Electric Vehicle ICT Interface Specifications

Terms, definitions and abbreviations

Version number:	Version 1.00
Date:	31/08/2015
Author:	eMI^3

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Version Control

Version history			
Version	**Date**	**Main author**	**Summary of changes**
0.1	08/08/2013	Silvio Weeren	First draft with first list
0.2	12/09/2013	Thomas Gereke	Review and add new content
0.3	25/09/2014	Gilles Bernard	Review and add new content
0.4	04/12/2014	Shantanu Kothavale	Review & completed the document
0.5	15/12/2014	Ludovic Coutant	Review and add new content
0.6	11/03/2015	Marco Marijewycz	Document review and integration of all inputs
0.7	16/03/2015	Kai Weber	Review and add new content
0.8	25/03/2015	Marco Marijewycz	Include Kai Weber comments
0.9	22/05/2015	Jean-Charles Pandazis	Include doc in eMI³ template and revise content
1.0	31/08/2015	Jean-Charles Pandazis	Smart Charging definition postponed to next release

	Name	**Date**
Prepared	Jean-Charles Pandazis	31/08/2015
Reviewed	eMI³ Steering Board	30/09/2015
Authorised	eMI³ Steering Board	30/09/2015

Circulation	
Recipient	**Date of submission**
Public	16/11/2015

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Introduction

eMI3 specification was developed in accordance with the procedures of the eMI3 group. This group has been formed to enable global Electric Vehicle (EV) services interoperability by harmonizing existing and preparing standardization of future ICT data standards & protocols including security and privacy. This document provides an overview of the specifications provided and planned serving a specific goal to support the EV industry to drive broader EV adoption and to facilitate the creation of advanced services for a seamless EV driver experience. These specifications are a result of input from various stakeholders (via liaison or membership of eMI3). These stakeholders include EV driver communities, governmental/regulatory bodies, standards development organizations, EV charging network service providers, Electric Vehicle Supply Equipment[1] (EVSE) manufacturers, OEMs and electric utilities.

Each member remains free to adopt protocols and technology best suited for its own service goals, internal architecture, and business requirements. This approach respects the system, administrative, and organizational boundaries inherent in any diverse collection of independently operated networks, while allowing each network to innovate and provide consumer value. By addressing interconnection at the network level rather than device level, system scaling is greatly improved and interoperation is simplified by having a smaller number of hierarchically organized interconnection points

This document presents all terms and definition used in the context of eMI3.

More information on eMI3 can be found on http://emi3group.com,

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[1] Including charging stations and charging points.

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Terms, Definitions and Abbreviations

Access Control List

In the context of eMI3 standards, an access control list is a list of user identities to whom a certain access (authorization) policy applies. An example of an ACL is a blacklist: any user in such a list is to be denied access to the service. Another example is a whitelist: any user in a whitelist is to be granted access to the service. More complex authorization control may be managed in the future with access control lists.

Accreditation

Accreditation is the independent evaluation of conformity assessment bodies against recognized standards to carry out specific activities to ensure their impartiality and competence. Through the application of national and international standards, government, procurers and consumers can have confidence in the calibration and test results, inspection reports and certifications provided

Actor

A logical functional entity who interacts with the system, providing stimuli to which the system responds. A person or system component can be an actor in a system.

Actor (alternate definition)

information systems or components of information systems that produce, manage, or act on information associated with operational activities in the enterprise

Augmented Backus-Naur Form (ABNF)

A standard notation used to define the syntax of an identifier or protocol specification.

Authentication

Authentication is the validation of an Identity, through a process of determining that an actor is really who they claim to be.

Authorization

Authorization determines if a specific authenticated identity is given access to a specific function, resource or service.

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Basic Charge

The simplest form of EV charging service, where the EVSE enables charge to flow with a rated maximum power to the EV upon connection (and optionally subject to authentication and authorization), and disables the flow of charge upon disconnect or an external trigger (such as a button press or a command transmitted to the EVSE).

Basic End User Service

A Basic End User Service is a business service that will have to be supported discrimination free to every actor participating in the interoperability organization. Basic End User Services are a "MUST" in order to provide the minimum functionality for electric mobility.

Blacklist

A blacklist is an Access Control List that identifies users who are to be denied access to the service.

Business Object

A business object is a data representation of an entity in the system, that describes names, attributes, relationships, behaviour and other properties of the entity

Business Object (alternative definition)

A business object is a container for application data that represents a single actor, entity, material device or contract. The object contains fields (attributes) that minimally have a name, type, value and cardinality. For example, the business object that represents a charging station has attributes that provide information about its location, power rating, connector type(s), availability etc.

