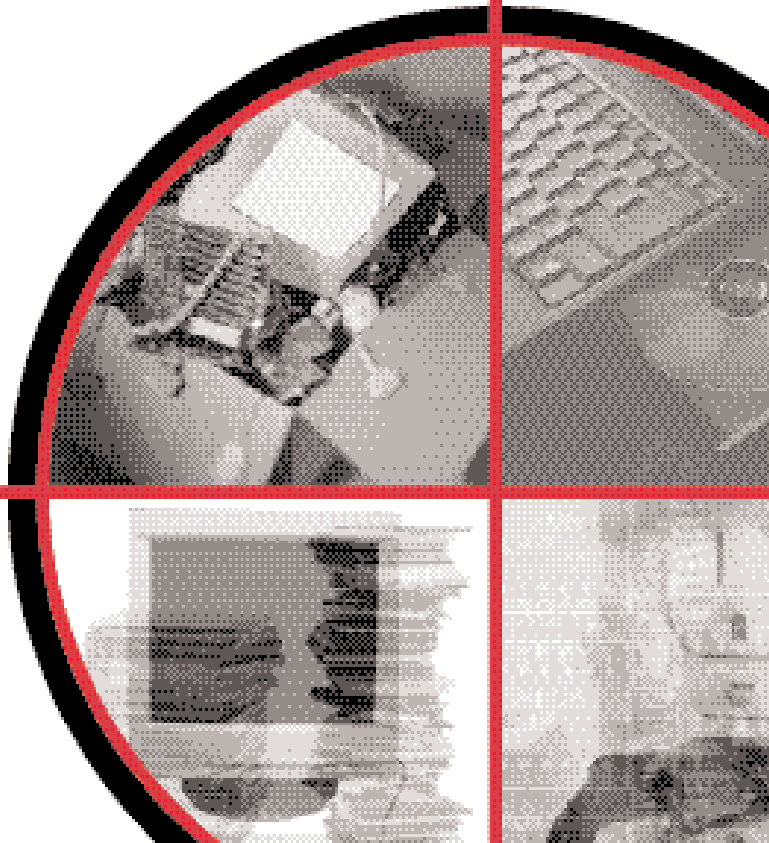# Electronic Crime Scene Investigation

A Guide for First Responders

NIJ Guide

U.S. Department of Justice
Office of Justice Programs
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John Ashcroft
Attorney General

Office of Justice Programs
World Wide Web Site
http://www.ojp.usdoj.gov

National Institute of Justice
World Wide Web Site
http://www.ojp.usdoj.gov/nij

**Electronic Crime Scene
Investigation:
A Guide for First
Responders**

Written and Approved by the
Technical Working Group for
Electronic Crime Scene Investigation

July 2001

NIJ

U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

The Internet, computer networks, and automated data systems present an enormous new opportunity for committing criminal activity. Computers and other electronic devices are being used increasingly to commit, enable, or support crimes perpetrated against persons, organizations, or property. Whether the crime involves attacks against computer systems, the information they contain, or more traditional crimes such as murder, money laundering, trafficking, or fraud, electronic evidence increasingly is involved. It is no surprise that law enforcement and criminal justice officials are being overwhelmed by the volume of investigations and prosecutions that involve electronic evidence.

To assist State and local law enforcement agencies and prosecutorial offices with the growing volume of electronic crime, a series of reference guides regarding practices, procedures, and decisionmaking processes for investigating electronic crime is being prepared by technical working groups of practitioners and subject matter experts who are knowledgeable about electronic crime. The practitioners and experts are from Federal, State, and local law enforcement agencies; criminal justice agencies; offices of prosecutors and district attorneys general; and academic, commercial, and professional organizations.

The series of guides will address the investigation process from the crime scene first responder, to the laboratory, to the courtroom. Specifically, the series of guides will address:

◆ Crime scene investigations by first responders.

◆ Examination of digital evidence.

◆ Investigative uses of technology.

◆ Investigating electronic technology crimes.

◆ Creating a digital evidence forensic unit.

◆ Courtroom presentation of digital evidence.

Due to the rapidly changing nature of electronic and computer technologies and of electronic crime, efforts will be periodically undertaken to update the information contained within each of the guides. The guides, and any subsequent updates that are made to them, will be made available on the National Institute of Justice's World Wide Web site (http://www.ojp.usdoj.gov/nij).

Technical Working Group for Electronic Crime Scene Investigation

The Technical Working Group for Electronic Crime Scene Investigation (TWGECSI) was a multidisciplinary group of practitioners and subject matter experts from across the United States and other nations. Each of the individual participants is experienced in the intricacies involved with electronic evidence in relation to recognition, documentation, collection, and packaging. To initiate the working group, a planning panel composed of a limited number of participants was selected to define the scope and breadth of the work. A series of guides was proposed in which each guide will focus on a different aspect of the discipline.

The panel chose crime scene investigation as the first topic for incorporation into a guide.

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Additional members were then incorporated into TWGECSI to
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Chronology

In May 1998, the National Cybercrime Training Partnership (NCTP), the Office of Law Enforcement Standards (OLES), and the National Institute of Justice (NIJ) collaborated on possible resources that could be implemented to counter electronic crime. Continuing meetings generated a desire to formulate one set of protocols that would address the process of electronic evidence from the crime scene through court presentations. NIJ selected the technical working group process as the way to achieve this goal but with the intent to create a publication flexible enough to allow implementation with any State and local law enforcement policy. Using its "template for technical working groups," NIJ established the Technical Working Group for Electronic Crime Scene Investigation (TWGECSI) to identify, define, and establish basic criteria to assist agencies with electronic investigations and prosecutions.

In January 1999, planning panel members met at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland, to review the fast-paced arena of electronic crime and prepare the scope, intent, and objectives of the project. During this meeting, the scope was determined to be too vast for incorporation into one guide. Thus evolved a plan for several guides, each targeting separate issues. Crime scene investigation was selected as the topic for the first guide.

The initial meeting of the full TWGECSI took place March 1999 at NIST. After outlining tasks in a general meeting, the group separated into subgroups to draft the context of the chapters as identified by the planning panel. These chapters were Electronic Devices: Types and Potential Evidence; Investigative Tools and Equipment; Securing and Evaluating the Scene; Documenting the Scene; Evidence Collection; Packaging, Transportation, and Storage; and Forensic Examination by Crime Category. The volume of work involved in preparing the text of these chapters required additional TWGECSI meetings.

The planning panel did not convene again until May 2000. Due to the amount of time that had transpired between meetings, the planning panel reviewed the draft content and compared it with changes that had occurred in the electronic crime environment.

These revisions to the draft were then sent to the full TWGECSI in anticipation of the next meeting. The full TWGECSI met again at NIST in August 2000, and through 2 days of intense discussion, edited most of the draft to represent the current status of electronic crime investigation. With a few more sections requiring attention, the planning panel met in Seattle, Washington, during September 2000 to continue the editing process. These final changes, the glossary, and appendixes were then critiqued and voted on by the whole TWGECSI during the final meeting in November 2000 at NIST.

The final draft was then sent for content and editorial review to more than 80 organizations having expertise and knowledge in the electronic crime environment. The returned comments were evaluated and incorporated into the document when possible. The first chapter, Electronic Devices: Types and Potential Evidence, incorporates photographic representations of highlighted terms as a visual associative guide. At the end of the document are appendixes containing a glossary, legal resources, technical resources, training resources, and references, followed by a list of the organizations to which a draft copy of the document was sent.

Acknowledgments

The National Institute of Justice (NIJ) wishes to thank the members of the Technical Working Group for Electronic Crime Scene Investigation (TWGECSI) for their tireless dedication. There was a constant turnover of individuals involved, mainly as a result of job commitments and career changes. This dynamic environment resulted in a total of 94 individuals supplying their knowledge and expertise to the creation of the guide. All participants were keenly aware of the constant changes occurring in the field of electronics and strove to update information during each respective meeting. This demonstrated the strong desire of the working group to produce a guide that could be flexible and serve as a backbone for future efforts to upgrade the guide. In addition, NIJ offers a sincere thank you to each agency and organization represented by the working group members. The work loss to each agency during the absence of key personnel is evidence of management's commitment and understanding of the importance of standardization in forensic science.

NIJ also wishes to thank Kathleen Higgins, Director, and Susan Ballou, Program Manager, of the Office of Law Enforcement Standards, for providing management and guidance in bringing the project to completion.

NIJ would like to express appreciation for the input and support that Dr. David G. Boyd, Director of NIJ's Office of Science and Technology (OS&T), and Trent DePersia, Dr. Ray Downs, Dr. Richard Rau, Saralyn Borrowman, Amon Young, and James McNeil, all of OS&T, gave the meetings and the document. A special thanks is extended to Aspen Systems Corporation, specifically to Michele Coppola, the assigned editor, for her patience and skill in dealing with instantaneous transcription.

In addition, NIJ wishes to thank the law enforcement agencies, academic institutions, and commercial organizations worldwide that supplied contact information, reference materials, and editorial suggestions. Particular thanks goes to Michael R. Anderson, President of New Technologies, Inc., for contacting agencies knowledgeable in electronic evidence for inclusion in the appendix on technical resources.

Contents

Computers and other electronic devices are present in every aspect of modern life. At one time, a single computer filled an entire room; today, a computer can fit in the palm of your hand. The same technological advances that have helped law enforcement are being exploited by criminals.

Computers can be used to commit crime, can contain evidence of crime, and can even be targets of crime. Understanding the role and nature of electronic evidence that might be found, how to process a crime scene containing potential electronic evidence, and how an agency might respond to such situations are crucial issues. This guide represents the collected experience of the law enforcement community, academia, and the private sector in the recognition, collection, and preservation of electronic evidence in a variety of crime scenes.

The Law Enforcement Response to Electronic Evidence

The law enforcement response to electronic evidence requires that officers, investigators, forensic examiners, and managers all play a role. This document serves as a guide for the first responder. A first responder may be responsible for the recognition, collection, preservation, transportation, and/or storage of electronic evidence. In today's world, this can include almost everyone in the law enforcement profession. Officers may encounter electronic devices during their day-to-day duties. Investigators may direct the collection of electronic evidence, or may perform the collection themselves. Forensic examiners may provide assistance at crime scenes and will perform examinations on the evidence. Managers have the responsibility of ensuring that personnel under their direction are adequately trained and equipped to properly handle electronic evidence.

Each responder must understand the fragile nature of electronic evidence and the principles and procedures associated with its collection and preservation. Actions that have the potential to alter, damage, or destroy original evidence may be closely scrutinized by the courts.

Procedures should be in effect that promote electronic crime scene investigation. Managers should determine who will provide particular levels of services and how these services will be funded. Personnel should be provided with initial and ongoing technical training. Oftentimes, certain cases will demand a higher level of expertise, training, or equipment, and managers should have a plan in place regarding how to respond to these cases. The demand for responses to electronic evidence is expected to increase for the foreseeable future. Such services require that dedicated resources be allocated for these purposes.

The Latent Nature of Electronic Evidence

Electronic evidence is information and data of investigative value that is stored on or transmitted by an electronic device. As such, electronic evidence is latent evidence in the same sense that fingerprints or DNA (deoxyribonucleic acid) evidence are latent. In its natural state, we cannot "see" what is contained in the physical object that holds our evidence. Equipment and software are required to make the evidence visible. Testimony may be required to explain the examination process and any process limitations.

