

Exercise: Introduction & Human Error

You are a security architect at ACME Water: a water company that delivers clean and waste water services to Dorset. You have been asked to evaluate the design of a software repository used by instrument technicians at ACME to manage control software. The design of the repository is based on the following scenario:

Barry is an instrument technical at ACME water. Barry goes into the depot on a Monday morning, batch syncs his laptop. This involves plugging his laptop into the telemetry network, looking at what files have changed, and making sure he has the latest programs his area. He then picks up his schedule jobs for the rest of the week. As luck would have it, his first scheduled job is at the depot.

Barry walks 100 yards to the motor control center, locates the telemetry outstation, plugs his laptop into the outstation and loads up the program. Barry verifies his software matches up with the same software on the outstation; this is done automatically.

Barry then makes the relevant changes and commissions the change. In this case, Barry calls up the control room to make sure an alarm has been raised based on the new element setup.

Barry then saves the change to the outstation and his laptop. The software tool displays the changes and asks for verification. A software change alarm is then generated automatically and sent through to both the telemetry alarm page and the software repository.

Barry will commit this change back to the repository "as soon as he can." At the end of the day, Barry returns to a depot, fills in his paperwork and batch syncs to the repository.

Questions

1. In groups, create a single UML class model of the assets associated with this scenario. Each class should be an asset. You should add 'attributes' to each asset for its security properties.
2. Exchange your class model with another group. Assess the class model for opportunities for exploitation. To help you, you should score the model based on the assessment criteria provided.
3. Using the template of your choice, create a use case for 'modifying telemetry software' based on this scenario. The actor should be 'Instrument Technician' and the system is the software repository for storing control software.
4. Exchange your class model with another group. Assess the class model for opportunities of human error leading to exploitation. To help you, you should score the model based on the assessment criteria provided.