Cybersecurity for Railway is a Minimum, Not a Plus

Detect and discover cybersecurity issues on GSM-R railway telecoms and ETCS signalling systems

VIAVI Solutions

Today's railways face several challenges detecting and managing OT cybersecurity.

The railway sector is increasingly vulnerable to cyber-attacks from malware, ransomware, and even data breaches, and the consequences could be disastrous.

Compliance with industry standards strengthens your systems' protection. For railway, the most relevant are IEC 62443 (an international series of standards that address cybersecurity for operational technology in automation and control systems) and the new TS-50701 railway cybersecurity standard.

Our EVOIA Cyber solutions can meet the certifications and are designed to provide engineers and management with the tools to detect and discover cyber-related issues on railway telecoms and signaling systems.

These include detecting for example: denial of service attack on RBCs, unusual mobile station usage (in order to help perform early detection of SIM card robbery), flooding (to perform DoS attack) and radio jamming.

Benefits of Meeting Cybersecurity Standards:

- Monitor access from untrusted networks
- Audit records generated by equipment
- Protect the integrity of transmitted information
- Prohibit unnecessary ports, protocols and services
- Track unsuccessful login attempts
- Produce a report list of components
- Produce reports on unauthorized wireless devices
- Recognize changes to information during communication

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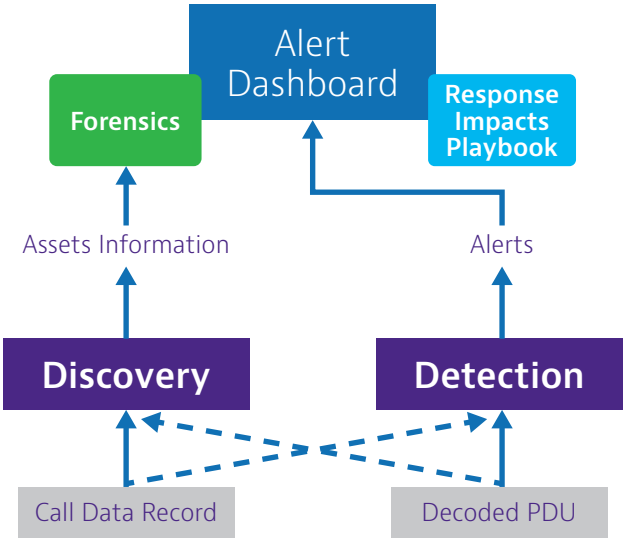
Cyber Systems Security

First introduced in 2000, GSM-R, the telecoms component and ETCS, the signalling component, make up ERTMS (European Rail Traffic Management System), the single European signalling and speed control system.

Without GSM-R communications or operational ETCS signalling, the trains cannot run. However, as with any industrial technology that's over 20 years' old, the equipment and infrastructure can be more vulnerable to modern cyber-attacks as a result.

EVOIA Cyber can be integrated with a customer's SIEM solution, if required. It is available as a standalone system or can be integrated into an existing EVOIA Assure Railway solution.

Using the same data lake and probe infrastructure, means you can integrate new cyber-functionalities to discover system vulnerabilities, detect attacks, monitor current statuses, and manage issues more quickly and effectively.



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Vulnerabilities in ETCS signaling systems	Possible impact or risk
Stolen SIM card	Traffic disturbance
ETCS L2 service degradation attempt on RBC	Train speed reduction Inter-train distance increased
ETCS L2 service degradation attempt on train	Safety (train accident)
Intrusion attempt on ETCS Network	Information leaks
Global GSM-R disturbance attempt	Train stop
Local GSM-R disturbance attempt	Train stop, REC Alert inhibition
Alteration of train presence on a track section	Safety (train accident)

Summary of VIAVI Railway OT Cybersecurity Functionalities:

Forensics from alert dashboard

- Attack vector identification: source and target of the attack
- Scenario identification
- Raw data of event(s) triggering alerts
- Historical information

Response in alert dashboard

- Potential impacts available to SOC
- Remediation guidance with ERTMS expertise

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