Electronic evidence is, by its very nature, fragile. It can be altered, damaged, or destroyed by improper handling or improper examination. For this reason, special precautions should be taken to document, collect, preserve, and examine this type of evidence. Failure to do so may render it unusable or lead to an inaccurate conclusion. This guide suggests methods that will help preserve the integrity of such evidence.

The Forensic Process

The nature of electronic evidence is such that it poses special challenges for its admissibility in court. To meet these challenges, follow proper forensic procedures. These procedures include, but are not limited to, four phases: collection, examination, analysis, and reporting. Although this guide concentrates on the collection phase, the nature of the other three phases and what happens in each are also important to understand.

The collection phase involves the search for, recognition of, collection of, and documentation of electronic evidence. The collection phase can involve real-time and stored information that may be lost unless precautions are taken at the scene.

The examination process helps to make the evidence visible and explain its origin and significance. This process should accomplish several things. First, it should document the content and state of the evidence in its totality. Such documentation allows all parties to discover what is contained in the evidence. Included in this process is the search for information that may be hidden or obscured. Once all the information is visible, the process of data reduction can begin, thereby separating the "wheat" from the "chaff." Given the tremendous amount of information that can be stored on computer storage media, this part of the examination is critical.

Analysis differs from examination in that it looks at the product of the examination for its significance and probative value to the case. Examination is a technical review that is the province of the forensic practitioner, while analysis is performed by the investigative team. In some agencies, the same person or group will perform both these roles.

A written report that outlines the examination process and the pertinent data recovered completes an examination. Examination notes must be preserved for discovery or testimony purposes. An examiner may need to testify about not only the conduct of the examination but also the validity of the procedure and his or her qualifications to conduct the examination.

This guide is intended for use by law enforcement and other responders who have the responsibility for protecting an electronic crime scene and for the recognition, collection, and preservation of electronic evidence. It is not all-inclusive. Rather, it deals with the most common situations encountered with electronic evidence. Technology is advancing at such a rapid rate that the suggestions in this guide must be examined through the prism of current technology and the practices adjusted as appropriate. It is recognized that all crime scenes are unique and the judgment of the first responder/investigator should be given deference in the implementation of this guide. Furthermore, those responsible officers or support personnel with special training should also adjust their practices as the circumstances (including their level of experience, conditions, and available equipment) warrant. This publication is not intended to address forensic analysis. Circumstances of individual cases and Federal, State, and local laws/rules may require actions other than those described in this guide.

When dealing with electronic evidence, general forensic and procedural principles should be applied:

◆ Actions taken to secure and collect electronic evidence should not change that evidence.

◆ Persons conducting examination of electronic evidence should be trained for the purpose.

◆ Activity relating to the seizure, examination, storage, or transfer of electronic evidence should be fully documented, preserved, and available for review.

Who Is the Intended Audience for This Guide?

◆ Anyone encountering a crime scene that might contain electronic evidence.

◆ Anyone processing a crime scene that involves electronic evidence.

◆ Anyone supervising someone who processes such a crime scene.

◆ Anyone managing an organization that processes such a crime scene.

STOP Without having the necessary skills and training, no responder should attempt to explore the contents or recover data from a computer (e.g., do not touch the keyboard or click the mouse) or other electronic device other than to record what is visible on its display.

What Is Electronic Evidence?

Electronic evidence is information and data of investigative value that is stored on or transmitted by an electronic device. Such evidence is acquired when data or physical items are collected and stored for examination purposes.

Electronic evidence:

◆ Is often latent in the same sense as fingerprints or DNA evidence.

◆ Can transcend borders with ease and speed.

◆ Is fragile and can be easily altered, damaged, or destroyed.

◆ Is sometimes time-sensitive.

How Is Electronic Evidence Handled at the Crime Scene?

Precautions must be taken in the collection, preservation, and examination of electronic evidence.

Handling electronic evidence at the crime scene normally consists of the following steps:

◆ Recognition and identification of the evidence.

◆ Documentation of the crime scene.

◆ Collection and preservation of the evidence.

◆ Packaging and transportation of the evidence.

The information in this document assumes that:

◆ The necessary legal authority to search for and seize the suspected evidence has been obtained.

◆ The crime scene has been secured and documented (photo-graphically and/or by sketch or notes).

◆ Crime scene protective equipment (gloves, etc.) is being used as necessary.

STOP

Note: First responders should use caution when seizing electronic devices. The improper access of data stored in electronic devices may violate provisions of certain Federal laws, including the Electronic Communications Privacy Act. Additional legal process may be necessary. Please consult your local prosecutor before accessing stored data on a device. Because of the fragile nature of electronic evidence, examination should be done by appropriate personnel.

Is Your Agency Prepared to Handle Electronic Evidence?

This document recommends that every agency identify local computer experts before they are needed. These experts should be "on call" for situations that are beyond the technical expertise of the first responder or department. (Similar services are in place for toxic waste emergencies.) It is also recommended that investigative plans be developed in compliance with departmental policy and Federal, State, and local laws. In particular, under the Privacy Protection Act, with certain exceptions, it is unlawful for an agent to search for or seize certain materials possessed by a person reasonably believed to have a purpose of disseminating information to the public. For example, seizure of First Amendment materials such as drafts of newsletters or Web pages may implicate the Privacy Protection Act.

This document may help in:

◆ Assessing resources.

◆ Developing procedures.

◆ Assigning roles and tasks.

◆ Considering officer safety.

◆ Identifying and documenting equipment and supplies to bring to the scene.

Electronic Devices: Types and Potential Evidence

Electronic evidence can be found in many of the new types of electronic devices available to today's consumers. This chapter displays a wide variety of the types of electronic devices commonly encountered in crime scenes, provides a general description of each type of device, and describes its common uses. In addition, it presents the potential evidence that may be found in each type of equipment.

STOP Many electronic devices contain memory that requires continuous power to maintain the information, such as a battery or AC power. Data can be easily lost by unplugging the power source or allowing the battery to discharge. (Note: After determining the mode of collection, collect and store the power supply adaptor or cable, if present, with the recovered device.)

Printer   CPU Location   Telephone   Diskettes

Monitor

Keyboard

Software   Counterfeit
                        Documents
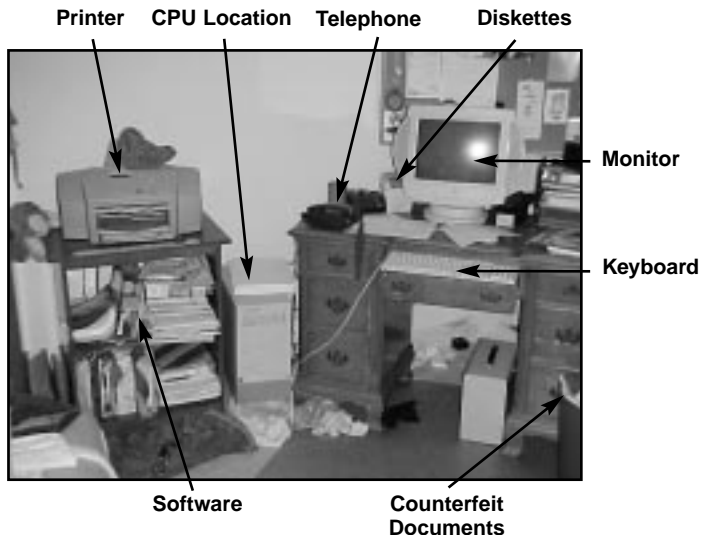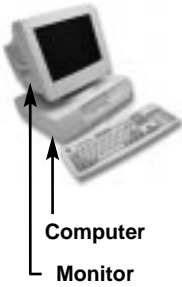
Computer Systems

Description: A computer system typically consists of a main base unit, sometimes called a central processing unit (CPU), data storage devices, a monitor, keyboard, and mouse. It may be a stand-alone or it may be connected to a network. There are many types of computer systems such as laptops, desktops, tower systems, modular rack-mounted systems, minicomputers, and mainframe computers. Additional components include modems, printers, scanners, docking stations, and external data storage devices. For example, a desktop is a computer system consisting of a case, motherboard, CPU, and data storage, with an external keyboard and mouse.

Computer

Monitor

Primary Uses: For all types of computing functions and information storage, including word processing, calculations, communications, and graphics.

Laptop

Potential Evidence: Evidence is most commonly found in files that are stored on hard drives and storage devices and media. Examples are:

User-Created Files

User-created files may contain important evidence of criminal activity such as address books and database files that may prove criminal association, still or moving pictures that may be evidence of pedophile activity, and communications between criminals such as by e-mail or letters. Also, drug deal lists may often be found in spreadsheets.

- ◆ Address books.
- ◆ Audio/video files.
- ◆ Calendars.
- ◆ Database files.
- ◆ Documents or text files.
- ◆ E-mail files.
- ◆ Image/graphics files.
- ◆ Internet bookmarks/favorites.
- ◆ Spreadsheet files.

User-Protected Files

Port Replicator

Users have the opportunity to hide evidence in a variety of forms. For example, they may encrypt or password-protect data that are important to them. They may also hide files on a hard disk or within other files or deliberately hide incriminating evidence files under an innocuous name.

- Compressed files.
- Misnamed files.
- Encrypted files.
- Password-protected files.
- Hidden files.
- Steganography.

Docking Station

Evidence can also be found in files and other data areas created as a routine function of the computer's operating system. In many cases, the user is not aware that data are being written to these areas. Passwords, Internet activity, and temporary backup files are examples of data that can often be recovered and examined.

Note: There are components of files that may have evidentiary value including the date and time of creation, modification, deletion, access, user name or identification, and file attributes. Even turning the system on can modify some of this information.

Computer-Created Files

Server

- Backup files.
- Log files.
- Configuration files.
- Printer spool files.
- Cookies.
- Swap files.
- Hidden files.
- System files.
- History files.
- Temporary files.

Other Data Areas

- Bad clusters.
- Other partitions.
- Computer date, time, and password.
- Reserved areas.
- Slack space.
- Deleted files.
- Software registration information.
- Free space.
- Hidden partitions.
- System areas.
- Lost clusters.
- Unallocated space.
- Metadata.

Components

Central Processing Units (CPUs)

PIIIXeon Processor

Description: Often called the "chip," it is a microprocessor located inside the computer. The microprocessor is located in the main computer box on a printed circuit board with other electronic components.

PIII Processor

Primary Uses: Performs all arithmetic and logical functions in the computer. Controls the operation of the computer.

Potential Evidence: The device itself may be evidence of component theft, counterfeiting, or remarking.

G4 Processor

Memory

CPUs

Description: Removable circuit board(s) inside the computer. Information stored here is usually not retained when the computer is powered down.

Primary Uses: Stores user's programs and data while computer is in operation.

Memory

Potential Evidence: The device itself may be evidence of component theft, counterfeiting, or remarking.

Access Control Devices

Smart Card

Smart Cards, Dongles, Biometric Scanners

Description: A smart card is a small handheld device that contains a microprocessor that is capable of storing a monetary value, encryption key or authentication information (password), digital certificate, or other information. A dongle is a small device that plugs into a computer port that contains types of information similar to information on a smart card. A biometric scanner is a device connected to a computer system that recognizes physical characteristics of an individual (e.g., fingerprint, voice, retina).

Biometric Scanner

Parallel Dongle

Primary Uses: Provides access control to computers or programs or functions as an encryption key.

