RVTEC Update
UNOLS Annual Meeting

Lee Ellett

22 Nov 2019

2019 RVTEC Meeting

University of Alaska, Fairbanks
October 22-24

Breakout Sessions

Cybersecurity
Sensors Instrumentation Systems
Calibration of USBL Systems
Satellite Communication Systems
GPS Systems
Advanced Rigging
Multibeam Advisory Committee
Rolling Deck To Repository (R2R)
Data Acquisition Systems
Winch Systems Discussion
UNOLS Cruise Planning Application
Friday Training – Networking Fundamentals

NSF Trusted CI Mission Statement

The mission of Trusted CI is to lead in the development of an NSF Cybersecurity Ecosystem with the workforce, knowledge, processes, and cyberinfrastructure that enables trustworthy science and NSF's vision of a nation that is a global leader in research and innovation.

This mission is accomplished through one-on-one engagements with projects to address their specific challenges; education, outreach, and training to raise the state of security practice across the scientific enterprise; and leadership on bringing the best and most relevant cybersecurity research to bear on the NSF cyberinfrastructure research community.

This is an NSF-funded effort to bring relevant cybersecurity to research projects

NSF Trusted CI Team for ARF Engagement

Mark Krenz
Chief Security Analyst, IU Center for Applied Cybersecurity Research
Ryan Kiser
Senior Security Analyst, IU Center for Applied Cybersecurity Research
Ishan Abhinit
Senior Security Analyst, IU Center for Applied Cybersecurity Research
Andrew Adams
Senior Information Security Analyst, Pittsburgh Supercomputing Center
John Zage
Research Programmer, National Center for Supercomputing Applications
Kelli Shute
Project Manager, IU Center for Applied Cybersecurity Research

Uncommon Security Challenges Observed

- It’s a vehicle!
- Very short and infrequent maintenance windows
- Very low bandwidth while at sea
- Low budget for security mandates
- High crew turnover
- Science parties' BYODs
- IoT everywhere
- Unique hardware
- Potentially life risking situations
- Travel to foreign ports
- Remote only access only for security checks
- Unusual console locations, sharing
- Policies that aren’t compatible with institutional security controls
- Limited Space/Overlapping purposes of rooms

*Courtesy Mark Krenz Trusted CI Presentation to RVTEC Oct 2019

Cybersecurity and Operational Technology

2019 Hack the Sea Village

- Villages are dedicated spaces arranged around a specific topic in DEFCON
- Held Hack the Sea CTF
  - Fathom5 security provided GRACE, a maritime infosec lab for hackers to learn on
  - Originally designed for US Navy

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*Courtesy John Zage Trusted CI Presentation to RVTEC Oct 2019

Cybersecurity and Operational Technology

State of Operational Technology Security

- Cybersecurity of OT discussed during various talks
- Issue with OT: layers of binary files
  - Fundamental Supply Line Issue: components of OT software are created by different manufacturers
  - Each manufacturer compiles binary, passes it onto the next manufacturer up the chain
  - Ends up with no one manufacturer having access to the source code of the OT device
  - Cybersecurity Researcher would have immense difficulty performing a security review of the OT device

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RVTEC 2020 Meeting

Louisiana Universities Marine Consortium
(LUMCON)
Date TBD