Business Partner

Any party that is registered at an eMobility Marketplace acts as Business Partner. They can act as Service Provider and/or as Service Requester.

Business To Business (B2B)

The exchange, consumption and delivery of information and services between two businesses, rather than a business and a consumer (B2C).

Call of a Service

A call occurs when a Service Requester "consumes" the EV Service based on the conditions of a Service Contract.

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Capacity Market (Area)

A market area where the transmission capacity between the Market Balance Areas is given to the Balance Responsible Parties in a price based process separated from trading carried out by a Transmission Capacity Allocator. Trade between Market Balance Areas is carried out on a bilateral or unilateral basis.
For example The auctioning system between TenneT and RWE Net.

Additional information: This is a type of Market Area

(Source: ENTSO-E Generic Role Model)

Central Station Directory

A charging station directory repository that contains the complete and authoritative listing of static data for the business objects charging pool, charging station and EVSE. It may be the single point of query by Search and Find Providers.

Charge Detail Record (CDR)

A set of data gathering all elements of a charging session (including, but not limited to customer identification, pole identification, and charging information)

Charge Profile

The set of data describing the main characteristics of the electrical load curve for an EV charging event (power as a function of time).

Chargeplan

A schedule of a sequence of charging events (possibly interspersed with periods of no charging), executed by the EV (if intelligent) or EVSE to smart charge an EV. The chargeplan is setup and negotiated by the Smart Charging Provider.

Chargeplan envelope

See MPAP

Chargeplan executer

An actor that executes the chargeplan. This could be the EV or the EVSE (limiting the power or pausing the charging e.g. for non-smart EVs)

Charging details description

Charging transaction description is the detailed record of EV charge and all pieces of information allowing invoicing of the recharge price.

Charging pole description

Charging pole description is the set data (including IDs) that will allow service providers to perform the services related to EV charging systems

Charging Event/Interval

A charging event or charging interval is a time interval during which the flow of charge exceeds a configurable threshold value. A charging session is composed of a sequence of charging events/intervals interspersed with intervals during which the flow of charge is below the configured threshold.

Charging event

A subset of a charging session, for which the charging parameters (including charging profile) have been negotiated by different actors, possibly through communication between the EV and EVSE. For a charging session where the EV and EVSE do not communicate, a charging event may simply be described as a period of charging or a period of no charging. Thus a charging session consists of a number of continuous charging events, during which energy may or may not be transferred.

Charging Session

A charging session is a unit of charging service consumption. It starts when the EV is connected to the EVSE (and if required, authorized). It ends when the EV is disconnected, or by some other well-defined event (different providers may select different terminating conditions, depending upon whether they bill consumers for parking without charging). During the charging session, the EV consumes different services, including energy and parking/occupancy. The EV user may be billed by session, or by the consumption of energy/occupancy that took place during the session, or some other mechanism.

Charging Station Directory

A business object which describe the properties and characteristics of an EV charging station, including but not limited to its geographic location and its capabilities.

Charging Station ID

A charging station identifier is a globally unique identifier associated with a single charging station.

Clearing House

A Clearing House within the eMI3 context of electric mobility provides real-time services which enable roaming. Two scenarios are reflected, the contractual clearing and the financial clearing (which can be on top of the contractual clearing). For example, clearing services can be consumed by EVSE operators when asking for validation of customers (contract clearing) and forwarding Service Detail Records. EVSPs can register, update and delete new contracts of their customers via the Marketplace, of which the Clearing House is a member.

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Cleartext

Cleartext refers to information that is stored or transmitted without encrypting it.

Coexistence

The ability of two or more devices, regardless of manufacturer, to operate independently of one another in the same system, or to operate together using some or all of the same communications protocols, without interfering with the functioning of other devices in the same system.

Companion Specifications

Project specific companion specifications will be required to achieve product level interoperability, that specify what standards are used, what alternatives have to be taken and which options need to be supported by communication entities used in the given system

Compliance

Accordance of the whole implementation with specified requirements or standards. However, some requirements in the specified standards may not be implemented.

Component

A object used in the SG.

Component (non-SG-specific definition)

An integral part of a system, providing a specific subset of the system's function. A component may be comprised of hardware, software or a combination thereof.

Conformance

Accordance of the implementation of a product, process or service with all specified requirements or standards. Additional features to those in the requirements/standards may be included. Note: a conformant implementation is also compliant, but a compliant implementation may not be conformant.

Conformance testing

The act of determining to what extent a single implementation conforms to the individual requirements of its base standard.