Potential Evidence: Identification/authentication information of the card and the user, level of access, configurations, permissions, and the device itself.

USB Dongles

Parallel Dongle

Answering Machines

Answering Machine

Description: An electronic device that is part of a telephone or connected between a telephone and the landline connection. Some models use a magnetic tape or tapes, while others use an electronic (digital) recording system.

Primary Uses: Records voice messages from callers when the called party is unavailable or chooses not to answer a telephone call. Usually plays a message from the called party before recording the message.

STOP

Note: Since batteries have a limited life, data could be lost if they fail. Therefore, appropriate personnel (e.g., evidence custodian, lab chief, forensic examiner) should be informed that a device powered by batteries is in need of immediate attention.

Potential Evidence: Answering machines can store voice messages and, in some cases, time and date information about when the message was left. They may also contain other voice recordings.

◆ Caller identification information.

◆ Deleted messages.

◆ Last number called.

◆ Memo.

◆ Phone numbers and names.

◆ Tapes.

Digital Cameras

QuickCam

Description: Camera, digital recording device for images and video, with related storage media and conversion hardware capable of transferring images and video to computer media.

Snappy Device (video capture device)

Video Phone

Primary Uses: Digital cameras capture images and/or video in a digital format that is easily transferred to computer storage media for viewing and/or editing.

Digital Cameras

Potential Evidence:

◆ Images.

◆ Time and date stamp.

◆ Removable cartridges.

◆ Video.

◆ Sound.

Handheld Devices (Personal Digital Assistants [PDAs], Electronic Organizers)

Casio PDA

Palm Cradle

Palm in Cradle

Description: A personal digital assistant (PDA) is a small device that can include computing, telephone/fax, paging, networking, and other features. It is typically used as a personal organizer. A handheld computer approaches the full functionality of a desktop computer system. Some do not contain disk drives, but may contain PC card slots that can hold a modem, hard drive, or other device. They usually include the ability to synchronize their data with other computer systems, most commonly by a connection in a cradle (see photo). If a cradle is present, attempt to locate the associated handheld device.

Primary Uses: Handheld computing, storage, and communication devices capable of storage of information.

Note: Since batteries have a limited life, data could be lost if they fail. Therefore, appropriate personnel (e.g., evidence custodian, lab chief, forensic examiner) should be informed that a device powered by batteries is in need of immediate attention.

Potential Evidence:

PDAs

◆ Address book.

◆ Appointment calendars/ information.

◆ Documents.

◆ E-mail.

◆ Handwriting.

◆ Password.

◆ Phone book.

◆ Text messages.

◆ Voice messages.

Hard Drive

External Hard Drive Pack

Removable Hard Drive Tray

Hard Drives

Description: A sealed box containing rigid platters (disks) coated with a substance capable of storing data magnetically. Can be encountered in the case of a PC as well as externally in a stand-alone case.

Primary Uses: Storage of information such as computer programs, text, pictures, video, multimedia files, etc.

Potential Evidence: See potential evidence under computer systems.

Microdrive

2.5-inch IDE Hard Drive w/ cover removed

5.25-inch IDE Hard Drive (Quantum Bigfoot)
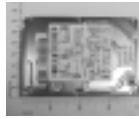
2.5-inch IDE Hard Drive (laptop)

3.5-inch IDE Hard Drive w/ cover removed

Memory Cards

Memory Stick

Flash Card in PCMCIA Adaptor

Floppy Disk Adaptor/ Memory Stick

Compact Flash Card

Description: Removable electronic storage devices, which do not lose the information when power is removed from the card. It may even be possible to recover erased images from memory cards. Memory cards can store hundreds of images in a credit card-size module. Used in a variety of devices, including computers, digital cameras, and PDAs. Examples are memory sticks, smart cards, flash memory, and flash cards.

Primary Uses: Provides additional, removable methods of storing and transporting information.

Potential Evidence: See potential evidence under computer systems.

Smart Media Card

Smart Media Floppy
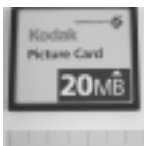
Memory Cards

Modems

External Modem

Ricochet Modem

Description: Modems, internal and external (analog, DSL, ISDN, cable), wireless modems, PC cards.

Primary Uses: A modem is used to facilitate electronic communication by allowing the computer to access other computers and/or networks via a telephone line, wireless, or other communications medium.

Potential Evidence: The device itself.
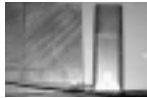
Wireless Modem

Internal Modem

PCMCIA Modem

External Modem

Network Components
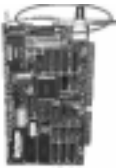
Internal Network Interface Card

Local Area Network (LAN) Card or Network Interface Card (NIC)

Note: These components are indicative of a computer network. See discussion on network system evidence in chapter 5 before handling the computer system or any connected devices.

Description: Network cards, associated cables. Network cards also can be wireless.

Wireless PCMCIA Card

Primary Uses: A LAN/NIC card is used to connect computers. Cards allow for the exchange of information and resource sharing.

PCMCIA Network Interface Card

Wireless Network Interface Card

Potential Evidence: The device itself, MAC (media access control) access address.

Router

Routers, Hubs, and Switches

Ethernet Hub

Description: These electronic devices are used in networked computer systems. Routers, switches, and hubs provide a means of connecting different computers or networks. They can frequently be recognized by the presence of multiple cable connections.
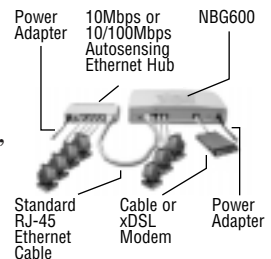
Power Adapter
10Mbps or 10/100Mbps Autosensing Ethernet Hub
NBG600
Standard RJ-45 Ethernet Cable
Cable or xDSL Modem
Power Adapter
Wired Hub

Primary Uses: Equipment used to distribute and facilitate the distribution of data through networks.

Potential Evidence: The devices themselves. Also, for routers, configuration files.

CableFREE PC Card in a Notebook

NCF600 CableFREE NetBlaster

NBG600

CableFREE ISA/PCI Card in a Desktop

Standard RJ-45 Ethernet Cable

Cable or xDSL Modem
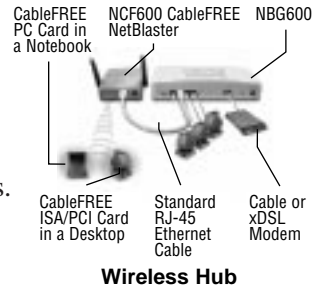
Wireless Hub

Servers

Server

Description: A server is a computer that provides some service for other computers connected to it via a network. Any computer, including a laptop, can be configured as a server.

Primary Uses: Provides shared resources such as e-mail, file storage, Web page services, and print services for a network.

Potential Evidence: See potential evidence under computer systems.

Network Cables and Connectors

RJ-11 Phone Cable

Description: Network cables can be different colors, thicknesses, and shapes and have different connectors, depending on the components they are connected to.

Primary Uses: Connects components of a computer network.

Potential Evidence: The devices themselves.

RJ45 LAN Cable & RJ11 Phone Cable

Network Cable Dongle & PC Network Card

Centronics Printer Cable

SCSI Cable

Ultrawide SCSI Cable

Parallel Port Printer Cable

Serial Cable & Mouse

PS2 Cable

PS2 Cable With PS2 AT Adapter

USB Cable With A&B Connectors

SCSI Cable

Audio/Visual Cables

Pagers

RIM Pager

Single Pager

Pagers

Description: A handheld, portable electronic device that can contain volatile evidence (telephone numbers, voice mail, e-mail). Cell phones and personal digital assistants also can be used as paging devices.

Primary Uses: For sending and receiving electronic messages, numeric (phone numbers, etc.) and alphanumeric (text, often including e-mail).

STOP

Note: Since batteries have a limited life, data could be lost if they fail. Therefore, appropriate personnel (e.g., evidence custodian, lab chief, forensic examiner) should be informed that a device powered by batteries is in need of immediate attention.

Potential Evidence:

◆ Address information.

◆ E-mail.

◆ Phone numbers.

◆ Text messages.

◆ Voice messages.

Printers

Multifunction Device

Inkjet Printer

Inkjet Printer

Description: One of a variety of printing systems, including thermal, laser, inkjet, and impact, connected to the computer via a cable (serial, parallel, universal serial bus (USB), firewire) or accessed via an infrared port. Some printers contain a memory buffer, allowing them to receive and store multiple page documents while they are printing. Some models may also contain a hard drive.

Primary Uses: Print text, images, etc., from the computer to paper.

Potential Evidence: Printers may maintain usage logs, time and date information, and, if attached to a network, they may store network identity information. In addition, unique characteristics may allow for identification of a printer.

◆ Documents.

◆ Hard drive.

◆ Ink cartridges.

◆ Network identity/ information.

◆ Superimposed images on the roller.

◆ Time and date stamp.

◆ User usage log.

Removable Storage Devices and Media

Syquest Cartridge

External CD-ROM Drive

Recordable CD

External Zip Drive

8mm and 4mm Tapes

3.5-inch Floppy Diskette

Description: Media used to store electrical, magnetic, or digital information (e.g., floppy disks, CDs, DVDs, cartridges, tape).

Primary Uses: Portable devices that can store computer programs, text, pictures, video, multimedia files, etc.

New types of storage devices and media come on the market frequently; these are a few examples of how they appear.

Potential Evidence: See potential evidence under computer systems.

| **Jaz Cartridge** | **Zip Cartridge** | **DAT Tape Reader** | **LS-120 Floppy Disk** |

| **DLT Tape Cartridge** | **DVD RAM Cartridge** | **Tape Drive** | **External Media Disk Drive** |
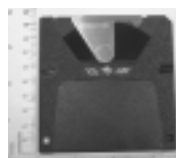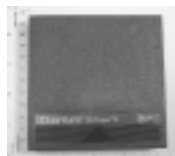
Scanners

Flatbed Scanner

Sheetfed Scanner

Handheld Scanner

Description: An optical device connected to a computer, which passes a document past a scanning device (or vice versa) and sends it to the computer as a file.

Primary Uses: Converts documents, pictures, etc., to electronic files, which can then be viewed, manipulated, or transmitted on a computer.

Potential Evidence: The device itself may be evidence. Having the capability to scan may help prove illegal activity (e.g., child pornography, check fraud, counterfeiting, identity theft). In addition, imperfections such as marks on the glass may allow for unique identification of a scanner used to process documents.

Telephones

Cordless

Cellular Phones

Description: A handset either by itself (as with cell phones), or a remote base station (cordless), or connected directly to the land-line system. Draws power from an internal battery, electrical plug-in, or directly from the telephone system.

Primary Uses: Two-way communication from one instrument to another, using land lines, radio transmission, cellular systems, or a combination. Phones are capable of storing information.

Note: Since batteries have a limited life, data could be lost if they fail. Therefore, appropriate personnel (e.g., evidence custodian, lab chief, forensic examiner) should be informed that a device powered by batteries is in need of immediate attention.

Potential Evidence: Many telephones can store names, phone numbers, and caller identification information. Additionally, some cellular telephones can store appointment information, receive electronic mail and pages, and may act as a voice recorder.

- Appointment calendars/information.
- Caller identification information.
- Electronic serial number.
- E-mail.
- Memo.
- Password.
- Phone book.
- Text messages.
- Voice mail.
- Web browsers.

