Estonian Information Technology College

Security

Operating systems I800

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There has been used materials from Margus Ernits, Katrin Loodus when creating current slides.

What connects with words IT and security?

Security and privacy

- *They who can give up essential liberty to obtain a little temporary safety, deserve neither liberty nor safety.*
  - Benjamin Franklin (18th century)
  - https://en.wikiquote.org/wiki/Freedom
- *Security* is a constant is a continuous process (not a state), which needs continuous attention
  - http://www.linuxsecurity.com/
  - https://wiki.ubuntu.com/BasicSecurity
  - https://help.ubuntu.com/lts/serverguide/security.html
  - https://www.apple.com/support/security/
  - https://www.microsoft.com/en-us/security/default.aspx

Security and privacy

- *Privacy*
  - Ubuntu: http://www.ubuntu.com/legal/terms-and-policies/privacy-policy
    - https://fixubuntu.com/
    - https://help.ubuntu.com/community/GnuPrivacyGuardHowto
    - https://wiki.ubuntu.com/SecurityAndPrivacySettings
    - https://www.privacy-cd.org/ Ubuntu Privacy Remix
  - Apple: https://www.apple.com/privacy/manage-your-privacy/
    - https://fix-macosx.com/ , http://www.securemac.com/
  - Microsoft: https://account.microsoft.com/privacy
  - Google: https://www.google.com/settings/privacy

Versatile world

- Security involves several areas:
  - A software, hardware, physical and mental manipulation
- Everything can not be dissected and repulsed, but it is important to develop an awareness of the dangers and learn to recognize them. If you do not know, it can not be prevented!
- *Security through obscurity* is not a solution!
- Better is *security through education*
- https://defcon.org/
- how secure is your password (remember the time factor!) https://howsecureismypassword.net/
- whether it is hacked https://haveibeenpwned.com/
- http://www.catb.org/esr/faqs/hacker-howto.html

Why to care about security and privacy?

- Assapauk (in Estonian some attack vectors, government project) - https://www.youtube.com/playlist?list=PLjTBvsv2Ws0ja-ovwPAEfP8CY0cIvFYMt
- attacked important values:
  - identity: *identity theft*
  - resources: disk space, data volume, connection speed
  - secrets: business, personal
- https://en.wikipedia.org/wiki/Cybercrime
- https://et.wikipedia.org/wiki/K%C3%BCberkuritegevus
- http://www.delfi.ee/teemalehed/kuberkuritegevus
- http://www.postimees.ee/teema/k%C3%BCberkuritegevus
- https://www.mkm.ee/et/tegevused-eesmargid/infouhiskond/kuberjulgeolek
- https://www.mkm.ee/en/objectives-activities/information-society/cyber-security

Why to care about security and privacy?

- the movie “How Not to Lose Your Identity” (2007) (Bennett Arron)
  - IMDB: http://www.imdb.com/title/tt1034313/
  - https://www.youtube.com/watch?v=-URDjwb0fS4
  - interview: http://www.zdnet.com/article/auscert-2011-firms-ignore-id-theft-risk/
- the movie “Identity Theft: The Michelle Brown Story” (2004)
  - IMDB: http://www.imdb.com/title/tt0430211/
- the movie “Web Warriors” (2008)
  - IMDB: http://www.imdb.com/title/tt2317542/
  - https://www.youtube.com/watch?v=l5PdtXD7XzI (also here)
- not only the server(s), but also a sysadmin'i machine with graphical interface safety is part of security
- Security, privacy and why you don’t care | Reg Harnish | TEDxAlbany

Statistics and information

- RIA – State Information System Authority
  - EST https://www.ria.ee/ee/kuberturve.html
  - ENG https://www.ria.ee/en/ciip.html
  - announcing about syber incidents: CERT Estonia
    - EST https://www.ria.ee/ee/cert.html
    - ENG https://www.ria.ee/en/cert-estonia.html
  - Using outdated software is dangerous (in Estonian)
    - https://www.ria.ee/ee/vananenud-tarkvara-kasutamine.html
  - IT baseline security system ISKE
    - ENG https://www.ria.ee/en/iske-en.html
    - EST https://www.ria.ee/ee/iske.html
  - publications in cyber security
    - EST https://www.ria.ee/ee/kuberturvalisuse-kokkuvotted.html
    - ENG https://www.ria.ee/en/publications.html
  - cyber security news
    - EST https://www.ria.ee/ee/kuberturvalisuse-uudised.html
  - blog in Estonian https://blog.ria.ee/
- in real time https://cybermap.kaspersky.com/
- statistics http://www.go-gulf.com/blog/cyber-crime/

