

International VDI Workshop

Automotive Hacking in Practice

Become familiar with Cyber Security Tools and Automotive Hacking Techniques



Key Topics:

- Understand how Hackers and Data Thieves operate
- Gain Insights into Network Hacking
- Learn the Basics of embedded Software and Hardware Analysis
- Build your own Hacking Environment

Dates and Venues

June 16-17, 2020
Frankfurt

October 6-7, 2020
Berlin

February 2-3, 2021
Dusseldorf

Workshop Chair

Juergen Belz, CEO,
PROMETO GmbH, Germany



General Information

Aims and Objectives

This workshop is designed for professionals who want to get a basic understanding of automotive cyber security. The goal of this workshop is to understand the mindset of hackers and data thieves as well as to get an overview of the main aspects of cyber security in vehicles with a focus on driver-specific aspects.

As a participant you will be introduced to methods, techniques and tools used by hackers in practice and will learn to look at various topics with the eyes of a hacker. The acquired knowledge helps to determine and verify system security much more accurately. After the workshop you will be able to setup environments and tools that can be used as pentest environments in order to validate safety mechanisms.

Target Group

This beginners and intermediate level workshop addresses specialists, technologists, engineers and managers from manufacturers, suppliers and solution providers of the automotive industry. Particularly those working as:

- System Engineers
- Software-Architects
- Hardware and Software Developers
- Executives, Project Managers and Team Leaders in the area of electronic and electrical Engineering
- Safety Engineers and Safety Managers
- Functional Safety Managers at vehicle manufacturers and suppliers

Workshop Documentation

Participants receive a manual on-site as well as a VDI confirmation of participation.



Workshop Chair

Dipl.-Ing. Juergen Belz, CEO of PROMETO GmbH, Germany



Previously, Mr. Belz was globally responsible for engineering methods and infrastructure at automotive tier 1 supplier Hella KGaA Hueck & Co for more than 7 years. He was first to achieve SPICE Level 3 in the automotive domain and presented the first prototypical AUTOSAR-ECU built into a vehicle. Prior to that Mr. Belz

managed the system and software development for hybrid vehicles within Continental and was awarded for "Forward-looking Software Initiative". After his study of Electrical Engineering – Industrial Automation he started his career with a company of KUKA Robots in the division of electrical drive engineering and power supply units.

Workshop Methods

In this workshop the workshop chair provides theoretical input and participants apply their new knowledge in interactive and practical exercises. Various discussion rounds will give plenty of room to exchange experiences. In addition, the workshop will be supported by live demonstrations!



Learn more about our other Workshops:

LiDAR – The enabling Sensor for Autonomous Driving

May 19-20, 2020, Freising near Munich

October 19-20, 2020, Hamburg

Imaging and Optical Sensing Technologies – Applications for Autonomous Driving

August 18-19, 2020, Berlin

December 8-9, 2020, Dusseldorf

Workshop Content

1. Day 09:30–17:00

2. Day 09:00–16:00

Introduction

- Hacking out of curiosity
- Value creation through cyber crime
- The illusion of secure software

Hacker's first Step: Information Gathering

- Finding "CAN Network Databases" and "ECU Software Updates"
- Discovering homologation as a useful source of information
- Social engineering

++ Practice: Download vehicle CAN DB

Hacker's second Step: Analysis of the targeted Architecture

- Wiring diagrams and cable routes through the car
- ECUs and their purpose
- Network diagrams used for communication

++ Practice: Setup tools for network analysis

Hacker's third Step: Analysis of Communication Protocols

- Outbound traffic to the outside world
- Inbound traffic to the vehicle
- Internal communication (CAN, Flexray, LIN, etc.)

++ Practice: Analysis and control of a CAN network

Hacker's fourth Step: Enumeration

- Communication protocols in use
- Used ports
- Services in place

++ Practice: Take over control

Hacker's fifth Step: Exploitation

- Discovering the weaknesses
- Creating exploits
- Using exploits

++ Practice: Creating and using exploits

Hardware Hacking Techniques

- Chip platforms from the point of view of security
- Secure hardware (TPM, HSM)
- Side channel attacks
- Reverse engineering approaches

++ Practice: What does a hacker see?

Network Hacking Techniques

- GSM, WLAN and mobile interception security
- Targeted compromise of CAN networks
- Targeted use of the OBD II interface in vehicles

++ Practice: The use of CAN DB files in hacking environments

Embedded Software Hacking Techniques

- Code examples (malicious code and unsafe programming)
- Reverse engineering approaches
- Buffer overflow techniques

++ Practice: Introduction to overflow techniques

Encryption and Authentication Techniques

- Encryption
- Authentication
- Management of keys and other secrets

++ Practice: Encrypt data and create a certificate

Hacking Tool Environments

- For CAN networks
- For wireless networks
- For exploitation

++ Practice: Does security still exist when hackers invest 1000€ and time?



Five Reasons why you should attend:

1. Understand how hackers and data thieves operate
2. Benefit from your own live hacking session
3. Learn about network hacking, embedded software and hardware analysis
4. Exchange experiences with your peers
5. Discuss your individual questions with our expert



You need help?
Please contact us!

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✓ Please register for (Price per Person plus VAT):

International VDI Workshop		
<input type="checkbox"/> June 16-17, 2020 Frankfurt (015E914003)	<input type="checkbox"/> October 6-7, 2020 Berlin (015E914004)	<input type="checkbox"/> February 2-3, 2021 Dusseldorf (015E914005)
EUR 1.790,-	EUR 1.790,-	EUR 1.790,-

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Participation Fee VDI-Members **Save 50 € for each Workshop Day.** VDI membership no.*: _____

* For the price category 2, please state your VDI membership number

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General terms and conditions of VDI Wissensforum can be found online at: www.vdi-wissensforum.de/de/agb/

Workshop Venues:

Frankfurt: Lindner Congress Hotel Frankfurt, Bolongarostr. 100, 65929 Frankfurt, Phone: +49 69/33002-00, Mail: tagungen.frankfurt@lindner.de

Berlin: Mercure Hotel Berlin City, Invalidenstr. 38, 10115 Hamburg, Phone: +49 30/30826-0, Mail: h5341@accor.com

Dusseldorf: Maritim Hotel Düsseldorf, Maritim-Platz 1, 40474 Düsseldorf, Phone: +49 211/5209-0, Mail: info.dus@maritim.de

More Hotels close to the workshop venue may be found via our HRS service www.vdi-wissensforum.de/hrs



Services: The price includes beverages during breaks and lunch. The workshop documents will be handed out on-site.

Exclusive offer: All participants at this event are entitled to a free three-month trial VDI membership. (Offer applies exclusively to new members.)

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