Miscellaneous Electronic Items

Caller ID Box

Cellular Phone Cloning Equipment

There are many additional types of electronic equipment that are too numerous to be listed that might be found at a crime scene. However, there are many non-traditional devices that can be an excellent source of investigative information and/or evidence. Examples are credit card skimmers, cell phone cloning equipment, caller ID boxes, audio recorders, and Web TV. Fax machines, copiers, and multifunction machines may have internal storage devices and may contain information of evidentiary value.

Cellular Phone Cloning Equipment

REMINDER: The search of this type of evidence may require a search warrant. See note in the Introduction, page 7.

Copiers

Copier

Some copiers maintain user access records and history of copies made. Copiers with the scan once/print many feature allow documents to be scanned once into memory, and then printed later.

Potential Evidence:

- Documents.
- User usage log.
- Time and date stamp.

Credit Card Skimmers
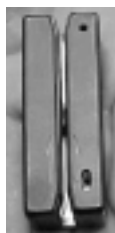
Credit Card Skimmer

Credit card skimmers are used to read information contained on the magnetic stripe on plastic cards.

Credit Card Skimmer

Potential Evidence: Cardholder information contained on the tracks of the magnetic stripe includes:

- Card expiration date.
- User's address.
- Credit card numbers.
- User's name.

Credit Card Skimmer—Laptop

Digital Watches

There are several types of digital watches available that can function as pagers that store digital messages. They may store additional information such as address books, appointment calendars, e-mail, and notes. Some also have the capability of synchronizing information with computers.

Potential Evidence:

- Address book.
- Notes.
- Appointment calendars.
- Phone numbers.
- E-mail.

Facsimile Machines

Fax Machine

Facsimile (fax) machines can store preprogrammed phone numbers and a history of transmitted and received documents. In addition, some contain memory allowing multiple-page faxes to be scanned in and sent at a later time as well as allowing incoming faxes to be held in memory and printed later. Some may store hundreds of pages of incoming and/or outgoing faxes.

Potential Evidence:

- Documents.
- Film cartridge.
- Phone numbers.
- Send/receive log.

Global Positioning Systems (GPS)

Global Positioning Systems can provide information on previous travel via destination information, way points, and routes. Some automatically store the previous destinations and include travel logs.

Potential Evidence:

- Home.
- Previous destinations.
- Travel logs.
- Way point coordinates.
- Way point name.

Investigative Tools and Equipment

Principle: Special tools and equipment may be required to collect electronic evidence. Experience has shown that advances in technology may dictate changes in the tools and equipment required.

Policy: There should be access to the tools and equipment necessary to document, disconnect, remove, package, and transport electronic evidence.

Procedure: Preparations should be made to acquire the equipment required to collect electronic evidence. The needed tools and equipment are dictated by each aspect of the process: documentation, collection, packaging, and transportation.

Tool Kit

Departments should have general crime scene processing tools (e.g., cameras, notepads, sketchpads, evidence forms, crime scene tape, markers). The following are additional items that may be useful at an electronic crime scene.

Documentation Tools

◆ Cable tags.
◆ Indelible felt tip markers.
◆ Stick-on labels.

Disassembly and Removal Tools

A variety of nonmagnetic sizes and types of:

◆ Flat-blade and Philips-type screwdrivers.
◆ Hex-nut drivers.
◆ Needle-nose pliers.
◆ Secure-bit drivers.
◆ Small tweezers.

- Specialized screwdrivers (manufacturer-specific, e.g., Compaq, Macintosh).
- Standard pliers.
- Star-type nut drivers.
- Wire cutters.

Package and Transport Supplies

- Antistatic bags.
- Antistatic bubble wrap.
- Cable ties.
- Evidence bags.
- Evidence tape.
- Packing materials (avoid materials that can produce static electricity such as styrofoam or styrofoam peanuts).
- Packing tape.
- Sturdy boxes of various sizes.

Other Items

Items that also should be included within a department's tool kit are:

- Gloves.
- Hand truck.
- Large rubber bands.
- List of contact telephone numbers for assistance.
- Magnifying glass.
- Printer paper.
- Seizure disk.
- Small flashlight.
- Unused floppy diskettes ($3^1/_2$ and $5^1/_4$ inch).

Securing and Evaluating the Scene

Principle: The first responder should take steps to ensure the safety of all persons at the scene and to protect the integrity of all evidence, both traditional and electronic.

Policy: All activities should be in compliance with departmental policy and Federal, State, and local laws. (Additional resources are referenced in appendix B.)

Procedure: After securing the scene and all persons on the scene, the first responder should visually identify potential evidence, both conventional (physical) and electronic, and determine if perishable evidence exists. The first responder should evaluate the scene and formulate a search plan.

Secure and evaluate the scene:

◆ Follow jurisdictional policy for securing the crime scene. This would include ensuring that all persons are removed from the immediate area from which evidence is to be collected. At this point in the investigation do not alter the condition of any electronic devices: **If it is off, leave it off. If it is on, leave it on.**

◆ Protect perishable data physically and electronically. Perishable data may be found on pagers, caller ID boxes, electronic organizers, cell phones, and other similar devices. The first responder should always keep in mind that any device containing perishable data should be immediately secured, documented, and/or photographed.

◆ Identify telephone lines attached to devices such as modems and caller ID boxes. Document, disconnect, and label each telephone line from the wall rather than the device, when possible. There may also be other communications lines present for LAN/ethernet connections. Consult appropriate personnel/agency in these cases.

STOP Keyboards, the computer mouse, diskettes, CDs, or other components may have latent fingerprints or other physical evidence that should be preserved. Chemicals used in processing latent prints can damage equipment and data. Therefore, latent prints should be collected after electronic evidence recovery is complete.

Conduct preliminary interviews:

◆ Separate and identify all persons (witnesses, subjects, or others) at the scene and record their location at time of entry.

◆ Consistent with departmental policy and applicable law, obtain from these individuals information such as:

❖ Owners and/or users of electronic devices found at the scene, as well as passwords (see below), user names, and Internet service provider.

❖ Passwords. Any passwords required to access the system, software, or data. (An individual may have multiple passwords, e.g., BIOS, system login, network or ISP, application files, encryption pass phrase, e-mail, access token, scheduler, or contact list.)

❖ Purpose of the system.

❖ Any unique security schemes or destructive devices.

❖ Any offsite data storage.

❖ Any documentation explaining the hardware or software installed on the system.

Documenting the Scene

Principle: Documentation of the scene creates a permanent historical record of the scene. Documentation is an ongoing process throughout the investigation. It is important to accurately record the location and condition of computers, storage media, other electronic devices, and conventional evidence.

Policy: Documentation of the scene should be created and maintained in compliance with departmental policy and Federal, State, and local laws.

Procedure: The scene should be documented in detail.

Initial documentation of the physical scene:

◆ Observe and document the physical scene, such as the position of the mouse and the location of components relative to each other (e.g., a mouse on the left side of the computer may indicate a left-handed user).

◆ Document the condition and location of the computer system, including power status of the computer (on, off, or in sleep mode). Most computers have status lights that indicate the computer is on. Likewise, if fan noise is heard, the system is probably on. Furthermore, if the computer system is warm, that may also indicate that it is on or was recently turned off.

◆ Identify and document related electronic components that will not be collected.

◆ Photograph the entire scene to create a visual record as noted by the first responder. The complete room should be recorded with 360 degrees of coverage, when possible.

◆ Photograph the **front** of the computer as well as the monitor screen and other components. Also take written notes on what appears on the monitor screen. Active programs may require videotaping or more extensive documentation of monitor screen activity.

STOP

Note: Movement of a computer system while the system is running may cause changes to system data. Therefore, the system should not be moved until it has been safely powered down as described in chapter 5.

◆ Additional documentation of the system will be performed during the collection phase.

Evidence Collection

REMINDER: The search for and collection of evidence at an electronic crime scene may require a search warrant. See note in the Introduction, page 7.

Principle: Computer evidence, like all other evidence, must be handled carefully and in a manner that preserves its evidentiary value. This relates not just to the physical integrity of an item or device, but also to the electronic data it contains. Certain types of computer evidence, therefore, require special collection, packaging, and transportation. Consideration should be given to protect data that may be susceptible to damage or alteration from electromagnetic fields such as those generated by static electricity, magnets, radio transmitters, and other devices.

Policy: Electronic evidence should be collected according to departmental guidelines. In the absence of departmental guidelines outlining procedures for electronic evidence collection, the following procedures are suggested.

Note: Prior to collection of evidence, it is assumed that locating and documenting has been done as described in chapters 3 and 4. Recognize that other types of evidence such as trace, biological, or latent prints may exist. Follow your agency's protocol regarding evidence collection. **Destructive techniques (e.g., use of fingerprint processing chemicals) should be postponed until after electronic evidence recovery is done.**

Nonelectronic Evidence

Recovery of nonelectronic evidence can be crucial in the investigation of electronic crime. Proper care should be taken to ensure that such evidence is recovered and preserved. Items relevant to subsequent examination of electronic evidence may exist in other forms (e.g., written passwords and other handwritten notes, blank pads of paper with indented writing, hardware and software manuals, calendars, literature, text or graphical computer printouts, and photographs) and should be secured and preserved for future

analysis. These items frequently are in close proximity to the computer or related hardware items. All evidence should be identified, secured, and preserved in compliance with departmental policies.

Stand-Alone and Laptop Computer Evidence

> **CAUTION:** Multiple computers may indicate a computer network. Likewise, computers located at businesses are often networked. In these situations, specialized knowledge about the system is required to effectively recover evidence and reduce your potential for civil liability. *When a computer network is encountered, contact the forensic computer expert in your department or outside consultant identified by your department for assistance.* Computer systems in a complex environment are addressed later in this chapter.

A "stand-alone" personal computer is a computer not connected to a network or other computer. Stand-alones may be desktop machines or laptops.

Laptops incorporate a computer, monitor, keyboard, and mouse into a single portable unit. Laptops differ from other computers in that they can be powered by electricity or a battery source. Therefore, they require the removal of the battery in addition to stand-alone power-down procedures.

If the computer is on, document existing conditions and call your expert or consultant. If an expert or consultant is not available, continue with the following procedure:

Procedure:

STOP

After securing the scene per chapter 3, read all steps below before taking any action (or evidentiary data may be altered).

a. Record in notes all actions you take and any changes that you observe in the monitor, computer, printer, or other peripherals that result from your actions.

b. Observe the monitor and determine if it is on, off, or in sleep mode. Then decide which of the following situations applies and follow the steps for that situation.

Situation 1: Monitor is on and work product and/or desktop is visible.

1. Photograph screen and record information displayed.
2. Proceed to step c.

Situation 2: Monitor is on and screen is blank (sleep mode) or screen saver (picture) is visible.

1. Move the mouse slightly (without pushing buttons). The screen should change and show work product or request a password.
2. If mouse movement does not cause a change in the screen, **DO NOT perform any other keystrokes or mouse operations.**
3. Photograph the screen and record the information displayed.
4. Proceed to step c.

Situation 3: Monitor is off.

