

# 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.

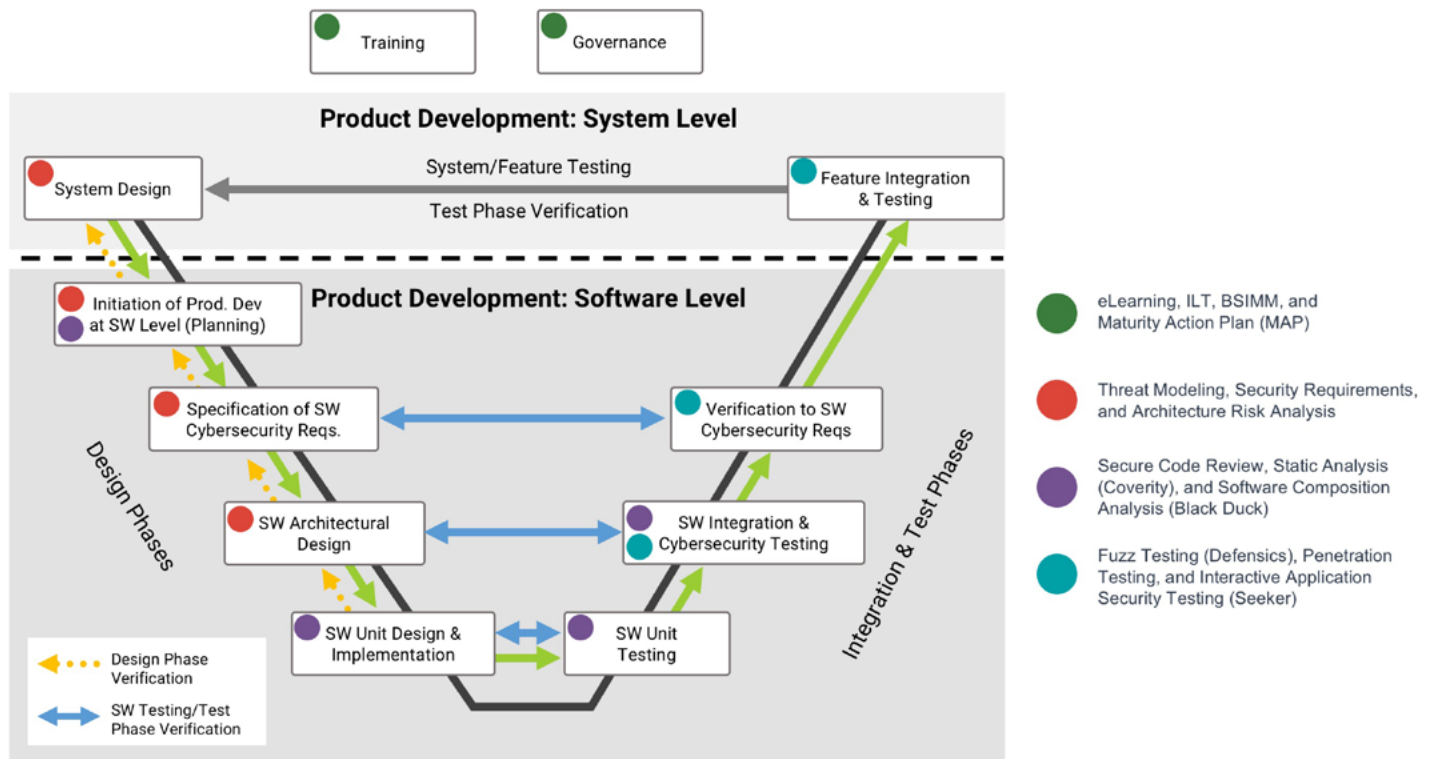
## Manage risk across the development life cycle and supply chain

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 software security

<b>Penetration testing</b>	Replicate the steps a threat agent takes to find vulnerabilities, and receive clear guidance on how to eliminate them in your server-side applications and APIs.
<b>Dynamic application security testing (DAST)</b>	Identify security vulnerabilities while web applications are running, without the need for source code.
<b>Mobile application security testing (MAST)</b>	Find vulnerabilities regardless of where they exist, including in client-side code, server-side code, third-party libraries, and underlying mobile platforms.
<b>Embedded application security testing (EAST)</b>	Verify the functional and security performance of embedded systems, and identify vulnerabilities in the embedded software stack.
<b>Software composition analysis (SCA)</b>	Detect third-party 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.
<b>Tools</b>	Synopsys provides industry-leading tools for software composition analysis, static code analysis, fuzz testing and protocol testing, and interactive security testing.
<b>Architecture and design</b>	Security testing and threat modeling help you find architectural, design, and system defects and flaws.
<b>Cloud security</b>	Run applications securely in the Cloud.
<b>Agile and CI/CD</b>	Build security into modern agile SDLCs.
<b>Training</b>	Synopsys creates security training courses delivered as instructor-led, eLearning, and virtual classes.
<b>Build Security In programs</b>	Synopsys offers the BSIMM, the Maturity Action Plan, security metrics, and software security initiative programs.

## Define a strategy to address system risks

### Increase visibility



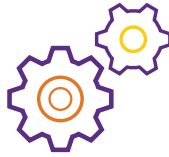
- Identify weaknesses and shortcomings in development and testing practices
- Distribute security insight throughout the SDLC and into production

### Shift left



- Incorporate quality, security, and safety throughout the SDLC
- Detect early without slowing development

### Automate



- Avoid delays and potential human failure with continuous testing
- Establish triggers, workflows, and policies

### Manage and maintain



- Manage and monitor vulnerabilities and defects
- Track the transfer of risk throughout the software supply chain

### Remove friction



- Build in security and quality
- Integrate into development workflows

### Establish awareness



- Maximize security awareness among employees
- Augment security skill sets and share investment in the outcome

## 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](http://www.synopsys.com/software).



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