Capture the flag

Eat, sleep, pwn, repeat

Presented by Chrisliebär
Slides from Martin & Chrisliebär

Thanks for coming!

- We are KITCTF, a CTF team from Karlsruhe Institute of Technology (KIT)
- For the next **4 weeks** we will introduce you to Capture The Flag (CTF) competitions
- No prior knowledge required, just curiosity and willingness to learn
- Feel free to ask questions anytime!

What is CTF?

- **Capture The Flag** (CTF)
- You might be thinking of one of these:

But no…

- Instead, computer security competitions
- Origin in Attack-Defense (less common nowadays)
  - Teams **defend** their own vulnerable services while **attacking** others
    - Flags are secret strings stored on the services
- More common nowadays: Jeopardy-style CTFs
  - **Solve** challenges of different difficulties to get flags
    - Team with most flags wins

What the flag?

- Competitions about finding and exploiting security vulnerabilities
  - Sometimes also about solving puzzles
- A way to develop vulnerability research & exploitation skills
- Team based, mostly running for one weekend
  - International scoring platforms like CTFTime to track performance
  - Many opportunities to **travel and meet** other teams
- A fun way into the infosec community

What CTF is NOT

- Illegal
- A way to quickly learn "hacking"
- Using ready-made exploits and automated tools
  - Most advanced challenges require custom exploits and deep understanding
- Straight forward and super beginner-friendly :(

What are the challenges?

- No fixed rules, but common categories
- Really wide range of difficulty levels
- Always new stuff - that's why we are here

The big 4

- **Web** - Exploiting web applications (SQLi, XSS, JWT, etc.)
- **Pwn** - Binary exploitation (buffer overflows, ROP, etc.)
- **Reversing** - Reconstructing program logic from binaries
- **Crypto** - Abusing weaknesses in cryptographic algorithms or protocols
- Combinations of those are common too

The underdogs

- Blockchain, AI
- OSINT, Forensic
- Game hacking
- Scripting, competitive programming

A CTF events lifecycle

- Some CTF team hosts an event
- **KITCTF** decides to participate
- During the event we collaborate to solve as many challenges as possible and become **first place**
  - Usually in-person at ATIS (online participation possible too)
- At the next meeting, solutions and interesting challenges get discussed

How do I get started

- Play CTF
- **Read writeups !!!**
- Be curious, there is no guide to CTF. Learning is part of the game
- Join the meetings, connect with others
- Our team depends on participation

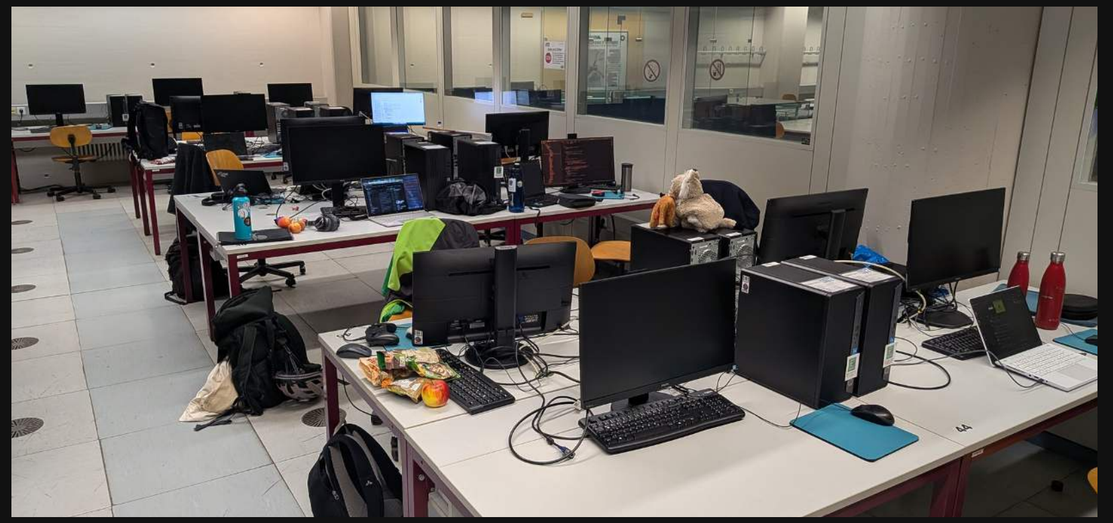
How do I gid good?