1. Make a note of "off" status.
2. Turn the monitor on, then determine if the monitor status is as described in either situation 1 or 2 above and follow those steps.

c. Regardless of the power state of the computer (on, off, or sleep mode), remove the power source cable from the computer— **NOT** from the wall outlet. If dealing with a laptop, in addition to removing the power cord, remove the battery pack. The battery is removed to prevent any power to the system. Some laptops have a second battery in the multipurpose bay instead of a floppy drive or CD drive. Check for this possibility and remove that battery as well.

d. Check for outside connectivity (e.g., telephone modem, cable, ISDN, DSL). If a telephone connection is present, attempt to identify the telephone number.

e. To avoid damage to potential evidence, remove any floppy disks that are present, package the disk separately, and label the package. If available, insert either a seizure disk or a blank floppy disk. Do **NOT** remove CDs or touch the CD drive.

f. Place tape over all the drive slots and over the power connector.

g. Record make, model, and serial numbers.

h. Photograph and diagram the connections of the computer and the corresponding cables.

i. Label all connectors and cable ends (including connections to peripheral devices) to allow for exact reassembly at a later time. Label unused connection ports as "unused." Identify laptop computer docking stations in an effort to identify other storage media.

j. Record or log evidence according to departmental procedures.

k. If transport is required, package the components as fragile cargo (see chapter 6).

Computers in a Complex Environment

Business environments frequently have multiple computers connected to each other, to a central server, or both. Securing and processing a crime scene where the computer systems are networked poses special problems, as improper shutdown may destroy data. This can result in loss of evidence and potential severe civil liability. When investigating criminal activity in a known business environment, the presence of a computer network should be planned for in advance, if possible, and appropriate expert assistance obtained. It should be noted that computer networks can also be found in a home environment and the same concerns exist.

Disconnect Here

10Base2 Connector

The possibility of various operating systems and complex hardware configurations requiring different shutdown procedures make the processing of a network crime scene beyond the scope of this guide. However, it is important that computer networks be recognized and identified, so that expert assistance can be obtained if one is encountered. Appendix C provides a list of technical resources that can be contacted for assistance.

Disconnect Here

10BaseT Connector
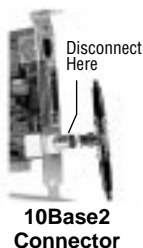
Indications that a computer network may be present include:

◆ The presence of multiple computer systems.

◆ The presence of cables and connectors, such as those depicted in the pictures at left, running between computers or central devices such as hubs.

◆ Information provided by informants or individuals at the scene.

◆ The presence of network components as depicted in chapter 1.

Other Electronic Devices and Peripheral Evidence

The electronic devices such as the ones in the list below may contain potential evidence associated with criminal activity. Unless an emergency exists, the device should not be operated. Should it be necessary to access information from the device, all actions associated with the manipulation of the device should be documented to preserve the authenticity of the information. Many of the items listed below may contain data that could be lost if not handled properly. For more detailed information on these devices, see chapter 1.

Examples of other electronic devices (including computer peripherals):

◆ Audio recorders.

◆ Answering machines.

◆ Cables.

◆ Caller ID devices.

◆ Cellular telephones.

◆ Chips. (When components such as chips are found in quantity, it may be indicative of chip theft.)

◆ Copy machines.

◆ Databank/Organizer digital.

◆ Digital cameras (still and video).

◆ Dongle or other hardware protection devices (keys) for software.

◆ Drive duplicators.

◆ External drives.

◆ Fax machines.

◆ Flash memory cards.

◆ Floppies, diskettes, CD–ROMs.

◆ GPS devices.

◆ Pagers.

◆ Palm Pilots/electronic organizers.

◆ PCMCIA cards.

◆ Printers (if active, allow to complete printing).

◆ Removable media.

◆ Scanners (film, flatbed, watches, etc.).

◆ Smart cards/secure ID tokens.

◆ Telephones (including speed dialers, etc.).

◆ VCRs.

◆ Wireless access point.

Note: When seizing removable media, ensure that you take the associated device that created the media (e.g., tape drive, cartridge drives such as Zip®, Jaz®, ORB, Clik!™, Syquest, LS-120).

Packaging, Transportation, and Storage

Principle: Actions taken should not add, modify, or destroy data stored on a computer or other media. Computers are fragile electronic instruments that are sensitive to temperature, humidity, physical shock, static electricity, and magnetic sources. Therefore, special precautions should be taken when packaging, transporting, and storing electronic evidence. To maintain chain of custody of electronic evidence, document its packaging, transportation, and storage.

Policy: Ensure that proper procedures are followed for packaging, transporting, and storing electronic evidence to avoid alteration, loss, physical damage, or destruction of data.

Packaging procedure:

a. Ensure that all collected electronic evidence is properly documented, labeled, and inventoried before packaging.

b. Pay special attention to latent or trace evidence and take actions to preserve it.

c. Pack magnetic media in antistatic packaging (paper or antistatic plastic bags). Avoid using materials that can produce static electricity, such as standard plastic bags.

d. Avoid folding, bending, or scratching computer media such as diskettes, CD–ROMs, and tapes.

e. Ensure that all containers used to hold evidence are properly labeled.

Note: If multiple computer systems are collected, label each system so that it can be reassembled as found (e.g., System A–mouse, keyboard, monitor, main base unit; System B–mouse, keyboard, monitor, main base unit).

Transportation procedure:

a. Keep electronic evidence away from magnetic sources. Radio transmitters, speaker magnets, and heated seats are examples of items that can damage electronic evidence.

b. Avoid storing electronic evidence in vehicles for prolonged periods of time. Conditions of excessive heat, cold, or humidity can damage electronic evidence.

c. Ensure that computers and other components that are not packaged in containers are secured in the vehicle to avoid shock and excessive vibrations. For example, computers may be placed on the vehicle floor and monitors placed on the seat with the screen down and secured by a seat belt.

d. Maintain the chain of custody on all evidence transported.

Storage procedure:

a. Ensure that evidence is inventoried in accordance with departmental policies.

b. Store evidence in a secure area away from temperature and humidity extremes. Protect it from magnetic sources, moisture, dust, and other harmful particles or contaminants.

Note: Be aware that potential evidence such as dates, times, and systems configurations may be lost as a result of prolonged storage. Since batteries have a limited life, data could be lost if they fail. Therefore, appropriate personnel (e.g., evidence custodian, lab chief, forensic examiner) should be informed that a device powered by batteries is in need of immediate attention.

Forensic Examination by Crime Category

The following outline should help officers/investigators identify the common findings of a forensic examination as they relate to specific crime categories. This outline will also help define the scope of the examination to be performed. (This information is also presented as a matrix at the end of this chapter.)

Auction Fraud (Online)

◆ Account data regarding online auction sites.

◆ Accounting/bookkeeping software and associated data files.

◆ Address books.

◆ Calendar.

◆ Chat logs.

◆ Customer information/credit card data.

◆ Databases.

◆ Digital camera software.

◆ E-mail/notes/letters.

◆ Financial/asset records.

◆ Image files.

◆ Internet activity logs.

◆ Internet browser history/cache files.

◆ Online financial institution access software.

◆ Records/documents of "testimonials."

◆ Telephone records.

Child Exploitation/Abuse

◆ Chat logs.

◆ Date and time stamps.

◆ Digital camera software.

◆ E-mail/notes/letters.

◆ Games.

◆ Graphic editing and viewing software.

◆ Images.

◆ Internet activity logs.

◆ Movie files.

◆ User-created directory and file names that classify images.

Computer Intrusion

- Address books.
- Configuration files.
- E-mail/notes/letters.
- Executable programs.
- Internet activity logs.
- Internet protocol (IP) address and user name.
- Internet relay chat (IRC) logs.
- Source code.
- Text files (user names and passwords).

Death Investigation

- Address books.
- Diaries.
- E-mail/notes/letters.
- Financial/asset records.
- Images.
- Internet activity logs.
- Legal documents and wills.
- Medical records.
- Telephone records.

Domestic Violence

- Address books.
- Diaries.
- E-mail/notes/letters.
- Financial/asset records.
- Medical records.
- Telephone records.

Economic Fraud (Including Online Fraud, Counterfeiting)

- Address books.
- Calendar.
- Check, currency, and money order images.
- Credit card skimmers.
- Customer information/credit card data.
- Databases.
- E-mail/notes/letters.
- False financial transaction forms.
- False identification.
- Financial/asset records.
- Images of signatures.
- Internet activity logs.
- Online financial institution access software.

E-Mail Threats/Harassment/Stalking

- Address books.
- Diaries.
- E-mail/notes/letters.
- Financial/asset records.
- Images.
- Internet activity logs.
- Legal documents.
- Telephone records.
- Victim background research.

Extortion

- Date and time stamps.
- E-mail/notes/letters.
- History log.
- Internet activity logs.
- Temporary Internet files.
- User names.

Gambling

- Address books.
- Calendar.
- Customer database and player records.
- Customer information/credit card data.
- Electronic money.
- E-mail/notes/letters.
- Financial/asset records.
- Image players.
- Internet activity logs.
- Online financial institution access software.
- Sports betting statistics.

Identity Theft

- Hardware and software tools.
  - Backdrops.
  - Credit card generators.
  - Credit card reader/writer.
  - Digital cameras.
  - Scanners.
- Identification templates.
  - Birth certificates.
  - Check cashing cards.
  - Digital photo images for photo identification.
  - Driver's license.
  - Electronic signatures.

- ❖ Fictitious vehicle registrations.
- ❖ Proof of auto insurance documents.
- ❖ Scanned signatures.
- ❖ Social security cards.
- ◆ Internet activity related to ID theft.
  - ❖ E-mails and newsgroup postings.
  - ❖ Erased documents.
  - ❖ Online orders.
  - ❖ Online trading information.
  - ❖ System files and file slack.
  - ❖ World Wide Web activity at forgery sites.
- ◆ Negotiable instruments.
  - ❖ Business checks.
  - ❖ Cashiers checks.
  - ❖ Counterfeit money.
  - ❖ Credit card numbers.
  - ❖ Fictitious court documents.
  - ❖ Fictitious gift certificates.
  - ❖ Fictitious loan documents.
  - ❖ Fictitious sales receipts.
  - ❖ Money orders.
  - ❖ Personal checks.
  - ❖ Stock transfer documents.
  - ❖ Travelers checks.
  - ❖ Vehicle transfer documentation.

Narcotics

- ◆ Address books.
- ◆ Calendar.
- ◆ Databases.
- ◆ Drug recipes.
- ◆ E-mail/notes/letters.
- ◆ False identification.
- ◆ Financial/asset records.
- ◆ Internet activity logs.
- ◆ Prescription form images.

Prostitution

- ◆ Address books.
- ◆ Biographies.
- ◆ Calendar.
- ◆ Customer database/records.
- ◆ E-mail/notes/letters.
- ◆ False identification.
- ◆ Financial/asset records.
- ◆ Internet activity logs.
- ◆ Medical records.
- ◆ World Wide Web page advertising.

Software Piracy

- Chat logs.
- E-mail/notes/letters.
- Image files of software certificates.
- Internet activity logs.
- Serial numbers.
- Software cracking information and utilities.
- User-created directory and file names that classify copyrighted software.

At a physical scene, look for duplication and packaging material.

Telecommunications Fraud

- Cloning software.
- Customer database/records.
- Electronic Serial Number (ESN)/Mobile Identification Number (MIN) pair records.
- E-mail/notes/letters.
- Financial/asset records.
- "How to phreak" manuals.
- Internet activity.
- Telephone records.