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Conformity assessment

Conformity assessment: Processes that are used to demonstrate that a product (tangible) or a service or a management system or body meets specified requirements. Assessment may be conducted by 1st, 2nd or 3rd parties depending if the activities are performed by the vendor, the purchaser/user or by a party independent from the vendor and from the purchaser/user respectively

Congestion Management

Congestion occurs when the energy demand exceeds the energy supply. Congestion management is the process by which congestion is minimized and power transmission capacity is efficiently allocated and used. This is about the efficient use and allocation of Power Transmission capacity. This is a task of Distribution System Operators (DSO's) for the Mid/Low Voltage domain, and Transmission System Operators (TSO's) for the High Voltage Domain.

Contactless Authorization

Authorization of a user by means of a contactless card that identifies the user, and is read by a contactless card reader at the EVSE or an authorization kiosk.

Contracting

A Business Partner can accept a Service Contract Offering from a Service Provider, which generates a Service Contract.

Core Service

A Core Service is a basic service that is required to run the GeM Marketplace and a service that is shared and used by the Value Added Services, Clearing House Service and End User Services.

Credential

A credential is something that provides evidence of an actor's authority or credit, during the authorization process. For example, a credit card provides evidence that its owner has credit.

Customer Energy Management System (CEMS)

A Customer Energy Management System is a service or device that interfaces to energy-consuming devices within a given grid perimeter, to meters, to the delivery point of another grid (e.g. DSO grid) and to the energy market in order to make decisions about efficient energy consumption. It may be a home energy management device, a building or facility energy management system, or a subscription service provided by an Energy Retailer or other provider.

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Data integrity

Ability of a communications system to deliver data from its source to its destination with an acceptable and measurable residual error rate.

Data security

Prevention of one or more of the following:

Data security 1

- unauthorized access to information within a data stream;

Data security 2

- unauthorized alteration of information within a data stream;

Data security 3

- unauthorized generation of messages which could be taken as valid by the receiving equipment

Data security 4

- denial of service

Delivery

The act of providing a service based on an existing Service Contract.

Demand Response (DR)

The act of changing the energy consumption of an end-user in reaction(response) to a request (demand) from service providers such as the energy provider, DSO, and flexibility operator. The request may explicitly state the requested change, or implicitly stimulate change (by price signals).

Deployment of methodology

The way in which the IOP methodology will be implemented and applied in praxis

Distribution System Operator (DSO)

The organization that designs, operates and maintains the public distribution grid through which charging spots are supplied. The charging spots are connected to a private grid (home, building, installation site…) connected to DSO grid through a delivery point.

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Dynamic Data / Dynamic Content

This refers to data that changes frequently over time, such as the availability of a charging station.

Electricity Retailer

Supplier of electricity to the charging station according to a contract with EVSE Operator or EVSP

Electricity Roaming

Electricity Roaming refeers to the mecchanisms set in place in order to ensure an EV driver in a roaming situation to get his energy from his prefered Electricity Retailer (specified in his contract with his EVSP).

Emergency Service Center

Emergency Service Center

eMobility/Electromobility

eMobility refers to road transportation based on plug-in electric powertrains. To enable eMobility, EV charging infrastructure must be deployed to enable Evs to charge ubiquitously.

eMobility Account

An EV user may subscribe to EV services provided by an EV Service Provider. An Electromobility account is a unique relationship between the service consumer (EV user) and the Service Provider

eMobility Account Identifier (eMA ID)

An eMobility Account Identifier uniquely identifies an account served by a specific EV Service Provider.

eMobility Operator

The entity with which the customer has a contract for all services related to the EV operation NOTE 1 Typically the eMobility operator will include some of the other actors, like spot operator or energy provider, and has a close relationship with the distribution system operator and meter operator. An OEM or utility could also fulfil such a role. NOTE 2 The eMobility operator authenticates contract IDs from its customers received either from the eMobility operator clearing house, other eMobility operators or spot operators it is in relation with

eMobility services

Services like charging, search & find, routing services are collectively known as eMobility Services.

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eMobility Token

An eMobility token is the physical or non-physical device provided by the EVSP, to allow a customer to be authenticated and consume the EVSP's services, such as charging an EV.

eMobility Token Identifier (eMT ID)

An eMT ID uniquely identifies an eMobility Token and refers to one unique eMA.

