Data Privacy and Security on the Web

Li-Chiou Chen
Seidenberg School of Computer Science and Information Systems
Pace University
March 28th, 2014
Agenda

- Web privacy
- Embedded privacy information
- Web transaction security
- Cybersecurity awareness resources
- PCAP summer project
What are things you do on the web?
Do I care about my privacy on the web? How it is handled?
What is privacy?
What is web privacy?

Privacy
- “the control an individual has over information about himself or herself”
- a social and cultural concept

Web privacy
- The right of Web users to conceal their personal information
- Web users have some degree of control over the use of any personal information disclosed to others
Activity I: Examine Privacy Statement

- Go to www.facebook.com
- Click on “privacy” at the bottom of the page
- You will see “Data Use Policy” on the next page
- Read the section on “Information that is always publicly available”

- Do you know these before?
When I post information (e.g. pictures) on the web, am I giving away any privacy information?
Privacy information hidden in the data

- Pictures
- Files
- Web pages
- ....
Are there differences between the two pictures of a boat?
Metadata

- Data that describes other data

- Examples: author name, date and time of creation, company name, geolocation, etc.

- Does metadata reveals a part of your privacy?
EXIF (Exchangeable Image File) format

- Commonly used to store digital pictures

- EXIF file stores metadata of the file

- Developed for storing metadata in JPEG and TIFF files

- With tools such as Exif Reader or online Exif extraction site, you can extract metadata from image file
Activity II: Metadata from a picture

- Go to Metapicz
  http://metapicz.com/#landing

- The picture of the boat with geolocation is
  - csis.pace.edu/~lchen/pcap14/boat.jpg

- Enter the picture URL
- Take a look at the Exif information
- Where the picture was taken?
How is my web transactions secured?
How are the web transactions secured?
Activity III: Intercept/View Web Transactions

- We will use a web proxy software, Burp Suite, to cache and view your web transactions.
- Download the software from http://www.portswigger.net/burp/downloadfree.html
- Save it on your computer desktop (it is a Java program)
- Double click on the program to run it.
Setting up Proxy

- Click on Proxy / Options
- Uncheck
  - intercept requests based on the following rules.
- Click on History tab to wait for web traffic
Setup Browser Proxy Configuration

- Open Firefox
- Tools/ Options / Advanced / Network / Settings
- Check
  - Manual Proxy Configuration
    - HTTP Proxy: 127.0.0.1  Port:8080
- Check
  - Use this proxy server for all protocols
Intercept and view web transactions

- In Firefox, browse https://www.facebook.com
- Type testing login information
- Login: test  pass: test123

- On your proxy history tab, you should be able to see the transactions that are cached
- Find the one with the login credential
  - On Burp, click on params
Clean Up

- Click exit to close Burp Suite when you are done.

- Open Firefox
  - Tools/ Options / Advanced / Network /Settings
  - Check
    - No Proxy
  - Click OK
Man in the Middle

Fake Facebook Certificate

Intercept Facebook Certificate

© Li-Chiou Chen, Pace University
Resources: Watch Video

- DoD DISA video on cybersecurity awareness

- http://iase.disa.mil/eta
PCAP summer research opportunity

- The Project
  - Investigate the use of social networking messages, such as Facebook posts, to authenticate authors
  - Collect data from social networking sites
  - Identify stylometry or other features in these messages
  - Use machine learning algorithm (Support Vector Machine)
  - Current accuracy rate from our study: 85% on average

- Download and fill up the application form
  - csis.pace.edu/~lchen/pcap14/
Questions / Comments