The following information, when available, should be documented to assist in the forensic examination:

- Case summary.
- Internet protocol address(es).
- Keyword lists.
- Nicknames.
- Passwords.
- Points of contact.
- Supporting documents.
- Type of crime.

	Sex Crimes		Crimes Against Persons			Fraud/Other Financial Crime								
	Child Exploitation/Abuse	Prostitution	Death Investigation	Domestic Violence	E-Mail Threats/Harassment/Stalking	Auction Fraud	Computer Intrusion	Economic Fraud	Extortion	Gambling	Identity Theft	Narcotics	Software Piracy	Telecommunications Fraud
General Information:														
Databases		✔				✔		✔			✔			
E-Mail/notes/letters	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
Financial/asset records		✔	✔	✔	✔	✔		✔			✔			✔
Medical records		✔	✔	✔										
Telephone records			✔	✔	✔	✔								✔
Specific Information:														
Account data						✔								
Accounting/bookkeeping software						✔								
Address books		✔	✔	✔	✔	✔	✔	✔		✔		✔		
Backdrops											✔			
Biographies			✔											
Birth certificates											✔			
Calendar		✔				✔		✔			✔			
Chat logs	✔					✔						✔		
Check, currency, and money order images								✔			✔			
Check cashing cards											✔			
Cloning software														✔
Configuration files							✔							
Counterfeit money											✔			
Credit card generators											✔			
Credit card numbers											✔			
Credit card reader/writer											✔			
Credit card skimmers							✔							
Customer database/records		✔								✔				✔
Customer information/credit card data						✔		✔		✔				
Date and time stamps	✔						✔							
Diaries			✔	✔	✔									
Digital cameras/software/images	✔					✔					✔			
Driver's license											✔			
Drug recipes												✔		
Electronic money										✔				
Electronic signatures											✔			

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Specific Information (Cont):

	Sex Crimes		Crimes Against Persons			Fraud/Other Financial Crime								
	Child Exploitation/Abuse	Prostitution	Death Investigation	Domestic Violence	E-Mail Threats/Harassment/Stalking	Auction Fraud	Computer Intrusion	Economic Fraud	Extortion	Gambling	Identity Theft	Narcotics	Software Piracy	Telecommunications Fraud
Erased Internet documents											✔			
ESN/MIN pair records														✔
Executable programs							✔							
False financial transaction forms								✔						
False identification		✔						✔			✔			
Fictitious court documents											✔			
Fictitious gift certificates											✔			
Fictitious loan documents											✔			
Fictitious sales receipts											✔			
Fictitious vehicle registrations											✔			
Games		✔												
Graphic editing and viewing software	✔													
History log										✔				
"How to phreak" manuals														✔
Images	✔		✔		✔	✔								
Images of signatures								✔						
Image files of software certificates													✔	
Image players										✔				
Internet activity logs	✔	✔	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔
Internet browser history/cache files					✔									
IP address and user name					✔									
IRC chat logs					✔									
Legal documents and wills			✔	✔										
Movie files	✔													
Online financial institution access software						✔		✔		✔				
Online orders and trading information											✔			
Prescription form images												✔		
Records/documents of "testimonials"						✔								

(Continued)

Specific Information (Cont):

	Sex Crimes		Crimes Against Persons			Fraud/Other Financial Crime								
	Child Exploitation/Abuse	Prostitution	Death Investigation	Domestic Violence	E-Mail Threats/Harassment/Stalking	Auction Fraud	Computer Intrusion	Economic Fraud	Extortion	Gambling	Identity Theft	Narcotics	Software Piracy	Telecommunications Fraud
Scanners/scanned signatures											✔			
Serial numbers													✔	
Social security cards											✔			
Software cracking information and utilities													✔	
Source code							✔							
Sports betting statistics										✔				
Stock transfer documents											✔			
System files and file slack											✔			
Temporary Internet files								✔						
User names							✔	✔						
User-created directory and file names that classify copyrighted software													✔	
User-created directory and file names that classify images	✔													
Vehicle insurance and transfer documentation											✔			
Victim background research					✔									
Web activity at forgery sites											✔			
Web page advertising		✔												

Appendices

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Glossary

Access token: In Windows NT, an internal security card that is generated when users log on. It contains the security IDs (SIDs) for the user and all the groups to which the user belongs. A copy of the access token is assigned to every process launched by the user.

BIOS: Basic Input Output System. The set of routines stored in read-only memory that enable a computer to start the operating system and to communicate with the various devices in the system such as disk drives, keyboard, monitor, printer, and communication ports.

Buffer: An area of memory, often referred to as a "cache," used to speed up access to devices. It is used for temporary storage of data read from or waiting to be sent to a device such as a hard disk, CD-ROM, printer, or tape drive.

Clik!™: A portable disk drive, also known as a PocketZip disk. The external drive connects to the computer via the USB port or a PC card, the latter containing a removable cartridge slot within the card itself.

CD-R: Compact disk-recordable. A disk to which data can be written but not erased.

CD-RW: Compact disk-rewritable. A disk to which data can be written and erased.

Compressed file: A file that has been reduced in size through a compression algorithm to save disk space. The act of compressing a file will make it unreadable to most programs until the file is uncompressed.

Cookies: Small text files stored on a computer while the user is browsing the Internet. These little pieces of data store information such as e-mail identification, passwords, and history of pages the user has visited.

CPU: Central processing unit. The computational and control unit of a computer. Located inside a computer, it is the "brain" that performs all arithmetic, logic, and control functions in a computer.

Deleted files: If a subject knows there are incriminating files on the computer, he or she may delete them in an effort to eliminate the evidence. Many computer users think that this actually eliminates the information. However, depending on how the files are deleted, in many instances a forensic examiner is able to recover all or part of the original data.

Digital evidence: Information stored or transmitted in binary form that may be relied upon in court.

Docking station: A device to which a laptop or notebook computer can be attached for use as a desktop computer, usually having a connector for externally connected devices such as hard drives, scanners, keyboards, monitors, and printers.

Documentation: Written notes, audio/videotapes, printed forms, sketches, and/or photographs that form a detailed record of the scene, evidence recovered, and actions taken during the search of the scene.

Dongle: Also called a hardware key, a dongle is a copy protection device supplied with software that plugs into a computer port, often the parallel port on a PC. The software sends a code to that port and the key responds by reading out its serial number, which verifies its presence to the program. The key hinders software duplication because each copy of the program is tied to a unique number, which is difficult to obtain, and the key has to be programmed with that number.

DSL: Digital subscriber line. Protocols designed to allow high-speed data communication over the existing telephone lines between end-users and telephone companies.

Duplicate digital evidence: A duplicate is an accurate digital reproduction of all data objects contained on the original physical item.

DVD: Digital versatile disk. Similar in appearance to a compact disk, but can store larger amounts of data.

Electromagnetic fields: The field of force associated with electric charge in motion having both electric and magnetic components and containing a definite amount of electromagnetic energy. Examples of devices that produce electromagnetic fields include speakers and radio transmitters frequently found in the trunk of the patrol car.

Electronic device: A device that operates on principles governing the behavior of electrons. See chapter 1 for examples, which include computer systems, scanners, printers, etc.

Electronic evidence: Electronic evidence is information and data of investigative value that is stored on or transmitted by an electronic device.

Encryption: Any procedure used in cryptography to convert plain text into ciphertext in order to prevent anyone but the intended recipient from reading that data.

First responder: The initial responding law enforcement officer and/or other public safety official arriving at the scene.

Hidden data: Many computer systems include an option to protect information from the casual user by hiding it. A cursory examination may not display hidden files, directories, or partitions to the untrained viewer. A forensic examination will document the presence of this type of information.

ISDN: Integrated services digital network. A high-speed digital telephone line for high-speed network communications.

ISP: Internet service provider. An organization that provides access to the Internet. Small Internet service providers provide service via modem and ISDN, while the larger ones also offer private line hookups (e.g., T1, fractional T1).

Jaz®: A high-capacity removable hard disk system.

Latent: Present, although not visible, but capable of becoming visible.

LS-120: Laser Servo-120 is a floppy disk technology that holds 120MB. LS-120 drives use a dual-gap head, which reads and

writes 120MB disks as well as standard 3.5-inch 1.44MB and 720KB floppies.

Magnetic media: A disk, tape, cartridge, diskette, or cassette that is used to store data magnetically.

Misnamed files and files with altered extensions: One simple way to disguise a file's contents is to change the file's name to something innocuous. For example, if an investigator was looking for spreadsheets by searching for a particular file extension, such as ".XLS," a file whose extension had been changed by the user to ".DOC" would not appear as a result of the search. Forensic examiners use special techniques to determine if this has occurred, which the casual user would not normally be aware of.

Modem: A device used by computers to communicate over telephone lines. It is recognized by connection to a phone line.

Network: A group of computers connected to one another to share information and resources.

Networked system: A computer connected to a network.

ORB: A high-capacity removable hard disk system. ORB drives use magnetoresistive (MR) read/write head technology.

Original electronic evidence: Physical items and those data objects that are associated with those items at the time of seizure.

Password-protected files: Many software programs include the ability to protect a file using a password. One type of password protection is sometimes called "access denial." If this feature is used, the data will be present on the disk in the normal manner, but the software program will not open or display the file without the user entering the password. In many cases, forensic examiners are able to bypass this feature.

Peripheral devices: An auxiliary device such as a printer, modem, or data storage system that works in conjunction with a computer.

Phreaking: Telephone hacking.

Port: An interface by which a computer communicates with another device or system. Personal computers have various types of ports. Internally, there are several ports for connecting disk drives, display screens, and keyboards. Externally, personal computers have ports for connecting modems, printers, mice, and other peripheral devices.

Port replicator: A device containing common PC ports such as serial, parallel, and network ports that plugs into a notebook computer. A port replicator is similar to a docking station but docking stations normally provide capability for additional expansion boards.

Printer spool files: Print jobs that are not printed directly are stored in spool files on disk.

Removable media: Items (e.g., floppy disks, CDs, DVDs, cartridges, tape) that store data and can be easily removed.

Screen saver: A utility program that prevents a monitor from being etched by an unchanging image. It also can provide access control.

Seizure disk: A specially prepared floppy disk designed to protect the computer system from accidental alteration of data.

Server: A computer that provides some service for other computers connected to it via a network.

Sleep mode: Power conservation status that suspends the hard drive and monitor resulting in a blank screen to conserve energy, sometimes referred to as suspend mode.

Stand-alone computer: A computer not connected to a network or other computer.

Steganography: The art and science of communicating in a way that hides the existence of the communication. It is used to hide a file inside another. For example, a child pornography image can be hidden inside another graphic image file, audio file, or other file format.

System administrator: The individual who has legitimate supervisory rights over a computer system. The administrator maintains the highest access to the system. Also can be known as sysop, sysadmin, and system operator.

Temporary and swap files: Many computers use operating systems and applications that store data temporarily on the hard drive. These files, which are generally hidden and inaccessible, may contain information that the investigator finds useful.

USB: Universal Serial Bus. A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer, and telephony devices.

Volatile memory: Memory that loses its content when power is turned off or lost.

Zip®: A 3.5-inch removable disk drive. The drive is bundled with software that can catalog disks and lock the files for security.

Legal Resources List

Publications

Searching and Seizing Computers and Obtaining Electronic Evidence in Criminal Investigations. Washington, D.C.: U.S. Department of Justice, Computer Crime and Intellectual Property Section, March 2001. (Online under http://www.cybercrime.gov/searchmanual.htm.)