Energy Clearing House (ECH)

Clearing house responsible for energy demand and response clearing and enabling energy services (preferred over DCH)

(Energy) Markets

The Markets conceptual domain is defined by the roles and actors that support the trade in electricity (e.g. on day ahead power exchanges) and other electricity products (e.g. grid capacity, ancillary services). It is reflecting the market operations that are possible along the energy conversion chain, e.g. energy trading, mass market, retail market. Sub-domains which are identified in this domain are: Energy Market (e.g. commodity market), Grid Capacity Market (e.g. Transmission capacity market), and Flexibility Market (e.g. Imbalance market). Activities in the Markets domain are coordinated by the Operations domain to ensure the 715 stable and safe operation of the power system.

[Reference here is made to the Smart Grid Coordination Group (SGCG) European Conceptual Model for the Smart Grid. (ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/HotTopics/SmartGrids/SGCG_Methodology_Overview.pdf)]

Energy Services

The Energy Services conceptual domain is defined by roles and actors involved in providing energy services to the Grid Users conceptual domain. These services include balancing & trading of electricity generated, used or stored by the Grid Users domain, and ensuring that the activities in the Grid Users domain are coordinated in e.g. the system balancing mechanisms and customer information services (CIS) systems.

Through the Energy Services conceptual domain, the Grid Users conceptual domain is connected to activities such as trade and system balancing. From the Grid Users domain, flexibility in power supply and demand is provided. This flexibility is used for system balancing (through e.g. ancillary services, demand response, etc.) and trading on the market. Additionally, roles related to trade in grid capacity are included.

The roles and actors from the Energy Services conceptual domain facilitate participation in the electricity system, by representing the Grid Users conceptual domain in operations (e.g. balance responsibility) and markets (trading).

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(ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/HotTopics/SmartGrids/SGCG_Methodology_Overview.pdf)]

EV (Electric Vehicle)

A plug-in (hybrid or pure) electric vehicle

EV Charging Network

EVSEs are frequently operated and managed as a collection of distributed devices in a branded network. These networks have relationships with the site owners on which EVSEs are deployed, and work on behalf of the site owners to manage delivery of EV charging and other services. In some instances, EV charging networks may own the EV charging equipment and may have rights to the property on which the equipment resides. EV charging networks may also have relationships with the EV drivers, and may provide consolidated account management and billing of services rendered. Services to EV drivers may be rendered not only "in-network", but also on "off-network". In short, EV charging networks help bridge the gap between entities wishing to offer EV charging (i.e., supply-side) and EV drivers wishing to use EV charging (i.e., demand-side).

EV Charging Network Service Provider (EVCSP)

The EVCSP is the functional entity within EV charging networks that is responsible for operating EV charging stations. It is the entity with relationship to the EVCS and site owners. The EVCSP manages electricity delivery with coordination with the electricity producers, the regional/site distribution networks, and the EV driver.

EV Charging Station

A device that contains one more more EVSEs, an HMI and other components required to provide EV charging.

EV Driver

Human, currently driving the Vehicle (ex EV User)

EV Marketplace

EV Marketplace is a marketplace within the EV Service Market which serves as a semi-open environment for offering services by Service Providers to Service Requesters.

EV Owner

Legal owner of the EV, or the subscriber of a leasing or credit contract on the EV. In the eMI3 documents, "EV Owner" is used to mean the actor who is consuming the EVSP Services on behalf of the EV Customer (the EV Owner may or may not be the same as the EVSP Customer).

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EV Roaming

Roaming of EV related services will occur when a service is contracted between consumer A and provider B, but is delivered to consumer A by provider C, based on a contract between provider B and provider C.

EV Service

EV Services are all the service related to Electric Mobility.

EV Service Market

The EV Service Market is a virtual domain comprising all the services related to Electric Mobility. It describes the whole ecosystem for EV Services. The EV Service Market consists of End User Service Providers (Service Requesters), Service Providers and any number of Marketplaces. If there are several marketplaces, they can be completely independent or interconnected and can be organized in any type of structure.

EVCC Electric Vehicle Communication Controller

embedded system, within the vehicle, that implements the communication between the vehicle and the SECC in order to support specific functions

EVSE (Electric Vehicle Supply Equipment)

is used to exchange energy between the EV and the Grid . This can be both "slow chargers", "fast chargers" and "battery switch stations". Even a simple plug is regarded as EVSE

EVSE Operator Backend

Backend, administrative systems of the EVSE Operator, as opposed to frontend, on-site systems that communicate directly with EV's

Electric Vehicle Supply Equipment Identifier (EVSE-ID)

An EV driver is essentially connecting the car to an EVSE. In Authentication process, a link between the eMA Id and the EVSE is mandatory. Therefore a global ID for EVSE is defined.

