Securing connected vehicles is our specialty

We provide expertise in penetration testing, secure design, embedded security, cryptography, network infrastructure and more.

Your security, Assured.



A boutique IT security consultancy in Gothenburg, Sweden

www.assured.se

Ready for UN Regulation No. 155 and ISO/SAE 21434?

Our long experience in the security field makes us an excellent partner for ensuring you have carried out design, specification, component testing and system testing according to security industry best practice.

Being situated in Gothenburg, we have had the forefront of the automotive industry, research and development right by our doorstep since we started. Since then our expertise has been employed on the local as well as the international scene.

Infotainment and telematics

As vehicles become more and more dependent on being online with a plethora of connected services, our expertise in penetration testing, embedded security and network infrastructure is highly appreciated by manufacturers and developers of connected vehicles.

Infotainment and telematics systems are core components in modern vehicles. Their connectivity features contribute to the attack vector for external threats.

We specialize in finding vulnerabilities in these systems and proposing mitigations to improve security and making the vehicle compliant with UN Cybersecurity Regulation No. 155 and the ISO/SAE 21434 standard.

3 Observations 3.1 Unsigned firmware installed from

Willihood: MEDILM (5), Impact: HIGH (9)

access to the diagnostic USB port is able Anyone with physical to install a custom (potentially malicious) noftware update by plugging in a USB drive. The update is trivially encrypted, and a checksum is used to check its integrity. It has no signature mechanism to verify the so

We recommend using an industry-standard as the confidentiality of firmware images. Si includes steps taken for each individual merver with single-use credentials), it s mrivate key to each vehicle. The correspo encrypt the firmware update before deploy

3.2 Note Internal services listening

willhood LOW (1), Impact: LOW (1) the output of netstat shown in Example 1 indicates that all network services in infotainment Unit are reachable from a network interfaces. This can be a secu issum, if any of these services are intended to be for internal use only. wireless network on wiane is exposed on port 4444 is not meant for user o internal interface(s) it needs to fu

Vulnerabi Potential

that could not suffic or hardene

Vulnerabilit

Threats regain servers relat in the field.

USB device or OTA source

UN R155	Mitigation ID
Threat ID	M16
12	10,2

where of the update. ynmetric encryption method to ensurnce the current update flow already rehicle (starting a single-use SFTP hould be possible to issue a unique nding public key can then be used to as

ment.

on all interfaces

UN R155 Threat ID	Mitigation ID M23
nser. If the so ans, it should properly.	ervice daemon listen be restricted to th
	Threat ID 29

71

lity	t.	h	e		11	-	
vuln			-	-	-	-	_

vulnerabilities	Threat ID. Description
be exploited i iently protected	f 29. Network design introduces vulnerabili
	31. Unintered
y threat	31. Unintended transfer of data can accord
- in eat	Theese an
ding back-end ed to vehicles	Threat ID. Description 1. Back-end servers used as a means to attack a vehicle or extract data.
	 Services from back-end server being disrupted, affecting the operation of vehicle.
	3. Vehicle related data held on back-and servers being loss or compremised C'data

Be it an electric hypercar, a hybrid car-sharing platform, a self-driving truck, a connected bus for local transport or any type of vehicle in between: Assured's security consultants have the tools and qualified experience to assess the security of such vehicles.

Penetration test reports

Our penetration test reports for automotive security testing are constructed in a way that the issues reported: are easy to understand, reproduce and verify; are risk assessed according to recipients' needs; have a clear mitigation strategy; and relate to threats in UN R155 Annex 5.

We help our clients take their products from the design stage to production in a secure manner by assisting in threat modelling and risk analysis, protocol and application design reviews and implementation of security features. We assess and verify systems' security posture through penetration testing, code analysis and configuration reviews.

References

We've worked with several prominent parties in the automotive industry in shortterm projects, as long-term contractors and as research partners.

Assured enthusiastically participates in research projects into how vehicles and the automotive industry can be secured.

Get in touch if you want to know more!

Education and training

We offer a hands-on security workshop "CAN Hack!", for anyone with an interest in automotive security, hacking and embedded system security. Participants learn how a modern vehicle communicates and how to exploit vulnerable or weak implementations of security concepts. The workshop includes theory and practice with interesting challenges and a race for the win!

Assured also offers talks, training and workshops on everything from application security to cryptography and secure infrastructure.

About Assured

Our team of senior security specialists provide companies and organizations with world-class IT/information security competence. We base our consultancy on a shared passion for security.

We've found that working as a team is key not only to running a successful business, but also to delivering at the highest level for our customers. Everyone at Assured has a skillset and a personality which enhances this shared vision, it is absolutely vital for the work we do.

Security should be non-blocking and transparent. We apply these values not only in the work we deliver, but also in how we work internally.

To stay ahead of the game, we strive for continuous learning, invest in research projects and participate actively in the security community.

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Our office is conveniently located in central Gothenburg, Norra Allégatan 7. Come by for a coffee and say hello!