Prosecuting Cases That Involve Computers: A Resource for State and Local Prosecutors (CD-ROM), National White Collar Crime Center, 2001. (See http://www.nctp.org and http://www.training.nw3c.org for information).

Web Sites

Computer Crime and Intellectual Property Section of the U.S. Department of Justice, 202–514–1026, http://www.cybercrime.gov.

National Cybercrime Training Partnership, 877–628–7674, http://www.nctp.org.

Infobin, http://www.infobin.org/cfid/isplist.htm.

Technical Resources List

National

**Computer Analysis
  Response Team**
FBI Laboratory
935 Pennsylvania Avenue N.W.
Washington, DC 20535
Phone: 202–324–9307
http://www.fbi.gov/programs/lab/
  org/cart.htm

High Tech Crime Consortium
International Headquarters
1506 North Stevens Street
Tacoma, WA 98406–3826
Phone: 253–752–2427
Fax: 253–752–2430
E-mail:
admin@hightechcrimecops.org
http://www.HighTechCrimeCops.org

**Information Systems Security
  Association (ISSA)**
7044 South 13th Street
Oak Creek, WI 53154
Phone: 800–370–4772
http://www.issa.org

Internal Revenue Service
Criminal Investigation Division
Rich Mendrop
Computer Investigative Specialist
Program Manager
2433 South Kirkwood Court
Denver, CO 80222
Phone: 303–756–0646
E-mail: richard.mendrop@ci.irs.gov

**National Aeronautics and Space
  Administration**
Cheri Carr
Computer Forensic Lab Chief
NASA Office of the Inspector
  General
Network and Advanced
  Technology Protections Office
300 E Street S.W.
Washington, DC 20546
Phone: 202–358–4298

**National Aeronautics and Space
  Administration**
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  General
Network and Advanced
  Technology Protections Office
300 E Street S.W.
Washington, DC 20546
Phone: 202–358–2573

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  Administration**
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Director of Operations
NASA Office of the Inspector
  General
Network and Advanced
  Technology Protections Office
300 E Street S.W.
Washington, DC 20546
Phone: 202–358–2576

National Center for Forensic Science
University of Central Florida
P.O. Box 162367
Orlando, FL 32816
Phone: 407–823–6469
Fax: 407–823–3162
http://www.ncfs.ucf.edu

National Criminal Justice Computer Laboratory and Training Center SEARCH Group, Inc.
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
Phone: 916–392–2550
http://www.search.org

National Law Enforcement and Corrections Technology Center (NLECTC)–Northeast
26 Electronic Parkway
Rome, NY 13441
Phone: 888–338–0584
Fax: 315–330–4315
http://www.nlectc.org

National Law Enforcement and Corrections Technology Center (NLECTC)–West
c/o The Aerospace Corporation
2350 East El Segundo Boulevard
El Segundo, CA 90245
Phone: 888–548–1618
Fax: 310–336–2227
http://www.nlectc.org

National Railroad Passenger Corporation (NRPC) (AMTRAK)
Office of Inspector General
Office of Investigations
William D. Purdy
Senior Special Agent
10 G Street N.E., Suite 3E–400
Washington, DC 20002
Phone: 202–906–4318
E-mail: oigagent@aol.com

National White Collar Crime Center
7401 Beaufont Springs Drive
Richmond, VA 23225
Phone: 800–221–4424
http://www.nw3c.org

Scientific Working Group on Digital Evidence
http://www.for-swg.org/swgdein.htm

Social Security Administration
Office of Inspector General
Electronic Crime Team
4–S–1 Operations Building
6401 Security Boulevard
Baltimore, MD 21235
Phone: 410–965–7421
Fax: 410–965–5705

U.S. Customs Service's Cyber Smuggling Center
11320 Random Hills, Suite 400
Fairfax, VA 22030
Phone: 703–293–8005
Fax: 703–293–9127

U.S. Department of Defense
DoD Computer Forensics Laboratory
911 Elkridge Landing Road, Suite 300
Linthicum, MD 21090
Phone: 410–981–0100/877–981–3235

U.S. Department of Defense
Office of Inspector General
Defense Criminal Investigative Service
David E. Trosch
Special Agent
Program Manager, Computer Forensics Program
400 Army Navy Drive
Arlington, VA 22202
Phone: 703–604–8733
E-mail: dtrosch@dodig.osd.mil
http://www.dodig.osd.mil/dcis/dcismain.html

U.S. Department of Energy
Office of the Inspector General
Technology Crimes Section
1000 Independence Avenue, 5A–235
Washington, DC 20585
Phone: 202–586–9939
Fax: 202–586–0754
E-mail: tech.crime@hq.doe.gov

U.S. Department of Justice
Criminal Division
Computer Crime and Intellectual
    Property Section (CCIPS)
Duty Attorney
1301 New York Avenue N.W.
Washington, DC 20530
Phone: 202–514–1026
http://www.cybercrime.gov

U.S. Department of Justice
Drug Enforcement Administration
Michael J. Phelan
Group Supervisor
Computer Forensics
Special Testing and Research Lab
10555 Furnace Road
Lorton, VA 22079
Phone: 703–495–6787
Fax: 703–495–6794
E-mail: mphelan@erols.com

U.S. Department of Transportation
Office of Inspector General
Jacquie Wente
Special Agent
111 North Canal, Suite 677
Chicago, IL 60606
Phone: 312–353–0106
E-mail: wentej@oig.dot.gov

U.S. Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Technical Support Division
Visual Information Branch
Jack L. Hunter, Jr.
Audio and Video Forensic Enhancement
    Specialist
650 Massachusetts Avenue N.W.
Room 3220
Washington, DC 20226–0013
Phone: 202–927–8037
Fax: 202–927–8682
E-mail: jlhunter@atfhq.atf.treas.gov

U. S. Postal Inspection Service
Digital Evidence
22433 Randolph Drive
Dulles, VA 20104–1000
Phone: 703–406–7927

U.S. Secret Service
Electronic Crimes Branch
950 H Street N.W.
Washington, DC 20223
Phone: 202–406–5850
Fax: 202–406–9233

Veterans Affairs
Office of the Inspector General
Robert Friel
Program Director, Computer Crimes
    and Forensics
801 I Street N.W., Suite 1064
Washington, DC 20001
Phone: 202–565–5701
E-mail: robert.friel@mail.va.gov

By State

Alabama

Alabama Attorney General's Office
Donna White, S/A
11 South Union Street
Montgomery, AL 36130
Phone: 334–242–7345
E-mail: dwhite@ago.state.al.us

Alabama Bureau of Investigation
Internet Crimes Against Children Unit
Glenn Taylor
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Sgt. Steve Davis/Det. Brian Palmer
401 Fourth Avenue North, RJC 104
Kent, WA 98032–4429
Phone: 206–296–4280
E-mail: steven.davis@metrokc.gov
        bk.palmer@metrokc.gov

Lynnwood Police Department
High Tech Property Crimes
Det. Douglas J. Teachworth
19321 44th Avenue West (street address)
P.O. Box 5008 (mailing address)
Lynnwood, WA 98046–5008
Phone: 425–744–6916
E-mail: dteachworth@ci.lynnwood.wa.us

Tacoma Police Department
PCSO
Det. Richard Voce
930 Tacoma Avenue South
Tacoma, WA 98402
Phone: 253–591–5679
E-mail: rvoce@ci.tacoma.wa.us

Vancouver Police Department
Maggi Holbrook
Computer Forensics Specialist
300 East 13th Street
Vancouver, WA 98660
Phone: 360–735–8887
E-mail: ecrimes@ci.vancouver.wa.us

Washington State Department of Fish and Wildlife
John D. Flanagan, ITAS3
600 Capitol Way North
Olympia, WA 98501
Phone: 360–902–2210
Cell phone: 360–349–1225
E-mail: flanajdf@dfw.wa.gov

Washington State Patrol
Computer Forensics Unit
Det./Sgt. Steve Beltz
Airdustrial Way, Building 17
Olympia, WA 98507–2347
Phone: 360–753–3277
E-mail: sbeltz505@aol.com
        sbeltz@wsp.wa.gov

West Virginia

National White Collar Crime Center
1000 Technology Drive, Suite 2130
Fairmont, WV 26554
Phone: 877–628–7674
http://www.cybercrime.org

Wisconsin

Green Bay Police Department
Specialist Rick Dekker
307 South Adams Street
Green Bay, WI 54301
E-mail: rickdk@ci.green-bay.wi.us

Wisconsin Department of Justice
P.O. Box 7857
Madison, WI 53707–7851
Phone: 608–266–1221
http://www.doj.state.wi.us

Wood County Sheriff's Department
400 Market Street
Wis Rapids, WI 54495
Phone: 715–421–8700
E-mail: wcsd@tznet.com

Wyoming

Casper Police Department
Det. Derrick Dietz
210 North David
Casper, WY 82601
Phone: 307–235–8489
E-mail: ddietz@cityofcasperwy.com

Gillette Police Department
Sgt. Dave Adsit
201 East Fifth Street
Gillette, WY 82716
Phone: 307–682–5109
E-mail: davea@www.ci.gillette.wy.us

Green River Police Department
Corp. Tom Jarvie/Sgt. David Hyer
50 East Second North
Green River, WY 82935
Phone: 307–872–0555
E-mail: tjarvie@cityofgreenriver.org
           dhyer@cityofgreenriver.org

**Wyoming Division of Criminal
   Investigation**
316 West 22nd Street
Cheyenne, WY 82002
Phone: 307–777–7183
Fax: 307–777–7252
Stephen J. Miller, Special Agent
E-mail: smille2@state.wy.us
Patrick Seals, Special Agent
E-mail: pseals@state.wy.us
Michael B. Curran, Special Agent
E-mail: mcurra@state.wy.us
Flint Waters, Special Agent
E-mail: fwater@state.wy.us

International

Australia

Western Australia Police
Det./Sgt. Ted Wisniewski
Computer Crime Investigation
Commercial Crime Division
Level 7 Eastpoint Plaza
233 Adelaide Tce
Perth WA 6000
Phone: +61 8 92200700
Fax: +61 8 92254489
E-mail: Computer.Crime@
   police.wa.gov.au

Brazil

**Instituto De Criminalística - Polícia
Civil Do Distrito Federal**
SAISO - Lote 23 - Bloco "C" Complexo
   de Poilcia Civil
70610–200
Brasília, Brazil
Phone: 55 +61 362–5948/55 +61
   233–9530
E-mail: perint@pcdf.df.gov.br

Canada

Royal Canadian Mounted Police
Technical Operations Directorate
Technological Crime Branch
1426 St. Joseph Boulevard
Gloucester, Ontario
Canada
KIA OR2
Phone: 613–993–1777

Switzerland

Computer Crime Unit (GCI)
Det. Pascal Seeger/Det. Didiser Frezza
5, ch. de la Graviere
1227 Acacias, Geneva
Switzerland
Phone: +41 22 427.80.16 (17)
Fax: +41 22 820.30.16
E-mail: gci@police.ge.ch

United Kingdom

HM Inland Revenue
Special Compliance Office
Forensic Computing Team
Barkley House
P.O. Box 20
Castle Meadow Road
Nottingham
NG2 1BA
UK
Phone: +44 (0)115 974 0887
Fax: +44 (0)115 974 0890
E-mail: lindsay.j.scrimshaw@ir.gsi.gov.uk