EVSE Operator

in charge of managing the EVSEs

EVSE Operator Identifier

Global Spot Operator ID refers to the registration of operators, via attribution of a global identifier. The combination of "Country Code" and "Spot Operator ID" is unique and is called "Global Spot operator ID"

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EVSE Pairing

An ICT process whereby an EV and an EVSE discover each other's presence, and verify that they are physically and electrically connected to each other. The purpose of this process is to unambigously bind the EVSE providing charge to the EV that is consuming that charge.

EVSE Pool

A set of charging stations, aggregated together due to some common property (geographic location, controller, administrative owner). In some implementations, an EV user searching for a charging station may be directed to an EVSE pool, and be able to use any charging station in the pool.

EVSE Pool ID

A unique identifier for an EVSE Pool.

Electric Vehicle Service Provider (EVSP)

Offers eMobility services to the end customers (may include charging, search & find, routing and other services)

EVSP Account

A relationship between an EV user and an EVSP, used to authenticate the user, authorize him for services he is entitled to, and bill him for the services rendered.

EVSP Backend

Backend, administrative systems of the EVSP

EVSP Customer

The consumer of services provided by an EVSP, such as Search & Find and EV Charging. The customer may be associated with one or more EVs, and one or more EV drivers.

Financial Clearing

We can imagine of two different clearing strategies. For both strategies the EVSPs have to reveal more contractual details to the Clearing House than in the Contractual Clearing. To be concrete, the EVSPs have to send the applied price plan for each customer to the Clearing House, so that the later can calculate a weekly or monthly amount for the charging at one particular EVSP. Alternatively, the EVSPs built up bilateral contracts which define the amount which has to be paid if a customer of one EVSP charges at the other EVSP. The result is the same in the end. The Clearing House has to know how much one EVSP charges for the foreign charging of another EVSP'

Fleet manager

Organization that manages a fleet of EV's

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Flexibility Operator

A bundle of roles from [HEM-RM 2011] which links the role party connected to the grid and its possibility to 195 provide flexibilities to the conceptual domains energy services and operations; generic role that could be 196 taken by many stakeholders, such as an Energy Service Company (ESCO) or an energy supplier. [Adapted 197 from [SGCG/Sustainable Processes] to match the terminology in the Conceptual Model].

Function

Process which constantly or at defined intervals, automatically or on demand, performs specific activities. It is defined by its input, behaviour and output.

Functional requirements

Describe what functions have to be addressed by components, (sub)systems connected and involved in the IO configuration (relation to profile?)

Functional requirements

Description what functions have to be addressed by components or connected (sub)systems.

GeM Marketplace

The GeM Marketplace is semi-open B2B Marketplace within the EV Service Market. All Business Partner in the eco system may offer their EV Services on the GeM Marketplace that can be bought by any Business Partner. The EV Services may be created and hosted at the GeM Marketplace (Service Creation and Service Execution).

Generic System

A generic system describes what different distinctive systems have in common by applying defined principles

Global service provider ID

Global Service Provider ID refers to the registration of service providers, via attribution of a global identifier
The combination of "Country Code" and "Service Provider ID" is unique and is called "Global service provider ID"

Grid Operator (GOP)

The term Grid Operator refers to a Transmission System Operator, a Distribution System Operator or a local grid operator (e.g. CEMS)

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GWAC (GridWise) Interoperability Framework

Also known as the GWAC Stack, addresses the different layers identifying all interfaces that can have IO issues

Hashed Token

A value that has been obtained by computing a cryptographic hash function of the original (cleartext) value, and is used instead of the cleartext value, in order to prevent the cleartext value from falling into the wrong hands.

Home Charging

Charging at home, restricted to authorization by the inhabitant, no electronic authentication needed

Home EVSP

primary EVSP with contract using eMA ID

Human Machine Interface (HMI)

interface allowing the vehicle user to receive information relative to the charging process and provide input to the charging system

Identification

Identification is the basic step of connecting a Business Object, Actor, Event and Service with a technically valid Unique Identifier.

Incompatibility

The inability of two or more devices to work together in the same system.

Interchangeability

The ability of two or more devices or components to be interchanged without making changes to other devices or components in the same system and without degradation in system performance

Inter-connectability

The ability of two or more devices, regardless of manufacturer, to interact using the same communication protocols or communication interface.

Interface

Point or means of interaction between two systems

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Inter-Operability (IOP)

The ability of two or more networks, systems, devices, applications, or components to interwork, to exchange and use information in order to perform required functions

Interworkability

The ability of two or more devices to function within a system recognizing that it may be necessary to reprogram applications or communications. e.g. used for migration purposes.

