CAE Tech Talk

17 February 2022

CANSentry: Securing CAN-Based Cyber-Physical Systems against Denial and Spoofing Attacks (1:00 – 1:50 pm EST)

The Use of Labtainers cybersecurity lab exercises (2:00 – 2:50 pm EST)

Mark your calendars and come join your friends in the CAE community for a Tech Talk. CAE Tech Talks are free and conducted live in real-time over the Internet so no travel is required. Capitol Technology University (CTU) hosts the presentations using Zoom which employs slides, VOIP, and chat for live interaction. Just log in as "Guest" and enjoy the presentation(s).

Below is a description of the presentations and logistics of attendance:

PRESENTATION #1

Topic: CANSentry: Securing CAN-Based Cyber-Physical Systems against Denial and Spoofing Attacks

Time: 1:00pm – 1:50 pm EST

Location: https://captechu.zoom.us/j/664120328

Just log in as "Guest" and enter your name. No password required.

Presenter(s): Dr. Bo Luo, The University of Kansas

Description: The Controller Area Network (CAN) has been widely adopted as the de facto communication standard in automotive and industrial control systems. In its initial design, CAN only provided very limited security features, which is seriously behind today's standards for secure communication. In this talk, the presenter will introduce the security vulnerabilities of CAN bus against DoS and spoofing attacks. The presenter will then present a CAN firewall, namely CANSentry, that prevents malicious nodes' misbehaviors such as injecting unauthorized commands or disabling targeted services.

PRESENTATION #2

Topic: The Use of Labtainers cybersecurity lab exercises

Time: 2:00pm – 2:50 pm EST

Location: https://captechu.zoom.us/j/664120328

Just log in as "Guest" and enter your name. No password required.

Presenter(s): Mike Thompson, Naval Postgraduate School

Description: Labtainers are fully provisioned Linux-based cybersecurity lab exercises. Consistent lab execution environments and automated provisioning are provided by Docker containers. With over 50 lab exercises including multi-component networks that all run on a modestly performing laptop computer, Labtainers support exploratory learning for both local and remote learners. They offer automated assessment of student lab activity and progress as well as individualized lab exercises to discourage sharing solutions. Free and open at: https://nps.edu/web/c3o/labtainers, Labtainers is distributed as a single virtual machine for either VirtualBox or VMWare. On an exercise-specific basis, the framework leverages Docker containers to instantiate one or more networked computers within that single VM. Labtainers are used by dozens of educational institutions worldwide. This Tech Talk will introduce educators to the Labtainers framework and present strategies for incorporating Labtainers exercises into courses, and how instructors can create and deploy new labs using the framework. The talk will describe how this lab framework helps remove three barriers to cybersecurity lab exercises: 1) administrative setup and resulting divergent behavior between student environments; 2) sharing of solutions amongst students; 3) assessing student work.

CAE Tech Talks are recorded; view them here: https://www.caecommunity.org/resources/cae-tech-talk-resources

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