- Just start playing & read writeups
- Play for a team (hopefully us)
- Don't get intimidated
- Follow kitctf.de/learning/howto

What is KITCTF?

- CTF team at KIT, founded in 2014
  - Currently **#6 in Germany** and **#85 globally**
- Weekly meetings every **thursday**
  - General exchange about security & non-IT banter
- Irregular competitions during weekends
  - The occasional international competition
- We also run our own CTF once a year at **Gulaschprogrammiernacht** (GPN)
  - Last one had over **600 competing teams**

What does playing for KITCTF look like?



Other teams

- **FluxFingers** - Uni Bochum
  - FluxKITtens :3 - Merger between FluxFingers and KITCTF for Google CTF 2025
- ENOFLAG - TU Berlin
- FAUST - FAU Erlangen
- Platypwnies - Hasso-Plattner-Institut
- Sauercloud - German merger team
- Flagbot / P0lyglots - ETH / EPFL
- Organizers - Swiss merger team
- Kalmarunionen - Nordic merger

CTFTime 💔

CTFTIME | CTFs | Upcoming | Archive | Calendar | Teams | FAQ | Contact us | About | Timezone: UTC | intrigus-lgtm

Team rating

2025 2024 2023 2022 2021 2020 2019 2018 2017 2016
2015 2014 2013 2012 2011

Place	Team	Country	Rating
1	kalmarunionen		1427,451
2	r3kapig		1365,784
3	The Flat Network Society		1064,981
4	Never Stop Exploiting		1014,674
5	Nu1L		975,726
6	justCatTheFish		940,905
7	Project Sekai		931,263
8	.;;;.		924,763
9	thehackerscrew		920,587
10	Infobahn		886,604

Full rating | Rating formula

Upcoming events

Open | Finals

Format	Name	Date	Duration
	POC CTF Final 2025 Four Seasons Hotel in Seoul, Korea	Do, Nov. 13, 23:00 — Fr, Nov. 14, 06:00 UTC Individual	7h
	AmateursCTF 2025 On-line	Fr, Nov. 14, 00:00 — Di, Nov. 18, 00:00 UTC 221 teams	4d 0h
	TU Delft CTF 2025 The Netherlands, Delft	Sa, Nov. 15, 08:00 — Sa, Nov. 15, 16:00 UTC 6 teams	8h
	Platypwn 2025 On-line	Sa, Nov. 15, 09:00 — So, Nov. 16, 21:00 UTC 82 teams	1d 12h

Past events

With scoreboard | All

BuckeyeCTF 2025

Nov. 10, 2025 01:00 UTC | On-line | Weight voting in progress

Place	Team	Country	Points
1	b01lers		100,000
2	L3ak		73,026
3	WROng_flag		62,230

715 teams total | Tasks and writeups

M*CTF 2025 Junior Quals

Nov. 09, 2025 21:00 UTC | On-line | Weight voting in progress

Place	Team	Country	Points
1	Pudge Fun Club		72,000
2	pwn3dByKid$		53,943
3	0xb00bs		45,251

101 teams total | Tasks and writeups

Infobahn CTF 2025

Nov. 09, 2025 17:00 UTC | On-line | Weight voting in progress

Place	Team	Country	Points *
1	Nu1L		0,000
2	r3kapig		0,000
3	KCSC		0,000

803 teams total | Tasks and writeups

What's next?

- Intro Talks
  - Web security (**13.01.**) - **you are here**
  - Reverse engineering (**20.11.**)
  - Binary exploitation (**27.11.**)
  - Cryptography (**04.12.**)