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## Write-Up-SCADA Systems

### **BLUF**

SCADA monitors major infrastructures and industries through a control room, there are minimal vulnerabilities however, detection protocols, logs, secure communication, and human supervision reduce threat impact.

### **What SCADA is**

SCADA stands for Supervisory Control and Data Acquisition. SCADA is a centralized system that monitors major worldwide industries like oil, gas, energy and water pipelines. They operate from a supervisory station using systems like PLCs, RTUs and HMI, (SentinelOne) where they collect data and perform tasks. For example, when monitoring if an alarm goes off like “low tank level” someone would see an alarm, turn on the backup pump, and log what went wrong so they can follow up.

### **Vulnerabilities**

A misconception that many have is that “SCADA systems are safe enough because they are disconnected from the internet.” (“SCADA Systems Article”) However, there are a couple of

vulnerabilities like virus infections, unauthorized access to the host/software, or packet access to the networks.

### **How SCADA Reduces Risks**

SCADA can be made secure if multiple safeguards are put in place, but we should not assume all systems are secure. If these risks do pose a threat SCADA would detect the issue, log data and timestamps for forensic evidence, PLC and RTU would override automatically if there are network errors, have secure communication, and human supervision.

### **Conclusion**

In conclusion, SCADA allows trained individuals to control multiple systems globally from a central database. There will always be security risks in everything technical, but SCADA's security protocols allow for proper risk reduction across the board. SCADA isn't 100% threat proof, but overall it allows for a safe and reliable way to control complex systems across the world.

### **Works Cited**

“SCADA Systems.” *SCADA Systems*, [www.scadasystems.net/](http://www.scadasystems.net/). Accessed 12 Oct. 2025.

SentinelOne. “What Is SCADA (Supervisory Control and Data Acquisition)?” *SentinelOne*, 18 July 2025,

[www.sentinelone.com/cybersecurity-101/cybersecurity/scada-supervisory-control-and-data-acquisition/](https://www.sentinelone.com/cybersecurity-101/cybersecurity/scada-supervisory-control-and-data-acquisition/).

