



CASE STUDY



SECURITY TESTING: CASE STUDIES

altran

EXAMPLES OF IRM'S RECENT SECURITY TESTING PROJECTS

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Leading Automotive Supplier - ECUs Penetration Testing

Context and Objectives

- The organisation aimed to validate, verify and evaluate the engine control units (ECUs) with penetration testing
- They also aimed to conduct testing on infotainment systems (RCC & A-IVI) to test the in-vehicle infotainments several features such as audio, video, touchscreen, USB and smartphone connectivity

Approach and Deliverables

Three consultants were provided for four weeks using reverse engineering (Hardware & Software), vulnerability analysis and exploit proof of concept with a final recommendation proposal based on vulnerabilities found. The consultants performed grey box pen tests to identify major vulnerabilities. In the final report and recommendations process, we proposed a security mechanism and procedure updates to mitigate security risks.

Skills Exercised

- Penetration testing on automotive embedded system
- Software reverse engineering
- Hardware reverse engineering
- Wireless interfaces (Wi-Fi and Bluetooth) hacking
- CAN interface hacking
- USB interface hacking
- PCB Internal interfaces





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Leading Telecom Supplier - Security Hardening, Vulnerability Assessment and End-To-End Security

Context and Objectives

The company required security hardening, vulnerability assessment and end- to-end security implementation for a MEC (mobile edge computing) platform integrating with public clouds.

They were aiming to bring the compute environment near to the devices to provide low latency communication. As the MEC platform is exposed to internet, it was important to ensure the MEC platform is highly secure in all the ways. A stringent security system needed to be implemented on both ends of the MEC.

Approach and Deliverables

We were able to secure the exposed environments with VSRX & VMX, meaning all the incoming connections have to go through VSRX & VMX security which filters DDoS, Brute Force Attack, Bot Net Attack, Content and Port Filtering, Traffic Normalization & State full Inspection.

The MEC platform is now secured starting from the incoming requests to code vulnerabilities. The solution has been made completely secure and available for business.

Skills Exercised

- VMX Solutions for Source NAT, Auto Bandwidth , Session Based Routing
- Code Vulnerabilities and malicious activities solutions provided with Veracode and Protecode
- IDS (intrusion Detection System) solutions within the MEC provided using the SNORT

MORE THAN JUST AN 'IT PROJECT'...

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Jaguar Land Rover - Security By Design

Context and Objectives

The client required us to handle the security management of the Micro SOA framework for new generation of vehicle ECUs. Objectives included:

- Define product information security management plan
- Define ISMS organisation
- Define methodologies for SSI Risk Management (asset inventory and classification, risk analysis, risk assessment)
- Design and write security functions requirements
- Implement security assurance development plan
- Consolidate security evidences and build product security dossier
- Develop specific security evaluation tools (CAN protocol module for Scapy)
- Functional test and penetration test of Security measures Proof of Concepts

Approach and Deliverables

We involved highly-skilled technical experts to support with the definition of a security roadmap validation and optimised the project follow-up in Agile/ SCRUMM mode.

Skills Exercised

- Information security management ISO 27001 / ISO 27002
- Security Risk management (EBIOS 2010)
- Common Criteria & security assurance level
- MBSE
- PKI
- TPM
- Digital Signature
- Vehicle architecture (CAN protocol, ECUs, I/O concentrators, etc)
- Virtualization
- Penetration testing



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Driver & Vehicle Standards Agency - IT Health Check

Context and Objectives

The Driver Vehicle Standards Agency (DVSA) is an executive agency of the UK Department for Transport. It carries out driving tests and approves driving instructors and MOT testers as well as carrying out tests to ensure vehicles are road safe.

They underwent a significant digital transformation programme to provide better and more efficient services to the UK public.

The DVSA was required to engage with suitable qualified companies with the CESG CHECK certification that had sufficient capacity to meet their ongoing demand for security testing in a high-paced environment.

Approach and Deliverables

We provided ongoing testing resources as DVSA shifted significant elements of their infrastructure to cloud service providers through their cloud security testing methodologies and approach.

These projects have been significant in size (often in excess of 70 days) and have required careful project management throughout the delivery cycle. As a regular supplier, we have undertaken thorough security audits of the DVSA's infrastructure in place supporting the driver testing process – with large amounts of personal data being processed, this is a critical annual project which includes on-premise testing.

Due to our work with the DVSA, we've expanded our work with the Department for Transport family. The long-term relationship and our flexibility has allowed us to continue to work with the DVSA for the past 5 years



**Think cyber.
Think security.
Think data.**

For more information on our
cybersecurity services please contact:
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**SECURE CYBER
UNLOCK OPPORTUNITY.**