Introduction to Linux Security

- for CSC Introduction to Linux and CSC Environment course in May 8, 2014

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What is Security?

- Security is a set of appropriate procedures to protect your resources (your data, your account, your services and your reputation) against **risks**

- The main aspects of security are
  - Confidentiality (don't let anybody else know your password or confidential data)
  - Integrity (no malware on your computers, your data is at it should be)
  - Availability (keep your data and services available for those who should use it)

Security Risks and Compliance

- Typical risks for Linux users:
  - Compromised account (#1!)
  - System compromise
  - Denial of Service
  - Surveillance
  - Infrastructure related issues
  - Bad user and system administration
  - Legal issues

- You must comply with legal requirements and agreements
  - Do not endanger other users or the infrastructure
  - Protect personal data and other confidential information
  - As a User, you are responsible to protect your account

Security related obligations in CSC General Terms of Use (1/2)

Do not:

- Share your credentials, leave them for others to see, or neglect any security responsibilities defined in the service description.
- Misuse or abuse any CSC or third party service or property, including intellectual property. Obviously breaking the law is considered misuse.
- Misuse or abuse Users Content, credentials or other confidential information.
- Send or transmit harassing, abusive, libellous, obscene or unsolicited (spam) communications.

Security related obligations in CSC General Terms of Use (2/2)

Do not:

- Tamper with or deliberately disrupt system resources or network traffic to the Services.
- Users agree to notify CSC promptly if their account has been used without permission or if their credentials have been lost or stolen.
- Users are liable, even after the user account has been terminated, for any damage and costs CSC incurs as a result of violating these terms.

How to protect yourself?

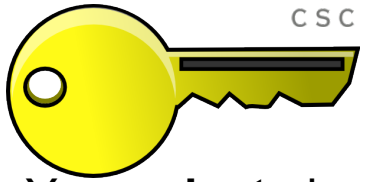
- Compromised account
  - Good passwords, hard to guess, easy to remember
  - 8 chars min., complexity, use password managers (Keepass)
  - Be carefull with public systems and services
  - User keys instead of passwords (but protect your keys too!)
- System compromise
  - Patch your own system regularly, keep firewall (iptables, ufw) on, use only necessary services
- Denial of Service
  - Offer only the necessary services to others
- Surveillance
  - Don’t store any confidential information on cloud services
- Bad user and system administration
  - Beware of test accounts, patch your system

Patch and secure your own computer!

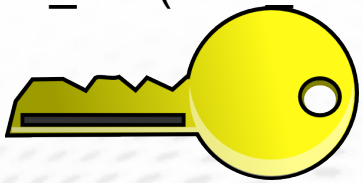
- Install patches regularly:
  - Debian: apt-get update && apt-get uppgrade
  - RHEL/Centos: yum update
  - GUI and scheduled
- Do not run unnecessary services
  - Email, WWW, …
- Anti-virus on windows computers
- Enable local firewall
  - Iptables, yum
    - ufw enable
    - ufw allow ssh, ufw default deny incoming
- Do not keep test accounts with bad passwords
  - Systems are continuously scanned by intruders

Create and use ssh-keys

cscuser@algol ~]$ **ssh-keygen**
Generating public/private rsa key pair.
Enter file in which to save the key (/home/cscuser/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/cscuser/.ssh/id_rsa.
Your public key has been saved in /home/cscuser/.ssh/id_rsa.pub.
The key fingerprint is: 57:2b:b3:c8:f1:3d:46:10:... cscuser@algol.csc.fi
The key's randomart image is:
+--[RSA 2048]----+
| ...oE . . |
...



Your **private** key:
Id_rsa (or id_dsa)



Your **public** key
Id_rsa.pub
On you local **and**
on your remote host

[cscuser@algol ~]$ **scp .ssh/id_rsa.pub user@sisu.csc.fi:.ssh/authorized_keys**
Password:
id_rsa.pub
cscuser$ **ssh sisu.csc.fi**
+-[Welcome]--+
| CSC - Tieteen tietotekniikan keskus - IT Center for Science |
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Bonus for the laze user: **ssh-agent (if you want to log in many times during thea day)**

CSC is a Reliable Partner

- CSC complies to reqirements and best practices on Information Security
  - National requirements (Raised Information Security Level)
    - Audited several times
  - International Standards
    - ISO 27001:2005 Certification for Datacenter CSC Kajaani
- Peering also on security with national and international partners
- In case of security incidents or other security matters, contact security@csc.fi

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CERTIFICATE

IQNet and
Inspecta Sertifiointi Oy
hereby certify that the organization

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ESPOO

for the following field of activities

Datacenter CSC Kajaani.

has implemented and maintains an

Information Security Management System

which fulfils the requirements of the following standard

ISO/IEC 27001:2005

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