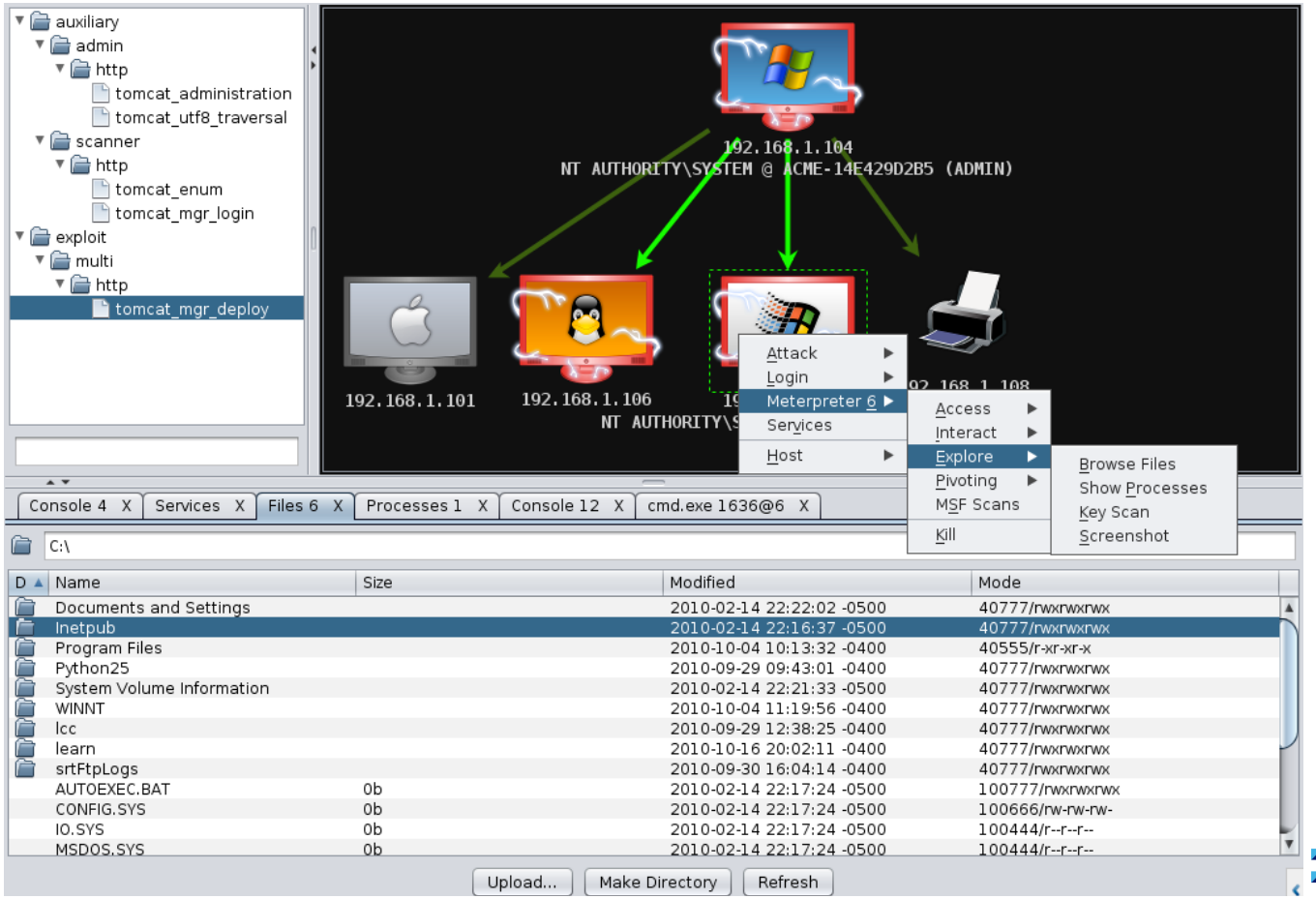
software attacks

- **Heartbleed.com**
  - The Heartbleed bug allows anyone on the Internet to read the memory of the systems protected by the vulnerable versions of the OpenSSL software. (see also Wikipedia article)
  - in Ubuntu: *sudo apt update && sudo apt install openssh-blacklist**
- **IP cameras**
  - Who really examine these pictures?
  - search: "*attacker surveillance IP cam*"
- **Why to cover a web cam?**
  - an article
- **Cyptographic attacks**
- One optional solution:
  - HSM *hardware security module*

https://upload.wikimedia.org/wikipedia/commons/thumb/d/dc/Heartbleed.svg/330px-Heartbleed.svg.png

