

# Training:

## Software Defined Radio

Date of the training: **March 16-17, 2020** in Heidelberg, Germany

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### Overview

An introduction to digital signal processing, software radio, and the powerful tools that enable the growing array of SDR projects within the hacker community, this course takes a unique “software radio for hackers” approach, building on the participants’ knowledge of computers and introducing them to the forefront of digital radio technology. Participants will learn how to transmit, receive, and analyze radio signals and will be prepared to use this knowledge in the research of wireless communication security.

### Agenda

#### Day 1

- Introduction to Software Defined Radio
- Exercise: Finding a Signal
- Complex vs. Real Signals
- Exercise: Working with Complex Signals (part 1)
- Exercise: Working with Complex Signals (part 2)
- Aliasing and Sampling Theory
- Exercise: Transmission and Simulation
- Exercise: Digital Filters
- Bandwidth

## Day 2

- Exercise: Replay
- Modulation
- Exercise: Modulation Identification
- Reverse Engineering
- Exercise: Reverse Engineering
- Decoding Digital Signals
- Exercise: Decoding

## Key Takeaways

- Hands-on experience with SDR tools
- Fundamentals of Digital Signal Processing
- Introduction to wireless hacking

## Who should attend this training?

Anyone with an interest in investigating the physical layer of real-world digital radio communication systems.

## Prerequisites

A background in software development and an interest in security are helpful but not required.

## Requirements

- Laptop computer: there are no minimum processing power or memory requirements, but signal processing is an intensive application, so more of both is always useful. The laptop must have two USB A ports available and must be capable of booting from USB.
- Software: A bootable USB flash drive will be provided. This drive contains all the software required for the class.
- Students are also encouraged to bring additional SDR hardware or target devices for show and tell.

Students will be provided with:

- HackRF SDR peripheral
- Exercise workbook
- USB flash drive.

## About the Trainer

**Michael Ossmann** is a wireless security researcher who makes hardware for hackers. He founded Great Scott Gadgets in an effort to put exciting, new tools into the hands of innovative people.

## Booking

Recommended online booking of trainings through:

<https://troopers.de/tickets/>

**Voucher code: TR20\_HMTS**

Using this voucher code automatically gives you an additional 5% off the current valid price! You can register with this code until seats have run out.

## Contact

**Need assistance?** Don't hesitate to call us. We are fluent in English and German.  
+49 151 16228365 or [info@troopers.de](mailto:info@troopers.de)

**Booking is also possible offline through your trusted partner:**

**HM Training Solutions**, Falkenstrasse 6, 63820 Elsenfeld, Germany

+49 6022 508200 / [info@hmtrainingsolutions.com](mailto:info@hmtrainingsolutions.com)

+49 6022 5089999 / [www.hmtrainingsolutions.com](http://www.hmtrainingsolutions.com)