

# A Model for the Infrastructure of the Connected Car

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## **Abstract**

The connected car is a vehicle equipped with a wireless network gateway connecting the in-vehicle network to an external network. Today, the in-vehicle network consists of 50- 100 embedded computers called ECUs (Electronic Control Units) which is rapidly increasing. The introduction of wireless access to vehicles, introduces a number of security risks and threats to the vehicle, since the vehicle may now be accessed through an unwanted wireless connection or from the Internet. Therefore protocols already established for traditional vehicular services, using a cable connection to the vehicle, now has to be adapted securely for remote usage. On the other hand, by increasing vehicle complexity, and when more and more services become available, the work for securing them requires a holistic understanding of the full system. Having a model to describe and analyse the security of the infrastructure of the connected car for possible scenarios is essential. Without such a model, solutions tend to be limited or different security solutions may be implemented in each application.

In this presentation, we will present a model for the infrastructure of the connected car. The intention is that the model should help us understand the communication issues of the connected car and show how it can be used as a tool for various types of security analysis. To begin with, the environment of the connected car is introduced. Following, the proposed model for the infrastructure of the connected car is presented. And finally some scenarios, showing the usefulness of the model is discussed.