IOP certification

The process that will provide a certificate by an accredited body if IOP is according to a distinct profile

IOP concept

Generic arrangement (principles applied) how to realize IOP in a specific situation (refer to the layers in GWAC Stack)

IOP level

Maturity levels explained in the SGIMM

IOP methodology

Methods and steps that can be applied to realize Inter Operability in a given situation

IOP testing

Interoperability testing should be performed to verify that communicating entities within a system are interoperable, i.e. they are able to exchange information in a semantically correct way. During interoperability testing, entities are tested against peer entities known to be correct. (profiles)

IOP testing process

Describing Workflow of testing from input to output and the actual procedures, tasks and responsibilities

Marketplace

A platform where EVSE and EVSP upload their service offering and business objects in relation with them.

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Marketplace

A virtual market where services and information are exchanged, consumed and provided by its participants through electronic messaging. It may be implemented as a centralized system with a broker handling all transactions between participants, or a decentralized system with participants communicating directly with each other.

Marketplace Operator

Operates the platform and communications, and manages access to and working of the marketplace

MIFARE card

A brand name for a range of proximity contactless identification cards that are compliant with ISO/IEC 14443

Minimum Charging Period

The Minimum Charging Period is the time required to achieve a specified battery charging level.

Mobility Clearing House (MCH)

Clearing house responsible for contractual clearing and enabling mobility services

Navigation Provider

may be separate to S&F provider

Near Field Communication (NFC)

A set of standards specifying uni- and bi-directional messaging between devices using radio communication over small distances. It is used for access, authorization and billing purposes, typically using a NFC-enabled smart card or smart phone.

Object

Entity treated in a process of design, engineering, realization, operation, maintenance, dismantling and disposal. NOTE 1 The object may refer to a physical or non-physical "thing" that might exist, exists or did exist.

OEM

Manufacturers of electric vehicles and charging equipment

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Persistence

The property of an object, by which it remains valid and unchanged for some well-defined minimum time period. A persistent identifier is one that remains valid and identifies an object and its data records, even after the object is no longer in active use.

Point of Delivery POD

A location that the Transmission Service Provider specifies on its transmission system where an Interchange Transaction leaves or a Load-Serving Entity receives its energy

(Source: Openei.org)

Power Line Communications

A mechanism of transferring data over an electric conductor that is simultaneously being used to transfer power.

Power Outlet

A receptacle in an EVSE, into which an EV's charging connector can be plugged to allow electricity to flow.

Power / Socket Outlet ID?

An identifier for a power outlet, unique within a charging station.

Plug and Play

The ability to add a new component to a system and have it work automatically without having to do any technical analysis or manual configuration.

Process

Logically linked sequence of tasks that enables a system to achieve particular objectives.

Profile

A profile defines a subset of specifications based on standards and how these are to be used. Options within the standards that will be used and how and which extensions might be needed may together be defined within the profile.

Public Charging

Public charging refers to EV charging at a charging station that is physically accessible to everyone, and whose charging service is available to everyone.

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Public Sector

EU commission, National government, local government, municipalities

Pull

A method of communication in which the data transfer to the data consumer is initiated by the data provider, without an explicit request from the consumer

Push

A method of communication in which the data transfer to the data consumer is initiated by the consumer, which sends a request to the data provider.

Quality Assurance Process

Working process around achieving the state of Inter-Operability of components, (sub)systems connected to each other

Quality Assurance Process

Working process around achieving the state of Inter-Operability of components, (sub)systems connected to each other (the process secures transparency and witness-ability that everything went according to the rules)

QR Code

QR code (abbreviated from Quick Response Code) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. / Source: Wikipedia

Requirement

A necessary capability, characteristic or quality of a system in order for it to have value and utility to a user.

Reservation

The ability of an EVSP customer to reserve the use of an EVSE for a pre-specified time period. The EVSP customer may be charged a fee for this service.

Radio Frequency Identification (RFID)

RFID (Radio Frequency Identification) can be defined as follows: Automatic identification technology which uses radio-frequency electromagnetic fields to identify objects carrying tags when they come close to a reader.

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Roaming

See EV Roaming

Search & Find Provider

A Search & Find Provider provides the capability to its consumers, to obtain fine-grained or aggregated time-invariant and time-varying information about charging stations matching query criteria. The interaction with the EV driver is always provided by an EVSP

Search & Find Provider

A service provider that enables searching of charging station databases in order to find stations matching the criteria required by the consumer.

Supply Equipment Communication Controller (SECC)

implements the communication to one or multiple EVCCs

Semi-public charging

When charging at a charging station is restricted to a subset of EV users, it is called semi-public charging.

