Chapter 10

Privacy and Security

McGraw-Hill/Irwin

INDTHY J. O'LEARY LINDA I. O'LEARY Computing ESSENTIALS

complete

Copyright © 2008 by The McGraw-Hill Companies, Inc. All rights reserved.

Competencies (Page 1 of 2)

- Discuss the privacy issues related to the presence of large databases, private networks, the Internet, and the Web
- Describe and control cookies, web bugs, and spyware
- Describe the security threats posed by computer criminals, computer crime, and other hazards



Competencies (Page 2 of 2)

- Discuss ways that individuals and organizations protect their security
- Describe the common types of physical and mental risks associated with computer use and ways to protect yourself against these risks
- Discuss what the computer industry is doing, and what you can do, to protect the environment



Introduction

- The ubiquitous use of computers and technology prompts some very important questions about use of personal data and privacy.
- This chapter will cover issues related to the impact of technology on people and how to protect ourselves on the Web.

Information Systems Concerns for People

- Privacy What are the threats to personal privacy and how can we protect our selves?
- <u>Security</u> How can <u>access</u> to sensitive information be controlled and how can we secure hardware and software?
- Ergonomics What are the physical and mental risks to technology and how can these risks be eliminated or controlled?
- <u>Environment</u> What can individuals and organizations do to minimize the impact of technology?

Computer Ethics

- Computer ethics provide guidelines for computer use
- Ethics: Standards of moral conduct
 - What is <u>moral</u> and <u>right</u>; not what is "legal")
 - Not what is "legal"; not what others are doing
- Ethics issues include:

Privacy – Collection of data about individuals Accuracy – Data should be correct & secure Property – Who owns the rights to data & software Access – Must control access and use of data

Technology is moving faster that the legal system

Privacy

- Privacy relates to the collection and use of personal information; concerns include:
- Large databases
 - Private networks
 - Internet/Web
- Privacy laws exist, but privacy remains primarily an ethical issue

Large Databases

- Data collected daily
- Data gatherers
 - Information resellers or information brokers
 - Electronic profiles are created
- Concerns
 - Spreading information without consent
 - Identify theft
 - Spreading inaccurate information
 - Mistaken identity
 - Freedom of Information Act



Private Networks

- Employers monitor e-mail
 - Legally done
 - Snoopware Software
- Online services right to censor content
 - Screen and reject messages
 - Terminate user accounts



The Illusion of Anonymity

The *"illusion of anonymity"* is that if you are on the Internet and selective about disclosing names or other personal information, then no one knows who you are or how to find you.

This is false.

- Many cases of people tracing other people through Internet activity. When you browse the Web your activity is monitored.
- When you visit a Web site your browser stores critical information onto your hard disk usually without your permission or knowledge.
- Later, other (colluding) servers can access this information.

The Internet and the Web

- Illusion of anonymity
 - Not concerned about privacy when surfing the Internet
 - Not concerned about privacy when sending email
- History file
- Cookies two basic types
 - Traditional
 - Ad network or adware cookies
- Cookie-cutter programs
- Spyware
- Spy removal programs
- Financial Modernization Act



Cookies

A chunk of data, stored on your computer's disk Created and sent to your browser by some websites (e.g. Amazon.com) Saves information about you that the server wants Shopping cart contents, your preferences, VISA card number, password, address, etc. Makes it easier to deal with that website It seems like the website "knows" you. Allows websites to track you and your behavior.

Cookies – The Dark Side

They are not viruses or spyware.

But they can be used to track you.

They can record your browsing behavior.

Privacy Concerns

"Tracking Cookies"

Different website can share cookies (share info) Allows the servers to know things like...

- Which sites you've visited
- Which ads you've been shown
- What you've clicked on

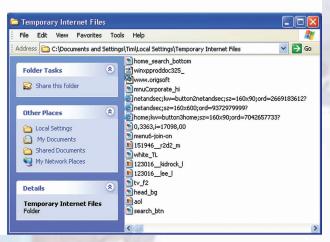
Viewing History Files

View						
	lbars tus Bar		•			
Explorer Bar		•	Search		Ctrl+E	
Go Stoj Refi	0.076	Esc F5	•	Favorite Media History Folders	s	Ctrl+I Ctrl+H
	t Size oding		•	Tip of th Discuss	ie Day	
	rce acy Report Screen	F11	L			

History	×
View 👻 🧭 Search	
🧾 Today	
💿 🐼 mcafee (www.mcafee.com)
ど McAfee.com - About Ti	his Site
🙆 <u>McAfee.com - Site Inde</u>	ex
🙆 McAfee Security - Anti-	-Virus Products a
🕘 McAfee Security - Copy	yright - Trademarks
🙆 McAfee Security - Priva	acy Policy
🍓 McAfee.com - Welcome	e Center

