



Device tamper prevention through security testing

Payatu Casestudy

Problem

One of the titans in the Oil and Gas industry in India wanted to test their fuel dispensers and display units at the fuel stations. They wanted to assess the equipment for the break-in points that could allow data leakage, tampering with the display units, or meddling with

the fuel dispenser units. The display devices are connected over the local network in the fuel stations.

The task was complex as it demanded detailed analysis for the assessment. So, they reached out to Payatu.

Solution

Payatu team assessed the client's fuel dispensers and other connected devices on these parameters:

- **Display manipulation**

We could manipulate display units by tempering data like fuel quantity, density, cost, and other information. Data can be falsified on display by voltage level manipulation on display.

So, the display was susceptible to falsification just by connecting any external device.

- **Keypad sniffing and injection**

We managed to sniff data by identifying the buttons being pressed on the data entry devices. Using a device called a logic analyzer, we managed to hack the keystrokes in data entry devices.

We could also inject false parameters by injecting signals on the keypad line. This allowed us to hack confidential parameters like passwords that were not known even to the station employees but to the product maintenance engineers only.

- **Printer manipulation**

After sniffing the communication, the Payatu team was able to extract end-user information from the printer slips. We could also change the printer values by tempering the communication port.

Results

Data tampering with quantity and amount in fuel stations is rampant across India. Fraud like this could put a company's prestige at stake. This security assessment

project helped our client in fraud prevention of amount to the tune of millions. The length of this project was one week.

About Payatu

Payatu is a Research Focused, CERT-In impaneled Cybersecurity Consulting company specializing in security assessments of IoT product ecosystem, Web application, Cloud, & Network with a proven track record of securing applications and infrastructure for customers across 20+ countries.

Our deep technical security training and state-of-the-art research methodologies and tools ensure the security of our client's assets.

At Payatu, we believe in following one's passion, and with that thought, we have created a world-class team of researchers and executors who are willing to go above and beyond to provide best-in-class security services. We are a passionate bunch of folks working on the latest and cutting-edge security technology.