

Exercise: User Interfaces

ACME Water have decided to modernise the tools and interfaces used by instrument technicians when modifying plant equipment. They have instructed Midnight Engineering — its preferred system integrator — to develop an iPad based solution. Once deployed, the solution will allow instrument technicians to make changes to Programmable Logic Controllers (PLCs) in water treatment plants, both locally and remotely.

Midnight Engineering are considering a solution based on *HMI Pad* (<http://www.sweetwilliamsl.com/hmi-ipad>). They will develop user interfaces for the controllers using this framework. Instrument Technicians will download the interfaces to their iPad, allowing them to interact directly with the control system. The project files for the interface will be stored in ACME's control software repository.

When answering the questions, you may find it helpful to refer to and update the *ACME Water* demo CAIRIS model (downloadable from https://github.com/cairis-platform/cairis/blob/master/examples/exemplars/ACME_Water.cairis).

Questions

1. What threats or vulnerabilities does this *HMI Pad* based solution explicitly try to address?
2. How much does the design meet the security expectations of (i) Instrument Technicians, (ii) ACME Water in general?
3. How might you enlarge or reduce the solution's system image to make it more usable and secure?