



Irdeto's Keys and Credentials: Providing the keys to the European Electric Vehicle Plug and Charge project



The Challenge

- Providing Public Key Infrastructure (PKI) technology for secure EV charging
- Ensuring the project complies with the ISO 15118-2 and ISO 15118-20 standards



The Product

- Irdeto Keys and Credentials
- Irdeto's Key Lifecycle Management Service



The Solution

- Intelligent, secure and effortless EV charging
- Enabling a global standard for charging electric vehicles



THE CUSTOMER

The Charging Interface Initiative e.V. (CharIN e.V.) is a non-profit association founded in 2015 to promote and set up a standardized, integrated, worldwide system for charging of electric vehicles (EVs). The Plug and Charge system is based on the ISO 15118 standards.

CharIN has 300 members dedicated to promoting interoperability based on the Combined Charging System as the global standard for charging vehicles of all kinds. CharIN members represent the entire value chain and include globally leading vehicle manufacturers (or Original Equipment Manufacturers), grid operators, Charging Station Operators, electric equipment manufacturers (Electric Vehicle Supply Equipment for the vehicle side, Supply Equipment Communication Controller for the charger side), mobility operators, payment processors, etc.

While originally started in Europe, the plan is to extend this initiative globally.



THE CHALLENGE

The goal of the Plug and Charge Europe project, announced by CharIN in 2021, was to set up a Public Key Infrastructure (PKI), a technology needed to efficiently enable secure authentication and authorization of electric vehicles via Plug and Charge. PKI must work in accordance with ISO 15118 and CharIN positioned itself as operator and provider of required services.

In order to be able to go ahead with their ambitious plan, CharIN needed a partner for the setup and operation of a Vehicle-to-Grid Root, its subordinate Certificate Authorities and associated services, such as Certificate Revocation Lists Distribution Points and Online Certificate Status Protocol Responders. CharIN released a request for proposal for Plug and Charge, setting into motion a bidding process to find a suitable partner.



THE SOLUTION

One of the proposals came from Irdeto, the world leader in digital cybersecurity. The company, which has 350 million embedded devices protected and a billion PKI certificates issued under its belt, offered its solution called Keys and Credentials. This managed security service enables secure authentication and authorization via Plug and Charge as per ISO 15118.

With respect to Irdeto's comprehensive proposal that balanced technological capacity, reliability and cost effectiveness, coupled with Irdeto's long and successful track record, the CharIN project team awarded the contract to Irdeto.

Irdeto developed a unique solution incorporating the ISO 15118-2 and ISO 15118-20 standards into a future-proofed industry-first PKI solution for the global EV market.



THE RESULTS

The Plug and Charge Europe project was launched in March 2021 with the commitment of 14 cross-industry companies within the CharIN community. By September 2022, the main goal to implement a PKI accepted throughout the industry has been achieved and the environment has gone into operation.

CharIN currently offers two versions of the system to its subscribers, based on the current standard ISO 15118-2 and published in April 2022, future-looking ISO 15118-20. Communication between parties within the ecosystem is secured via PKI X.509 certificates, issued to and installed in, e.g., EVs and charging stations. The PKI ensures secure authentication and authorization through certificate management and therefore serves as the highest trust certificate authority.

As the name of the process – Smart Charging – suggests, EV drivers only need to plug in a charging cable into their cars, with all the data on the customer's identity, tariffs and metering exchanged seamlessly and securely in the background. Additionally, current mobility needs are communicated to the charging infrastructure and the electricity grid, while pricing information and infrastructure capacity are communicated back to the EVs.

“Irdeto’s business model makes it extremely easy to scale up – and that is exactly what the growing EV market expects.” – says Bonjad Satvat, project lead of the CharIN Plug and Charge Europe project team. “Irdeto’s top quality service for one of the best-in-class prices has been the key to a successful launch of the Plug and Charge Europe project.”

Irdeto is the world leader in digital platform security offering cyber services and technology solutions that protect platforms, digital assets and software applications across multiple industries. Irdeto's products meet the rapidly changing mobility demands and exceed cybersecurity regulations for automotive, rail and beyond. We provide solutions throughout the product lifecycle to prevent cyberattacks and help protect assets for connected cars, commercial fleet, rail and construction equipment. With a rich heritage of security innovation and rapid adaptation to the changing demands of the cyber security space, Irdeto is the preferred partner to empower a secure world where people can connect with confidence.