Security

Measures that protect and defend information and information systems by assuring their confidentiality, integrity, access controls, availability and accuracy.

Security requirements

Methods and measures to be applied in systems connected and how these should be handled in the IOP Methodology

Semantic IOP issues

Semantic, meaning and explanation of single words used for describing IOP issues /subjects /phenomenon (Semantic: meaning)

Service Broker

A Service Broker is a software infrastructure component that connects Service Requester and Service Providers

Service Contract

A Service Contract is bilateral contract between the Service Provider and the Service Requester. It is created if a Service Requester accepts the Service Contract Offering of a Service Provider.

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Service Contract Offering

A Service Contract Offering is created by the Service Provider during a service registration process. The provider chooses all the required modules and additional optional modules from the service contract framework. The service contract offering is the base for a Service Contract between Service Provider and Service Requester.

Service Detail Record (SDR)

A data record that corresponds to a single use of a charging service, i.e. to a single charging session. The record contains information that can be used to identify the consumer of the service, and consumption data that can be used to compute the billing for the service.

Service Kiosk

A service kiosk is a standalone component separate from the EVCS which houses the authentication device and may provide other service functions like account management, station directories, etc.. The service kiosk may have other functions including service information display, selection of an EVCS to provide service, or processing other forms of payment. The service kiosk will usually not dispense electricity as a service

Service Level Agreement

 A formal, negotiated document that defines (or attempts to define) in quantitative (and perhaps qualitative) terms the service being offered to a Customer. Confusion must be avoided over whether the quantitative definitions constitute thresholds for an acceptable service, targets to which the supplier should aspire or expectations that the supplier would strive to exceed. Any metrics included in a Service Level Agreement (SLA) should be capable of being measured on a regular basis and the SLA should record by whom. Typically it will cover: service hours, service availability. Customer support levels, throughputs and responsiveness, restrictions, functionality and the service levels to be provided in a contingency. It may also include information on security, charges and terminology.

(Source: http://www.knowledgetransfer.net/dictionary/ITIL/en/Service_Level_Agreement.htm)

Service Provider

Business Partner that offers and sells EV Services on the marketplace

Service Provider

Any Business Partner of the EV Marketplace that offers and sells EV Services on the EV Marketplace.

Service Requester

Business Partner that consumes EV Services on the Marketplace

Service Requester

A Business Partner of the EV Marketplace that consumes EV Services on the EV Marketplace.

Smart Grid Architecture Model (SGAM)

The Smart Grid Architecture Model, the 3D- Model for SG mapping

SGIMM

The Smart Grid Inter-Operability Maturity Model applied together with the GWAC Stack IOP Layers

Smart Charging

This term will be defined in the next release of the eMI³ standard

Smart Charging Provider/Operator

This term will be defined in the next release of the eMI³ standard

Smart Grid

Electricity network that intelligently integrates the behaviour and actions of all users connected to it – generators, consumers and those that do both – in order to efficiently ensure a more sustainable, economic and secure electricity supply

Smart Grid Application (Domain)

The different (sub) systems that can be identified where SG technologies are applied, i.e.: Generation, Transmission, Distribution, DER and Customer premises

Socket Outlet

See socket outlet

Socket Outlet ID

See power outlet id

Spot Operator (see also EVCSO)

ref to ISO, = EVSE Operator
Spot Operator ID

The Spot Operator ID iste a unique ID issued in a country and identifies an EVSE Operator.

State of Charge SoC

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EV Battery SOC is defined as the measure of the energy in the battery. It can be more formally defined as the ratio of the available capacity of the battery to the nominal maximum capacity of the battery, expressed as a percentage. The SOC is the EV analogue of the fuel gauge of an ICE vehicle.

Static Data

Data that does not vary with time, such as the geographic location of a charging station.

Subsystem

Part of the total system which contributes to a certain functionality. A portion of a system which fulfils a specialized function - assembly of components. The following terms describe common sub-systems: a) monitor and control sub-system (Abbreviation: MCM) - logic and control component(s) that supervise(s) the overall operation of the system by controlling the interaction between all sub-systems. b) photovoltaic generator sub-system - components that convert light energy into electricity using the PV effect. c) power conditioning sub-system -component(s) that convert(s) electricity from one form into another form that is suitable for the intended application. NOTE A power conditioning sub-system could include a charge regulator that converts DC to DC, an inverter that converts DC to AC, or a charger or rectifier that converts AC to DC. d) safety disconnect control and monitoring sub-system - component(s) that monitor(s) utility grid conditions and open(s) a safety disconnect for out-of-bound conditions. e) storage sub-system - component(s) that store(s) energy

Syntactic IOP Issues

Definition of IOP issues/subjects/situations by using the right words and expressions (Syntactic: structure)

System

Set of interrelated objects considered in a defined context as a whole and separated from their environment performing tasks under behave of a service.