National High-Tech Crime Unit
P.O. Box 10101
London
E14 9NF
UK
Phone: +44 (0) 870–241–0549
Fax: +44 (0) 870–241–5729
E-mail: admin@nhtcu.org

Training Resources List

Canadian Police College
P.O. Box 8900
Ottawa, Ontario
K1G 3J2
Canada
Phone: 613–993–9500
E-mail: cpc@cpc.gc.ca
http://www.cpc.gc.ca

**DoD Computer Investigations
    Training Program**
911 Elkridge Landing Road
Airport Square 11 Building
Suite 200
Linthicum, MD 21090
Phone: 410–981–1604
Fax: 410–850–8906
E-mail: info@dcitp.gov
http://www.dcitp.gov

FBI Academy at Quantico
U.S. Marine Corps Base
Quantico, VA
Phone: 703–640–6131
http://www.fbi.gov/programs/
    academy/academy.htm

**Federal Law Enforcement
    Training Center**
Headquarters Facility
Glynco, GA 31524
Phone: 912–267–2100
http://www.fletc.gov

**Federal Law Enforcement
    Training Center**
Artesia Facility
1300 West Richey Avenue
Artesia, NM 88210
Phone: 505–748–8000
http://www.fletc.gov

**Federal Law Enforcement
    Training Center**
Charleston Facility
2000 Bainbridge Avenue
Charleston, SC 29405–2607
Phone: 843–743–8858
http://www.fletc.gov

**Florida Association of Computer
    Crime Investigators, Inc.**
P.O. Box 1503
Bartow, FL 33831–1503
Phone: 352–357–0500
E-mail: info@facci.org
http://www.facci.org

**Forensic Association of
    Computer Technologists**
Doug Elrick
P.O. Box 703
Des Moines, IA 50303
Phone: 515–281–7671
http://www.byteoutofcrime.org

**High Technology Crime
    Investigation Association
    (International)**
1474 Freeman Drive
Amissville, VA 20106
Phone: 540–937–5019
http://www.htcia.org

Information Security University
149 New Montgomery Street
Second Floor
San Francisco, CA 94105
http://www.infosecu.com

**Information Systems Security
    Association (ISSA)**
7044 South 13th Street
Oak Creek, WI 53154
Phone: 800–370–4772
http://www.issa.org

**Institute of Police Technology
    and Management**
University of North Florida
12000 Alumni Drive
Jacksonville, FL 32224–2678
Phone: 904–620–4786
Fax: 904–620–2453
http://www.iptm.org

**International Association of Computer
    Investigative Specialists (IACIS)**
P.O. Box 21688
Keizer, OR 97307–1688
Phone: 503–557–1506
E-mail: admin@cops.org
http://www.cops.org

**International Organization on
    Computer Evidence**
Phone: +44 (0) 171–230–6485
E-mail: lwr@fss.org.uk
http://www.ioce.org

James Madison University
800 South Main Street
Harrisonburg, VA 22807
Phone: 540–568–6211
http://www.cs.jmu.edu/currentcourses.htm

**Midwest Electronic Crime Investigators
    Association**
http://www.mecia.org

National Center for Forensic Science
University of Central Florida
P.O. Box 162367
Orlando, FL 32816–2367
Phone: 407–823–6469
E-mail: natlctr@mail.ucf.edu
http://www.ncfs.ucf.edu

**National Colloquium for Information
    Systems Security Education (NCISSE)**
http://www.ncisse.org

**National Criminal Justice Computer
    Laboratory and Training Center
    SEARCH Group, Inc.**
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
Phone: 916–392–2550
http://www.search.org

**National Cybercrime Training
    Partnership (NCTP)**
1000 Technology Drive, Suite 2130
Fairmont, WV 26554
Phone: 877–628–7674
E-mail: info@nctp.org
http://www.nctp.org
Note: New CD-ROM available,
    *Prosecuting Cases That Involve
    Computers: A Resource for State
    and Local Prosecutors*

National White Collar Crime Center
1000 Technology Drive, Suite 2130
Fairmont, WV 26554
Phone: 877–628–7674
http://www.cybercrime.org
Note: New CD-ROM available,
    *Prosecuting Cases That Involve
    Computers: A Resource for State
    and Local Prosecutors*

New Technologies, Inc.
2075 N.E. Division Street
Gresham, OR 97030
Phone: 503–661–6912
E-mail: info@forensics-intl.com
http://www.forensics-intl.com

Purdue University
CERIAS (Center for Education and
    Research in Information and
    Assurance Security)
Andra C. Short
Recitation Building
Purdue University
West Lafayette, IN 47907–1315
Phone: 765–494–7806
E-mail: acs@cerias.purdue.edu
http://www.cerias.purdue.edu

Redlands Community College
Clayton Hoskinson, CFCE
Program Coordinator
Criminal Justice and Forensic
    Computer Science
1300 South Country Club Road
El Reno, OK 73036–5304
Phone: 405–262–2552, ext. 2517
E-mail: hoskinsonc@redlandscc.net

University of New Haven
School of Public Safety and
    Professional Studies
300 Orange Avenue
West Haven, CT 06516
http://www.newhaven.edu

**University of New Haven–California
    Campus**
Forensic Computer Investigation Program
6060 Sunrise Vista Drive
Citrus Heights, CA 95610
http://www.newhaven.edu

U.S. Department of Justice
Criminal Division
Computer Crime and Intellectual Property
    Section (CCIPS)
1301 New York Avenue N.W.
Washington, DC 20530
Phone: 202–514–1026
http://www.cycbercrime.gov

Utica College
Economic Crime Programs
1600 Burrstone Road
Utica, NY 13502
http://www.ecii.edu

**Wisconsin Association of Computer
    Crime Investigators**
P.O. Box 510212
New Berlin, WI 53151–0212
http://www.wacci.org

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Appendix F

List of Organizations

The following is a list of organizations to which a draft copy of this document was mailed.

Alaska Criminal Laboratory

American Academy of Forensic Sciences

American Bar Association

American Society of Law Enforcement Trainers

Anchorage, Alaska, Police Department

Arapahoe County, Colorado, Sheriff's Office

Association of Federal Defense Attorneys

Bridgeport, Michigan, Forensic Laboratory

Bureau of Justice Assistance

Canadian Police Research Center

Cleveland State College Basic Police Academy

Commission of Accreditation for Law Enforcement Agencies

Connecticut Department of Public Safety

Council of State Governments

Crime Scene Academy

Criminal Justice Institute

Dallas County District Attorney

Fairbanks, Alaska, Police Department

Federal Bureau of Investigation

Federal Law Enforcement Training Center

Florida Department of Law Enforcement

Florida Department of Law Enforcement-Jacksonville Regional Operations Center

Florida Office of Statewide Prosecution

Frederick County, Maryland, State's Attorney's Office

Georgia Bureau of Investigation

Harlingen, Texas, Police Department

High Tech Crime Consortium

Illinois State Police

Indiana State Police Laboratory

Institute for Intergovernmental Research

Institute of Police Technology and Management

Internal Revenue Service, Criminal Investigations

International Association of Bomb Technicians and Investigators

International Association of Chiefs of Police

International Association for Identification

Juneau, Alaska, Police Department

LaGrange, Georgia, Police Department

Law Enforcement Training Institute

Maine State Police Crime Laboratory

Massachusetts State Police Crime Laboratory

Metro Nashville Police Academy

Metro Nashville Police Department

Middletown Township, New Jersey, Police Department

National Advocacy Center

National Association of Attorneys General

National District Attorneys Association

National Law Enforcement and Corrections Technology Center–Northeast

National Law Enforcement and Corrections Technology Center–Rocky Mountain

National Law Enforcement and Corrections Technology Center–Southeast

National Law Enforcement Council

National Sheriffs' Association

National White Collar Crime Center

Naval Criminal Investigative Service

New Hampshire State Police Forensic Laboratory

New York Police Department

North Carolina Justice Academy

Office of the District Attorney General-Nashville, Tennessee

Office of Law Enforcement Technology Commercialization

Office of Overseas Prosecutorial Development

Ohio Bureau of Criminal ID and Investigation

Orange County, California, Community College–Department of Criminal Justice

Orange County Sheriff's Department–Forensic Science Services

Peace Officers Standards and Training

Pharr, Texas, Police Department

Regional Computer Forensic Laboratory

Rhode Island State Crime Laboratory

Sedgwick County, Kansas, District Attorney's Office

Sitka, Alaska, Police Department

Social Security Administration–Office of the Inspector General

State of Florida Crime Laboratory

TASC, Inc.

Tennessee Bureau of Investigation

Tennessee Law Enforcement Training Academy

Texas Rangers Department of Public Safety

Town of Goshen, New York, Police Department

U.S. Army Criminal Investigation Laboratory

U.S. Attorney's Office–Western District of New York

U.S. Customs Service Cybersmuggling Center

U.S. Department of Justice–Criminal Division

U.S. Department of Justice–Fraud Section

U.S. Department of Justice–Office of Overseas Prosecutorial Development

U.S. Department of Justice–Western District of Michigan

U.S. Postal Service–Office of Inspector General

Virginia State Police Academy

About the National Institute of Justice

NIJ is the research and development agency of the U.S. Department of Justice and is the only Federal agency solely dedicated to researching crime control and justice issues. NIJ provides objective, independent, nonpartisan, evidence-based knowledge and tools to meet the challenges of crime and justice, particularly at the State and local levels. NIJ's principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (42 U.S.C. §§ 3721–3722).

NIJ's Mission

In partnership with others, NIJ's mission is to prevent and reduce crime, improve law enforcement and the administration of justice, and promote public safety. By applying the disciplines of the social and physical sciences, NIJ—

- **Researches** the nature and impact of crime and delinquency.
- **Develops** applied technologies, standards, and tools for criminal justice practitioners.
- **Evaluates** existing programs and responses to crime.
- **Tests** innovative concepts and program models in the field.
- **Assists** policymakers, program partners, and justice agencies.
- **Disseminates** knowledge to many audiences.

NIJ's Strategic Direction and Program Areas

NIJ is committed to five challenges as part of its strategic plan: 1) **rethinking justice** and the processes that create just communities; 2) **understanding the nexus** between social conditions and crime; 3) **breaking the cycle** of crime by testing research-based interventions; 4) **creating the tools** and technologies that meet the needs of practitioners; and 5) **expanding horizons** through interdisciplinary and international perspectives. In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, drugs and crime, justice systems and offender behavior, violence and victimization, communications and information technologies, critical incident response, investigative and forensic sciences (including DNA), less-than-lethal technologies, officer protection, education and training technologies, testing and standards, technology assistance to law enforcement and corrections agencies, field testing of promising programs, and international crime control. NIJ communicates its findings through conferences and print and electronic media.

NIJ's Structure

The NIJ Director is appointed by the President and confirmed by the Senate. The NIJ Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. NIJ actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

NIJ has three operating units. The Office of Research and Evaluation manages social science research and evaluation and crime mapping research. The Office of Science and Technology manages technology research and development, standards development, and technology assistance to State and local law enforcement and corrections agencies. The Office of Development and Communications manages field tests of model programs, international research, and knowledge dissemination programs. NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

U.S. Department of Justice

Office of Justice Programs

National Institute of Justice

Washington, DC 20531

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