THE CYBER SECURITY POSTURE OF GE DIGITAL PRODUCTS

BUSINESS CHALLENGE

“The only truly secure system is one that is powered off, cast in a block of concrete and sealed in a lead lined room with armed guards - and even then, I have my doubts” – Gene “Spaf” Spafford

Clearly, such a system would not be terribly useful to an organization operating critical infrastructure in today’s world.

Technology vendors and their customers form a symbiotic relationship and must work together to continuously maintain the balance between timeliness-to-market based on demand at an appropriate price point, versus the effort and time spent securing those products based on potential risk and regulatory requirements.

This interdependence continues even after product release. Customers need to deploy, operate, and patch/update/upgrade products in an environment with defense-in-depth and over-time security controls commensurate with risk, while vendors need to respond appropriately when a security weakness is identified.

GE Digital’s SDLC process aligns to industry-published secure development standards such as the Microsoft SDL[1], OWASP[2], NIST 800-53[3] and others.

By focusing on best practices, we improve our security posture while still meeting the spirit and intent of broad requirements.

OVERVIEW

Balancing time-to-market and value with security

All development efforts are based on the following foundational principles:

- **Governance** in accordance with our 9001 Quality and 270001 Information Security Management Systems, associated internal and external audit program(s), and corresponding independent certifications
- Role-based **Secure Development Training** for developers
- **Software Change and Revision Control**, enforcing role-based access control and authorization to modify product code
- Utilizing **Continuous Integration / Continuous Deployment** to detect potential security issues when code changes are made
- Our SDLC process mandates that development programs for new product versions or entirely new products undertake the following:
  - The Product Manager and engineering team write **security requirements as user stories**, e.g. “As a system admin, I want to be able to enable MFA for specific user-groups to protect against password attacks”
  - **Manage use of 3rd party software** by consolidating functionality and versions, inventorying, updating, and performing license and vulnerability scans
  - **Threat Modeling** to identify risks early so critical concerns can be mitigated through design decisions
  - Performing a **Privacy by Design** assessment to ensure Personal Data / PII can be appropriately protected
  - Deriving **Technical Requirements** from user stories and putting them into actionable change or enhancement requests for developers
  - Leveraging **Automated Code Analysis** (static and/or dynamic) to automatically detect and report on potential bugs before new code is released
  - **Peer Code Reviews** with a security focus are performed since tools may not be able to identify well-written malicious code
  - Drafting a **Secure Deployment Guide** to instruct the end user on controlling residual risk
  - **Security Release Review and Sign Off** which ensures the appropriate steps outlined above were taken
  - Periodically commissioning **Independent Assessments or Penetration Testing**, based on factors such as a product’s risk rating or major changes
### Value Delivered

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<th>Independent Certification</th>
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<td>GE Digital is committed to continuous improvement, which necessarily includes our Secure Development Lifecycle processes and controls. For example, with the introduction of GDPR (General Data Protection Regulation) we added requirements to assess and document any privacy impact.</td>
<td>Using publicly available Secure Coding standards and guidelines eases GE Digital’s ability to share those practices with customers, onboard personnel coming from other development companies, and stay up to date as best-practices change. Such public standards also make the use of off-the-shelf analysis tools easier too, as custom rules don’t need to be maintained for scanning.</td>
<td>We’ve introduced several measures that places information about code security at the fingertips of developers so any new issues may be discovered early. Static code analysis software allows code scanning and a display of findings; the continual CI/CD pipeline builds can combine with dynamic and OSS (Open Source Software) vulnerability scanning to generate reports early and often as opposed to waiting until the end of the release cycle.</td>
<td>GE Digital has specialized teams perform internal penetration testing and partners with independent, 3rd-party organizations to perform penetration testing &amp; vulnerability assessments on a rotating basis. Testing considers factors such as likelihood and impact of compromise in the real world, recent architectural changes affecting technical risk, amount of time since last assessment and more</td>
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### Other Key Information Security & Compliance Offerings

- **Personnel & Training**
  - Partner with GE Digital knowing its experts are up to date with trainings in cyber security areas.

- **Open Source Software (OSS) Security**
  - GE’s Digital OSS Security strategy is largely meant to cover the four open-source software practices recommended by Microsoft and Address the risks raised in other industry guidelines.

- **Security Assessments**
  - The Secure Development Lifecycle (SDL) process is not complete until the software is assessed in an environment closely mirroring that of the intended customer.

- **Supply Chain Risk Management**
  - GE Digital takes its role as a supplier of systems seriously and has robust processes to ensure supply chain risk is assessed and managed.

GE Digital continues to evolve its established Secure Development Lifecycle policies, procedures, and processes to continually improve software security while balancing other KPIs such as usability, time to market, and cost.

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**Footnotes**

2. https://owasp.sm@r.com/model/

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