Threat Hunt Report

1. Threat Actor Review

Threat Actor Name: CyberAv3ngers

Associated Group(s): Islamic Republic of Iran; associated with the Islamic Revolutionary Guard Corps (IRGC) group known as Soldiers of Soloman

Targeted Industry/Sector: Critical infrastructure, especially water systems, ICS/SCADA, and energy sectors

Motivations: Political, religious, ideological, and disruptive (hacktivism supporting Iranian geopolitical aims)

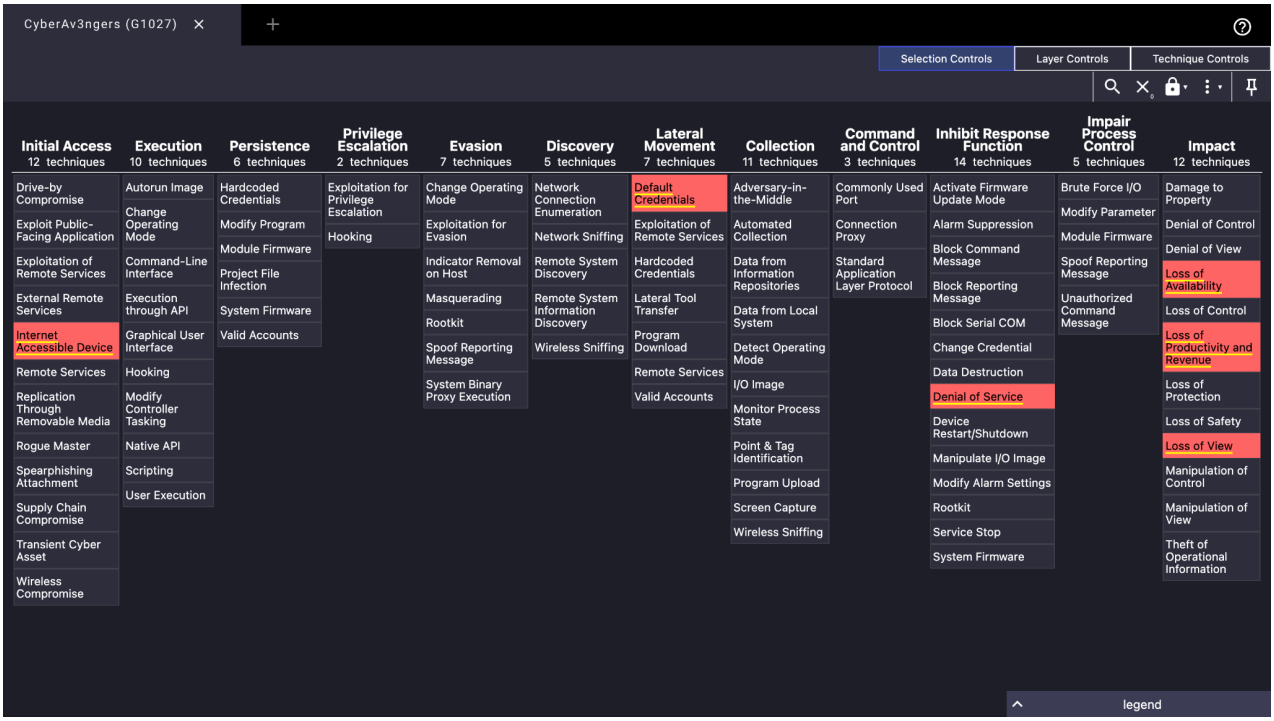
Summary of Notable Campaigns or Attacks:

- The CyberAv3ngers have been known to be active since at least 2020, with disputed and false claims of critical infrastructure compromises in Israel.
- In 2023, the CyberAv3ngers engaged in a global targeting and hacking of the Unitronics Programmable Logic Controller (PLC) with Human-Machine Interface (HMI). This PLC can be found in multiple sectors, including water and wastewater, energy, food and beverage manufacturing, and healthcare. The most notable feature of this attack was the defacement of the devices user interface.

