



Welcome to

9. Information Flow

KEA Kompetence Computer Systems Security 2019

Henrik Lund Kramshøj hlk@zencurity.com @kramse  

Slides are available as PDF, [kramse@Github](https://github.com/kramse/kramse@Github)
9-information-flow.tex in the repo security-courses

Plan for today



Subjects

- Firewall Flow Controls
- Confinement and isolation
- Virtual Machines and Sandboxes
- Covert Channels

Exercises

- Research VM escapes

Reading Summary



Bishop chapter 17: Information Flow

Bishop chapter 18: Confinement Problem

Capsicum: practical capabilities for UNIX

Removing ROP Gadgets from OpenBSD

Firewall Flow Controls



Confinement and isolation



Virtual Machines and Sandboxes



Covert Channels



Exercise

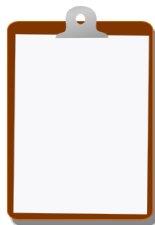


Now lets do the exercise

??

which is number ?? in the exercise PDF.

For Next Time



Think about the subjects from this time, write down questions

Check the plan for chapters to read in the books

Most days have less than 100 pages, but some days may have more!

Visit web sites and download papers if needed

Retry the exercises to get more confident using the tools