

DATA SHEET

Automotive Penetration Testing

Comprehensive security assessments for automotive systems, from production vehicles to level four autonomous R&D prototypes, satisfying ISO/SAE 21434 requirements.

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Key Benefits

PREVENT THEFT & FAILURES

Prevent automobile theft, control failures, and accompanying regulatory issues

VERIFY FAIL-SAFE MECHANISMS

Verify the robustness of fail-safe mechanisms designed to protect vehicle occupants

PREPARE FOR AUTONOMOUS SYSTEMS

Prepare for the introduction of autonomous driving subsystems

Your Challenge

Your organization is introducing a new vehicle, supporting a specialized use-case, or adding a new feature or functionality to your offerings. You need to satisfy the penetration testing guidelines stipulated in ISO/SAE 21434, but more than that, you need assurance that your vehicles and components provide a safe operating experience.

Offensive Expertise Gap: While your internal security team is probably quite skilled, they are unlikely to have the offensive experience required to validate the defensive measures they have put in place.

Capabilities Overview

Praetorian's automotive assessments fall into two basic categories: targeted and broad. For both, we enumerate the designated attack surface from an adversarial perspective and prioritize attack paths based on risk profiles we develop with the client. We tailor these activities to satisfy regulatory requirements in ISO/SAE 21434 as well as provide the assurance our clients need.

During active testing, Praetorian engineers pair state-of-the-art tools with their offensive expertise to conduct deep analysis. They then use the results to implement credible attacks based on the client's goals. Some potential attacks include unlocking the vehicle, disabling the interlock, interfering with control systems, overriding restrictions built into infotainment systems, or compromising mobile application accounts.

Pragmatic Remediation: Following the active testing phase, Praetorian engineers work with the customer to develop pragmatic remediations that align with both security and business needs. Many security issues can be resolved through risk mitigation techniques and secondary security controls.

Assessment Types

TARGETED ASSESSMENT

Most useful when: You're introducing a new feature or functionality

We narrowly target a particular vehicle subsystem, such as fuzz testing of AUTOSAR-compliant ECUs or deep analysis of infotainment systems

BROAD ASSESSMENT

Most useful when: You're developing an R&D prototype or supporting a specialized use case

We conduct a broad-based assessment covering all elements of modern vehicles including ECUs, CAN networks, key fobs, mobile applications, and autonomous vehicle technology

Why Praetorian

Praetorian's clients gain maximum benefit from our deep technical expertise in automotive security. Our past work in this area has involved a variety of automotive platforms, ranging from production vehicles to level four autonomous R&D prototypes.

Past engagements have included all elements of modern vehicles, including ECUs, CAN networks, MISRA-compliant source code, key fobs, infotainment systems, mobile applications, and autonomous vehicle technology.

We pair that expertise with a focus on the client experience, tailoring each engagement to the client's business needs in order to provide actionable findings. You can rely on us to ask deep questions, work closely with your teams, and provide direct, clear feedback on what we find.

Who Needs This Service

- **OEMs** wanting to maintain good relationships with owners, dealers, regulatory agencies, and the public
- **Tier 1 suppliers** looking to provide trusted components at a competitive price
- **Regulatory agencies** seeking to understand risk and responsibilities in an evolving industry

Workflow



Deliverables

At the completion of the engagement, Praetorian experts provide the following:

Executive Summary

Concise explanation of engagement goals, significant findings, business impacts, and strategic recommendations. Upon request, a letter of attestation.

Engagement Outbrief

Similar to the executive summary, presented to the audience of your choosing for interactive discussion.

Technical Findings Report

Detailed description of issues and the methodology used to identify them, as well as an impact assessment for each finding.

About Praetorian

Praetorian is an offensive security engineering company whose mission is to make the digital world safer and more secure. Through expertise and engineering, Praetorian helps today's leading organizations solve complex cybersecurity problems across critical enterprise assets and product portfolios.

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Ready to Secure Your Automotive Systems?

Contact us today to discuss your Automotive Penetration Testing needs and discover how Praetorian can help you meet ISO/SAE 21434 requirements while ensuring vehicle safety.