Viewing and Blocking Cookies

Internet Options						
General Security Privacy Content Connections Programs Advanced						
Home page You can change which page to use for your home page.						
Address: https://asu.edu						
Temporary Internet files Pages you view on the Internet are stored in a special folder for quick viewing later.						
Delete Cookies) Delete Files) Settings						
History The History folder contains links to pages you've visited, for quick access to recently viewed pages.						
Days to keep pages in history: 4 🗊 Clear History						
Colors Fonts Languages Accessibility						
OK Cancel Apply						



nternet Options	Int
General Security Privacy Content Connections Programs Advanced	G
Home page You can change which page to use for your home page. Address: https://asu.edu Use Current Use Default Use Blank	
Perportary Internet files Pages you view on the Internet are stored in a special folder for quick viewing later. Delete Cookies Delete Files	
History The History folder contains links to pages you've visited, for quick access to recently viewed pages. Days to keep pages in history:	
Colors Fonts Languages Accessibility	
OK Cancel Apply	

Setti	-	the slider to	o select a j	privacy setting I	for the Interr	net
-	- BI - Priv - BI - Info	vacy policy ocks third- ormation wi ocks first-p ormation wi	party cook party cook thout your arty cooki	ies that do not ies that use per explicit consen es that use per cit consent	rsonally ider t sonally ident	Itifiable
Too	Sites override co the Edit b		ng for indiv	vidual Web site		lit

Spyware Removal

- Anti-Spyware is used for:
 - Finding and removing spyware
 - Automating spyware removal
 - Staying up to date

LAVASOFT CHOOSE LANGUAGE HOME SOFTWARE Ad-avare frofessional	tect your					27
PATH Global Satto Reself FWRCH Homs Busine Reself Custor Cust	Verder Scanning re Dbi Verdor V M Alexa V M Tracking Co V Tracking Co Tracking Co	Type RegKey File File File File File File File File	Category Data Miner Data Miner	c: ldocuments a c: ldocuments a	MACHINE:SO and settings/st and settings/s and settings/s and settings/s and settings/s and settings/s and settings/s and settings/s and settings/s and settings/s	
Program		Web :		ow logfile	Ad-aware 6 Perso	nal, Build 6.181
Ad-Adwa Counters Spy Doo	Spy	www.l	counte	erspyz	om	

Spy Sweeper

www.spysweeper.com



Ad-Aware

"Ad-Aware is an anti-malware program developed by Lavasoft that detects and removes spyware or adware on a user's computer. It detects spyware, viruses, dialers, Trojans, bots, rootkits, data miners, aggressive advertising, parasites, browser hijackers, and tracking components." [Wikipedia]



Page 290

Major Laws on Privacy

 Federal laws governing privacy matters have been created

Security and Computer Criminals

- Threats to computer security are criminals, computer crime, and hazards
- Computer criminals are of five types:
 - Employees
 - Outside users
 - Hackers and crackers
 - Organized crime
 - Terrorists



Computer Crime

Computer Crimes have tripled in the past two years

- Malicious
 Programs
 - Viruses
 - Worms
 - Trojan horse
- Denial of service (DoS)
- Internet Scams

- Theft
 - Hardware or software
 - Data
 - Computer time
- Data Manipulation
 - Computer Fraud and Abuse Act

Commonly Encountered Viruses

Name	Description
Apology-B	Follows every outgoing e-mail with a second e-mail containing a virus
KuKworm	Automatically attaches to outgoing e-mail
Love Bug	Recreates itself through Microsoft Outlook; renames files
Stages-A	Copies itself on all available network drives
Thus	Deletes data on December 13th



Common Internet Scams

Туре	Description
Identity theft	Individual(s) pose as ISPs, bank representatives, or government agencies requesting personal information. Once obtained, criminal(s) assume a person's identity for a variety of financial transactions.
Chain letter	Classic chain letter instructing recipient to send a nominal amount of money to each of five people on a list. The recipient removes the first name on the list, adds his or her name at the bottom and mails the chain letter to five friends. Almost all chain letters are fraudulent and illegal.
Auction fraud	Merchandise is selected and payment is sent. Merchandise is never delivered.
Vacation prize	"Free" vacation has been awarded. Upon arrival at vacation destination, the accommodations are dreadful but can be upgraded for a fee.
Advance fee loans	Guaranteed low rate loans available to almost anyone. After applicant provides personal loan-related information, the loan is granted subject to payment of an "insurance fee."

