

Sam Garwood

IT 200T

Professor Kirkpatrick

3/19/2022

SCADA Systems

When controlling different systems or monitoring them remotely, there are 4 core functions that are done through SCADA. SCADA stands for “Supervisory Control and Data Acquisition”, which refers to a system with the intention to monitor and control field devices remotely at different industrial sites. The main necessary components are inputs (which relay electrical signals which perform the data acquisitions), RTUs or Remote Telemetry Units (which handles reports and delivery of commands to control relays), HMI or Human Machine Interface (Which informs the human operator and helps them manage the systems in an easily understood fashion), and finally a communications network which connects telemetry and SCADA the remote location with technology such as Ethernet. These components support SCADA’s 4 functions which are the acquisition of data, network data communication, data presentation, and control. (How do Scada Systems Work, 2012)

Possible Vulnerabilities

SCADA systems are used for monitoring and controlling various services both electronically and physically. This can include water ways, traffic lights, transportation, and other systems both natural and electronic in modern society. The fact that these processes are handled remotely causes risk of potential cyber-attacks. An attack can lead to other issues beyond just data and other company infrastructure due to the significant increase of technology used for services, transportation, and other important utilities around the world.

Ways To Mitigate

Some ways to prevent these situations could be the implementation of secure tunnels known as VPNs. These tunnels encrypt all the data to protect the data and send it directly to the location they are meant to arrive untouched. Another solution would be to improve firewalls to support any IP based networks. Finally, it would be beneficial to set unauthorized users to be restricted to read only for those who do not have access to alter the given application. This can improve the overall security with addition to physical security or human monitoring systems.

(SCADA Systems)

Works cited

“How Do Scada Systems Work?” *How SCADA Systems Work - Data, Sensors, Networks, and RTUs*, <https://www.dpstele.com/scada/how-systems-work.php>.

“SCADA Systems.” *SCADA Systems*, <http://www.scadasystems.net/>.