



Device Security Assessment from GE Digital

Identify device weaknesses early in the product development lifecycle

Prevent the exploitation of devices in the field

Cyber attacks on critical infrastructure are on the rise. And, these cyber attacks are becoming a growing concern for both system operators and device manufacturers.

However, protecting these systems can be difficult. SCADA network devices are often located in areas that are challenging to physically access (e.g., on oil rigs or industrial machinery). They are also difficult to patch due to access limitations, concerns over downtime, the need to re-certify, and use of proprietary or special protocols.

To help reduce the risk of a public breach and help enable compliance, GE Digital's Device Security Assessment can be conducted throughout the development lifecycle. Ideally, the analysts will discover weaknesses before the device is deployed in the field. These assessments are based on technical expertise developed over many years as a leader in industrial security assessments, protection, and certification.

01 Business challenge

Critical infrastructure is increasingly targeted for cyber attacks, and system operators are experiencing cyber incidents at an ever-expanding rate. They need to understand the risks to the systems they are deploying and the weaknesses that attackers may exploit. A comprehensive risk mitigation plan must include robust device security across all equipment and devices.

In the face of changing end-customer needs, device manufacturers are under pressure to deliver innovative products, but are often pushed by competitive forces that prompt expedited delivery, which increases the risks of device bugs and vulnerabilities. Manufacturers need to understand the security vulnerabilities of their products, as well as their customers' compliance requirements with industry standards and security best practices.

02 Solution

GE Digital's Device Security Assessment identifies device weaknesses and vulnerabilities to help manufacturers address issues early in the product development lifecycle. This comprehensive, in-depth assessment also provides mitigation recommendations to help prevent the exploitation of devices already deployed in the field. The Device Security Assessment is designed to offer flexibility in scope, allowing for customization for each embedded device assessment to meet specific customer needs and prioritized concerns. GE Digital's security analysts use a lab environment to mimic malicious attackers to fully evaluate hardware and software for components, devices, and the overall system.

03 Benefits

- **Enhances product security** by minimizing misuse of devices by cyber attackers and device failures caused by network anomalies
- **Reduces product costs** by discovering and addressing device weaknesses during the development lifecycle, and by reducing public disclosures, field calls, and product recalls
- **Improves customer confidence** by showing measurable value by improving device robustness and reliability
- **Reduces liability exposure** by adhering to industry best practices for risk mitigation and ensuring proper documentation of implemented preventative security measures

GE Digital's cyber security customers include 9 of the top 10 automation vendors.





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Features

Each assessment includes:

- **In-depth assessment analysis of device**
 - Focus on quality
 - Discover and analyze vulnerabilities, even ones not immediately exploitable—test areas of greatest customer risk and need
 - Evaluate attacker-accessible interfaces and high-impact areas
- **Process***
 - Hardware teardown
 - Identify internal targets of interest (attack interfaces, stored memory devices processors, etc.)
 - Memory/firmware extraction
 - Reverse engineering
 - Vulnerability analysis and discovery
 - Protocol/communications analysis
 - Management and monitoring system evaluation
- **Finding reports**

*This is a sample only—process may vary depending on device under test.

BENEFITS

Enhances product security	Improves device security and reliability and reduces need for product patching
Protects brand reputation	Reduces the risk of a breach in your product and avoids public vulnerability disclosures
Lowers product maintenance costs	Reduces costs by addressing product weaknesses during development; service calls to the field to address security vulnerabilities are very expensive
Increases customer confidence	Delivers improved product security

Deliverables

- Regular status calls
 - Provides details on discovered vulnerabilities so that clients can immediately plan mitigation steps
- Closeout calls
 - Covers the weaknesses and vulnerabilities found, the priority in which they should be addressed, and strategies to mitigate the risk of each weakness
- Actionable report
 - Executive summary
 - Overview of assessment
 - Components under test/test bench
 - Description of methodology, test process, and results for each component, including vulnerabilities discovered and the skill of attacker required to identify and exploit each vulnerability
 - Description of system-level impacts (e.g., how does a vulnerability in one component affect the system)
 - Description and prioritization of remediation steps to address weaknesses
 - Conclusions and next steps

Cyber security advantage

GE Digital's deep experience in critical infrastructure includes the detailed analysis of the most extensive set of devices and systems from all of the major critical infrastructure manufacturers. The security analysts' experience includes penetration tests on devices from more than 25 manufacturers in the areas of industrial control, PLC, DCS, Smart Grid, and medical. The analysts' broad skillsets includes hardware reverse engineering, tool development, non-IT and OT communications, extensive security and ICS domain knowledge, as well as analysis from local and remote perspectives, vulnerability analysis, and exploit development. GE Digital customers include nine of the top 10 automation vendors.

