic Redundancy Check, Message Digest, and Secure Hash Algorithm
 - A drive image
 - Static versus live data acquisition of drives
 - Data carving
 - Digital forensics tool validation

Submit the definitions and a short summary of your experience writing them.