Other Hazards

- Natural hazards
 - Fires & floods
 - Winds
 - Hurricanes
 - Tornadoes
 - Earthquakes



- Civil strife and terrorism
 - Wars, riots and terrorist acts
- Technological failures
 - Voltage surge
 - Use surge protector
 - Hard disk crashes
- Human errors

Measures to Protect Computer Security

- Encrypting messages
- Restricting access
- Anticipating disasters
- Backing up data

Ele Edit View Go Message Tools Help	
Get Mail Write Address Book Reply Reply All Forward Delete Junk Print Stop	
Subject: Confidential Corporate Information	
From: Carol Cooper	
Date: 5:50 AM	
To: <u>Steve Willis</u>	
BEGIN PGP MESSAGE	
Version: GnuPG v1.4.2 (MingW32)	
Version, Ghurg VI.1.2 (Hingw32)	
mOGiBEIS1vIRBADC4O3UXhtf/gazdb+m7fwuX1Z01vRxWzvp41B/VsVvcV630+10	
YZa+pu91moT320QnERBcG6d2VZyxrW5f9In9o80mZhrmV82TitXDTM0Y953yTm8o	
2NCdJ+a9a+K15vvim63Z8KWwOYdEA7e/CoiKmnw50T+t9i2iI3CcdVR8BwCalhia	
oB5xCjI4FTBJeJAWqcZ6WokD/RQHm6Xds+c21kC6xJ9D01LgND2W1kJEoRYNzUTf	
IC5opaCngDCw90zKI+EbH3Fw053cEIXzH3zcOi6EB1AjrMz5KEX++ZXM0rCK0N1R	
dRZkSGIX5G+D7N1/MB1ro4F1kLIKoAA3PS7hKUzwjHoJuohhrie76dWbDE+ysuKp	
aR1sA/4hpr4/b4TII60h8r25S3nfybqph9SpG1Ht0hX0z3txcPCbgtjYehxYVpnU	
v2V+P5YJLF9F7pyIeDxVp21rHU5KzsKC/MkNDwrM0f8E0CN+z7Rr2a7IFWFJunc1	
G/WWy1Nt9ZCEJD4Ld/hjJZykgerejo8BzMgj9BZwd0zGceTjh7QjRGF2aWQgQWxi	
ZXIgPGFsYmVyLmRhdmlkQGdtYWlsLmNvbT6IXgQTEQIAHgIbAwYLCQgHAwIDFQID	
AxYCAQIeAQIXgAUCQ2IxUwAKCRDnRn1X8+1+HcuXAJ98Sh4Suq0ZBinFsBrdb5MA	
MXwIkwCfSLa7eM/u0GH1LJ96wpXxC2pV7XWIcwQQEQIAMwUCQ2FUswWDAeEzgCYa	
aHR0cDovL3d3dy5jYWNlcnQub3JnL2luZGV4LnBocD9pZD0xMAAKCRDSuw0BZdD9	
WLD8AJ9Rxa244ghpoDrrVRmfhd8w9RsQqgCgnGfKILXo9DHJNWiavgw21c6uZuu0	
WLDSAJSRxaZ44qhpoDrrV#mfhdS%SRaQqqCgmcfKILKo9DHJWNiargw2lc6u2uu0 HERhdmlkHEFsYmVyIDxhbGJlckBlaXVjLmVkdT6IYQQTEQIAIQIbAwYLCQgHAwID FQIDaXYAQIeAQIXADUQQIXZHZAQAKCRDnRn1X8+1+HUbOAKCKYJ0m6chMXSe7	

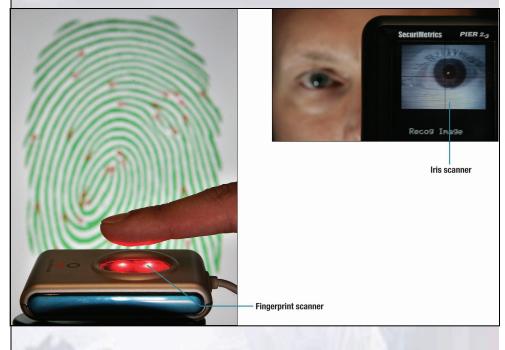
Disaster & Backup Procedures

- Disaster recovery plan
 - 9/11, Mississippi floods, California fires, hurricanes, & the unexpected disaster
 - Offsite secure data storage of backup (tapes?)
- Hot backup site
- Cold backup site
- Physical Security
 - Protect the hardware
- Data Security
 - Protect the data and the software