2. MITRE ATT&CK Mapping and Navigator Usage

I reviewed the MITRE ATT&CK page for CyberAv3ngers (G1027) and used the ICS mapping provided to identify and visualize the techniques they use. I referenced the techniques already highlighted by MITRE based on CyberAv3ngers' Unitronics Defacement Campaign.

Provided is a screenshot I took of the MITRE ATT&CK which displays the relevant techniques used by CyberAv3ngers. These include:



******Click here to access the JSON File******

T-ID	Technique Name	Use in Campaign
T0812	Default Credentials	Exploited hardcoded/default credentials (e.g., 1111) on Unitronics PLC HMIs.
T0814	Denial of Service	Defaced HMIs and disrupted pumping station communications.

T0883	Internet Accessible Device	Targeted PLCs/HMIs exposed to the public internet, often via vulnerable modems.
T0826	Loss of Availability	Rendered PLCs and HMIs inoperable, halting business operations.
T0828	Loss of Productivity and Revenue	Downtime impacted multiple industrial sectors' operational output.
T0829	Loss of View	Replaced HMI screens, obscuring process visibility for operators.

3. Detection and Threat Hunting Strategy

CyberAv3ngers (G1027) primarily targets Industrial Control Systems (ICS), particularly engaging in global targeting and hacking of the Unitronics Programmable Logic Controller (PLC) with Human-Machine Interface (HMI), using tactics such as default credentials, defacement, and disruptions. This was demonstrated in their Unitronics Defacement Campaign back in November 2023. Because their techniques involve exploiting weak authentication and misconfigured devices, defenders can implement proactive detection and threat hunting across both IT and OT networks.

Detection Strategy for ICS-targeting threats (CyberAv3ngers):

- Monitor login attempts to PLCs and HMIs for default or repeated credentials
- Alert on access to ICS systems from unknown or external IP addresses
- Use tools like Shodan or Censys to find exposed Unitronics devices
- Watch for changes to HMI screens or unexpected PLC configurations
- Detect device unavailability or control system failures linked to unauthorized access
- Review logs for sudden loss of visibility, requiring manual intervention

Tools and Data Sources:

- SIEM (Splunk, Elastic)
- OT monitoring (Claroty, Nozomi)
- Network monitoring (Zeek, Suricata)
- PLC/HMI logs, firewall logs, SNMP traps
- Shodan/Censys (for public exposure scans)

4. Conclusion

The threat hunt on CyberAv3ngers (G1027) demonstrates their focused campaign on targeting internet-exposed industrial control systems (ICS), particularly Unitronics PLCs and HMIs. The group exploited default credentials, public access points, and denial-of-service tactics to disrupt operations, deface interfaces, and cause significant downtime across multiple sectors.

Some of their key techniques included exploitation of default passwords, defacement of HMI displays, and loss of system visibility and availability. These low-complexity but high-impact methods demonstrate the need for basic ICS security enhancements/upgrades.

Recommended next steps:

1. Immediately change all default passwords on ICS devices and use strong, encrypted credentials.

2. Conduct external scans to identify internet-exposed control systems. Spread awareness amongst cybersecurity teams of these security gaps.

3. Implement strict access controls and firewall rules for all OT networks.

4. Monitor abnormal device behavior, login attempts, and HMI changes across the network.

5. Deploy OT-aware monitoring tools (such as Nozomi or Claroty) to detect future threats.

Improving visibility, reducing exposure, and applying proactive monitoring are important in order to protect critical infrastructure from groups like CyberAv3ngers.

5. References

MITRE ATT&CK Group G1027: CyberAv3ngers.
https://attack.mitre.org/versions/v17/groups/G1027/

Dragos. *CyberAv3ngers: Hacktivist Group Targeting Israel-Made OT Devices*.
https://www.dragos.com/blog/cyber-av3ngers-hacktivist-group-targeting-israel-made-ot-devices/