GE Digital device assessments include comprehensive reports with actionable insights: clear descriptions of vulnerabilities discovered, and mitigation steps to address each weakness to help get you started on immediately improving the security of your products.





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Summary

GE Digital's Device Security Assessments help manufacturers discover and resolve device weaknesses early in the product development lifecycle, ensuring customer confidence and saving money, time, and brand image by reducing the risk of a public vulnerability breach. Detailed reporting with actionable insight provides clear descriptions of all vulnerabilities discovered, the level of attacker skillset required to exploit each vulnerability, and steps to address and mitigate each weakness. Mitigation advice considers product design limitations and recommends reasonable steps for implementation.



Product certifications

	DEVICE SECURITY ASSESSMENT	DEVICE SECURITY HEALTH CHECK
Methodology	Comprehensive, in-depth assessment	Rapid, economical penetration testing
Size and scope	Tailored for system under test	Pre-set
Report length	Comprehensive	Overview
Areas of focus	Customer and analyst scoping	Analyst scoping only
Regular update calls	Yes	No
Mitigation advice	Yes	No
Multi-device systems	Yes	One device and one firmware or software version only
Report distribution	Client and client's customers	Client only (no report distribution rights)**

** System operators can distribute to the respective device manufacturer.

GE Digital helps you harden your security posture and prepare to succeed in the new digital industrial landscape.

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Services

In the world of Industrial Internet of Things (IIoT), organizations are able to optimize productivity, reduce costs, and achieve Operational Excellence. While this is an exciting time for opportunity and growth, it can also bring on new challenges, questions, and uncertainty. No matter where you are on your IIoT journey, GE Digital has the right services offering for you.

[Advisory Services](#) We can help you plan and start your IIoT journey in a way that aligns to your specific business outcomes.

[Managed Services](#) We can help you maintain your critical machines from one of our remote locations around the world using model-based predictive-analytic technology.

[Implementation Services](#) Our team will help develop a collaborative, multi-generational plan that will marry your existing investments to the right process enhancements and technology.

[Education Services](#) We specialize in education services to ensure that you're leveraging our solutions to the fullest extent with our training and certificate programs.

[GlobalCare Support Services](#) Let us help by ensuring that your business continues to operate at its highest efficiency, all while mitigating risks to your investments.

[Cyber Security Services](#) Our solutions provide industrial-grade security for a wide range of OT network and application topologies.

Related products

GE Digital's OT cyber security suite helps protect industrial and healthcare companies against misconfigured devices and unplanned downtime due to cyber incidents. We can help you test, certify, and secure industrial connected devices, applications, and processes.



[Achilles Test Platform](#) →

Build in product security. Achilles Test Platform discovers vulnerabilities and faults to be reproduced, isolated, identified, and resolved before product introduction.



[OpShield](#) →

Designed to help protect critical infrastructure and controls network by defending the processes, communications, and assets that underpin your control strategy.

PREDIX

[Predix](#) →

Innovate and transform your business with the cloud-based operating system for the Industrial Internet, purpose-built for industry.

Continue your IIoT journey

Transforming your business requires innovative foundational solutions that lay the groundwork for optimized performance.



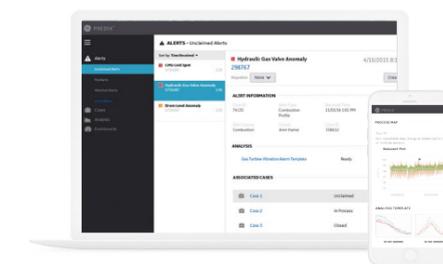
[Historian](#) →

Optimize asset and plant performance through time-series industrial data collection and aggregation, leveraging Predix IIoT connectivity.



[iFIX](#) →

Gain visibility into your operations and secure agility for smarter decision making that drives results.



[Asset Performance Management](#) →

Move from reactive to proactive maintenance to reduce unplanned downtime, minimize maintenance costs, improve efficiency, and extend asset life.

About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

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