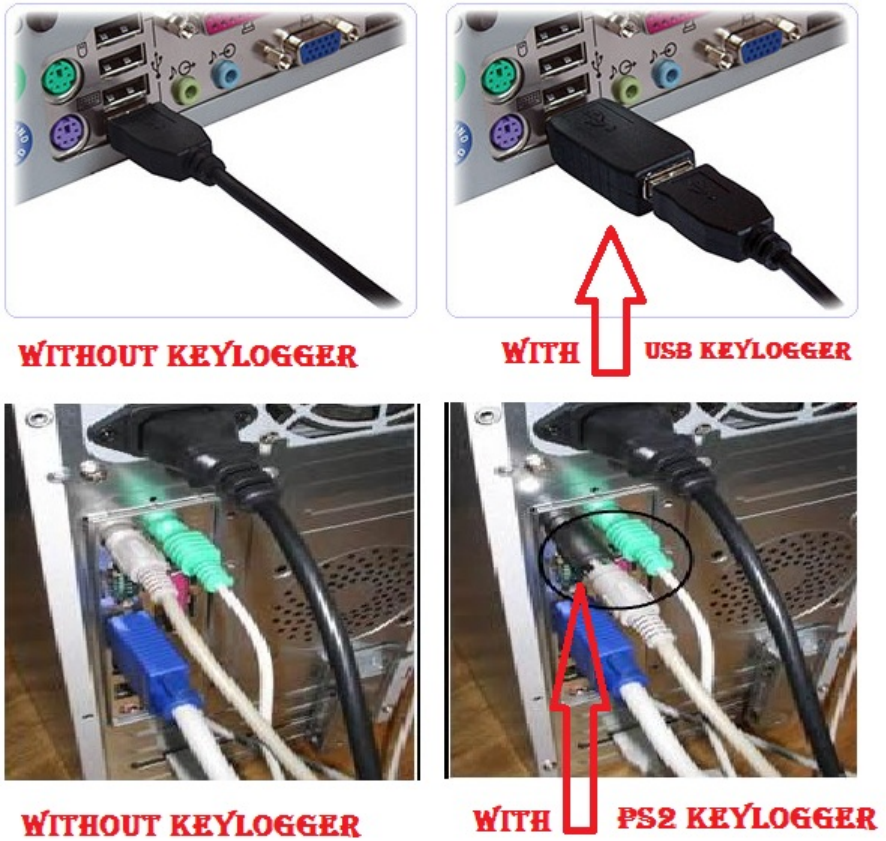
software attacks

- one simple test:
  - search from Internet “fast and easy hacking”
- results?



hardware attacks

- hardware keylogger
- https://www.keysniffer.net/



physical attacks

- Physical access to the network
  - the stranger can connect the cable to your computer network?
  - Wireless networks separateness?
- http://lockwiki.com/ , http://lockpickingforensics.com/
- ethical hacker Walter Belger
  - https://www.youtube.com/watch?v=Fn6u9bKofkw
- https://en.wikipedia.org/wiki/Physical_security
- "Lost and Found" company USB sticks
- Citizens' initiatives:
  - USB Dead Drop, PirateBox, FreedomBox, LibraryBox

Mental manipulations

- We are all just humans!
- All that you upload to Internet, it will remain there ... and do not think that this does not interest anyone, because you do not have nothing to hide ...
  - https://www.youtube.com/watch?v=F7pYHN9iC9I
- https://en.wikipedia.org/wiki/Social_engineering_%28security%29
- http://www.social-engineer.org/
- https://en.wikipedia.org/wiki/Human_security
- Under the nose of the things still remain unnoticed ...
  - https://www.youtube.com/watch?v=dy75GtKsOAw
  - https://www.youtube.com/watch?v=BjueOXCy3OM

Solutions...

- … are there but needs attention
- you cannot solve everything at once but knowing typical mistakes there can be common attacks avoided
- NB! The weakest link in the system is always a person - a user or system administrator (*user error*):
  - EBKAC *Error Between Keyboard And Chair*

image source

Solutions...

- ISKE is the three step baseline level security system for information systems, (EST https://iske.ria.ee/), applying this is a constant and continuous process
- COBIT - *Control Objectives for Information and Related Technologies*
- ITIL - IT management practices and standards throughout the process
- IT management frameworks comparison
- https://en.wikipedia.org/wiki/Category:Information_technology_governance
- https://en.wikipedia.org/wiki/Category:Information_technology_audit

Questions?

Thank you for your attention!