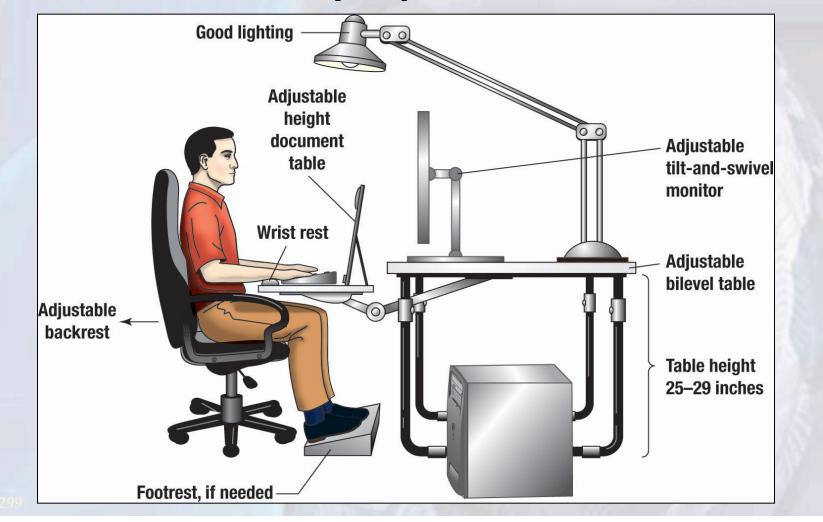
Restricting Access

Biometric scanning

- Fingerprint scanners
- Iris (eye) scanners
- Assigning passwords
- Firewalls
 - Special hardware and software
 - Controls access to internal networks



Ergonomics (Page 1 of 3) Study of human factors related to things people use



10-27

Ergonomics (Page 2 of 3)

- Physical Health
 - Eyestrain and headache
 - Back and neck pain
 - Repetitive strain injury (RSI)
 - Carpal Tunnel Syndrome
 - Damage to tendons in the wrist
- Take regular breaks
- Use good posture
- Use well-design furniture



Ergonomics (Page 3 of 3)

- Computer technology offers ways of improving productivity but can create irritants other than physical
 - -Noise
 - -Electronic monitoring
- Technostress
 - Stress associated with computer use

Problem	Remedy
Eyestrain and headache	Take frequent breaks, avoid screen glare, place object at fixed focal distance
Back and neck pain	Use adjustable equipment
Repetitive strain injury	Use ergonomically correct keyboards, take frequent breaks
Noise	Use head-mounted microphones and earphones, install acoustical tile and sound-muffling covers, tighten system unit components
Stress from excessive monitoring	Remove electronic monitoring

Environmental Protection

Microcomputers use most of the electricity in work environment.

Turn off when not IN USE

Account for 5% of the electricity used

Sleep Mode

The EPA (Environmental Protection Agency)

The Energy Star program

To discourage waste in the various industries

The Green PC

System Unit – energy saving microprocessor, eliminates cooling fan, has sleep mode Display – flat panels, power-down monitors, screen-saver software that clears the display when not in use Manufacturing – use of fewer harmful chemicals particularly choloroflurocarbons (CFCs) in solvents and cleaning agents

Environmental Protection



The Green PC

Personal Responsibility to Help Protect the Environment

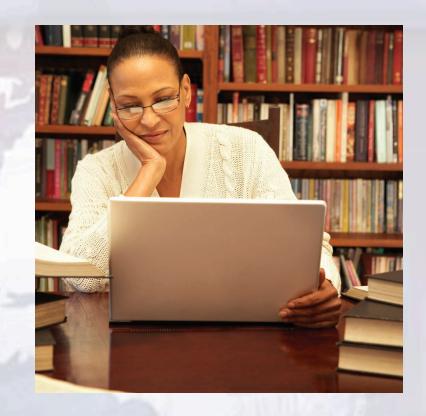


Organization	Web Site
Computers for Schools	www.csforschools.org
National Cristina Foundation	www.cristina.org
Retire-IT	www.retire-it.com
Share Technology	www.sharetechnology.org

- What can computer users do?
- Conserve
- Recycle
- Educate

Careers in IT

- Cryptography is the science of disguising and revealing encrypted information
- Usually refers to keeping any intercepted information private
- Cryptographers are mathematicians who specialize in making and breaking codes
- Annual salary is usually between \$60,000 to \$101,000/year



A Look to the Future Presence Technology

- Presence technology alerts you that someone is trying to reach you
- People can locate you
- People can tell which device is best to contact you



 Could become a standard feature of new cars, phones, and appliances

Discussion Questions (Page 1 of 2)

- Discuss the impact of large databases, private networks, the Internet, and the web on privacy.
- Discuss the various kinds of computer criminals.
- What are the principal measures used to protect computer security? What is encryption? How is it used by corporations and individuals?

Discussion Questions (page 2 of 2)

- What is ergonomics? How does computer use impact mental health? Physical health?
- Describe the basic elements of the Green PC and what you can do to protect the environment.