

System Security in the Automotive Industry



We can help you deliver secure, software-enabled automotive technologies that keep your passengers—and their data—safe at every turn

Overview

Modern vehicles are not only entrusted with the physical security of the passengers within them; they also act as mobile access points to sensitive personal data. Consequently, they represent a point of growing concern among drivers. As auto manufacturers increasingly rely on software to evolve the connected and autonomous vehicle landscape, they cannot afford to be complacent when it comes to application security, whether they develop applications in-house or obtain their software through a software supply chain. Weaknesses in source code, unpatched open source vulnerabilities, and inadequate application security practices serve as attack vectors for malicious hackers, putting your system at risk.

Make security a driving force during development and testing

Synopsys offers proven methodologies and automated solutions to strengthen your system security posture at every stage of the development life cycle and across your software supply chain. Our goal is to enable OEMs and Tier 1 and Tier 2 providers around the world to deliver secure, software-enabled automotive technologies that keep passengers—and their data—safe at every turn. We can help you automatically detect third-party components in source code and binaries, prioritize security vulnerabilities and licenses in use, and find critical defects and weaknesses in code during development. We also support the design phases of your development life cycle by identifying the design flaws, control defects, and asset vulnerabilities that define the overall risk to your system.

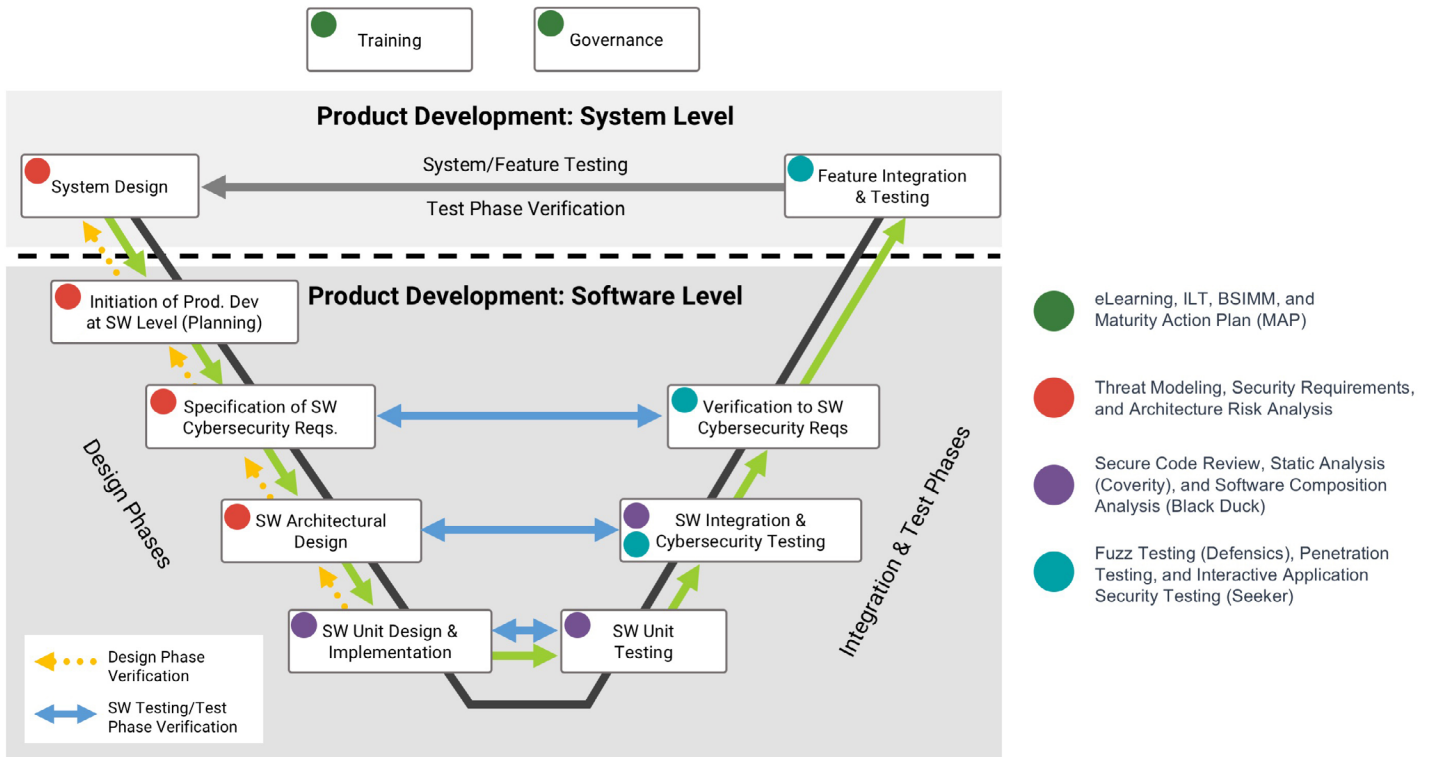
Manage risk across the development life cycle and supply chain

Our approach to system security in the automotive industry is grounded in the fundamentals of technology risk management. Synopsys supports the distinct needs of the automotive industry by performing critical activities for automotive organizations, including these:

- Bus analysis, fuzzing, capture, and reverse engineering
- Vehicle ecosystem threat modeling and architectural risk analysis
- Embedded code reviews, penetration testing, and reverse engineering
- Communications interface testing (onboard, wireless, dealer, manufacturing)
- Telematics, infotainment, and head-unit testing
- Certificate, encryption, key store analysis, and testing
- Program design and development
- Software security training

Addressing safety and security across development life cycles



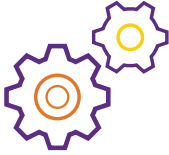



We understand your system development life cycle and the impact security has on safety and quality.



Achieve excellence in automotive system security

<p>Tools</p>	<p>Find vulnerabilities in your software stack with our industry-leading tools for static analysis (certified for ISO 26262; supports MISRA and AUTOSAR coding guidelines), fuzz/protocol testing (supports CAN, CAN-FD, etc.), interactive application security testing, and software composition analysis.</p> <p>Detect third-party and open source components in source code and binaries. Track and remediate vulnerabilities during development and in containers in production. Identify third-party licenses and set policies to avoid noncompliance.</p>
<p>Embedded penetration testing</p>	<p>Verify the functional and security performance of embedded systems (e.g., ECUs) and identify vulnerabilities in the embedded software stack.</p>
<p>Architecture and design</p>	<p>Find architectural, design, and system defects and flaws with security testing and threat modeling.</p>
<p>Training</p>	<p>Educate your developers to become more security aware with our security training courses delivered as instructor-led, eLearning, and virtual classes.</p>
<p>Build Security In programs</p>	<p>Assess your level of program maturity with the BSIMM, the Maturity Action Plan, security metrics, and our software security initiative programs.</p>

Define a strategy to address system risks

<p>Increase visibility</p>  <ul style="list-style-type: none"> Identify weaknesses and shortcomings in development and testing practices Distribute security insight throughout the SDLC and into production 	<p>Shift left</p>  <ul style="list-style-type: none"> Incorporate quality, security, and safety throughout the SDLC Detect early without slowing development 	<p>Automate</p>  <ul style="list-style-type: none"> Avoid delays and potential human failure with continuous testing Establish triggers, workflows, and policies 	<p>Manage and maintain</p>  <ul style="list-style-type: none"> Manage and monitor vulnerabilities and defects Track the transfer of risk throughout the software supply chain 	<p>Remove friction</p>  <ul style="list-style-type: none"> Build in security and quality Integrate into development workflows 	<p>Establish awareness</p>  <ul style="list-style-type: none"> Maximize security awareness among employees Augment security skill sets and share investment in the outcome
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Synopsys products

Coverity
Static Analysis

Black Duck
Software Composition Analysis

Seeker & Defensics
Dynamic Analysis

Synopsys services

Professional Services

Security Strategy and Planning

Managed Services

Auto industry participation

We are committed to the evolution and adoption of cyber security best practices in the automotive industry, and we practice our commitment by contributing to a range of industry groups.



THE SYNOPSYS DIFFERENCE

Synopsys helps development teams build secure, high-quality software, minimizing risks while maximizing speed and productivity. Synopsys, a recognized leader in application security, provides static analysis, software composition analysis, and dynamic analysis solutions that enable teams to quickly find and fix vulnerabilities and defects in proprietary code, open source components, and application behavior. With a combination of industry-leading tools, services, and expertise, only Synopsys helps organizations optimize security and quality in DevSecOps and throughout the software development life cycle.

For more information, go to www.synopsys.com/software.



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