System

A combination of components/subsystems arranged to perform a specific function, a set of sub-systems which interact according to a design

Technical Requirements

Specify the technical characteristics of single component and/or single (sub)systems and/or specify the way systems exchange information and interact (control or are controlled)

Test specifications

Document describing the requirements of testing process and specific tests to be performed

Third Party Service Provider

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An actor which provides access to third party data

Token

A token is a physical device containing or generating information used for authentication.

Token ID / eMobility Token ID (eMT ID)

The eMT ID is used for authorisation (e.g. at a charging station) with the aim to link to the EV driver's eMA ID. One eMT ID provides a unique link to one eMA ID.
The eMT ID can be used to identify any identification token for e-mobility. The eMT ID is expected to be unique but not linked to a country or operator/provider.

Balance Responsible Party

A party that has a contract proving financial security and identifying balance responsibility with the Imbalance Settlement Responsible of the Market Balance Area entitling the party to operate in the market. This is the only role allowing a party to nominate energy on a wholesale level.

Additional information: The meaning of the word "balance" in this context signifies that that the quantity contracted to provide or to consume must be equal to the quantity really provided or consumed.

Equivalent to "Program responsible party" in the Netherlands.
Equivalent to "Balance group manager" in Germany.
Equivalent to "market agent" in Spain.

(Source: ENTSO-E Generic Role Model)

Transmission System Operator (TSO)

A party that is responsible for a stable power system operation (including the organisation of physical balance) through a transmission grid in a geographical area. The System Operator will also determine and be responsible for cross border capacity and exchanges. If necessary he may reduce allocated capacity to ensure operational stability.

Transmission as mentioned above means "the transport of electricity on the extra high or high voltage network with a view to its delivery to final customers or to distributors. Operation of transmission includes as well the tasks of system operation concerning its management of energy flows, reliability of the system and availability of all necessary system services". (definition taken from the ENTSO-E RGCE Operation handbook Glossary).
Note: additional obligations may be imposed through local market rules.

UID

In MIFARE contactless cards, UID refers to a unique identifier encoded on the card

UUID

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A universally unique identifier (UUID) is an identifier standard used in software construction. A UUID is simply a 128-bit value. The meaning of each bit is defined by any of several variants.

Use Case

Description of the interaction between one or more actors, represented as a sequence of simple steps. NOTE 1 Actors are entities that exist outside the system ('black box') under study, and which take part in a sequence of activities in a dialogue with the system to achieve a specific goal. Actors may be end users, other systems, or hardware devices. NOTE 2 Each Use Case is a complete series of events, described from the point of view of the actor.

Use Case Actor

Entity involved in a Use Case, e.g. organizations (Consumer, Distribution Network Operator, Read Data Recipient, etc.) and/or systems (HES, CIS, DC, Meter, Gateway, etc.)

Use Case Diagram

Type of behavioural diagram generated using the Unified Modelling Language (UML) and defined by and created from a Use-case analysis. NOTE 1 The purpose of a Use Case Diagram is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. NOTE 2 The main function of a use case diagram is to demonstrate what system functions are performed for which actor. Roles of the actors in the system can be thus depicted.

User identification (user id)

User identification is the set of IDs that will allow a User to have EV charged on a pole and a contract owner to be charged for this.

UTF-8

A variable-width encoding that can represent every character in the Unicode character set, and is backward-compatible with ASCII.

Value Added Service

Value Added Service (VAS) is not absolutely necessary in order to realize electric mobility, but they will make life easier. Value Added Services are designed in order to generate value for a stakeholder in the system and might be charged.

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Vehicle Driver

Human, currently driving the Vehicle

Vehicle Original Equipment Manufacturer (OEM)

The manufacturer of an EV

Vehicle OEM Backend

Software System that communicates with an EV, to provide services to the EV and EV user, and to relay charging-related data to other actors (e.g. Energy Retailer)

Vehicle To Grid (V2G)

A system in which EVs communicate with the electric grid to participate directly in demand response programs and to supply energy to the grid.

Vehicle To Home (V2H)

A system in which EVs communicate with the home energy system, and can supply energy to the home.

Version of eMI3 implementation rules

EV market is just beginning. eMI3 implementation rules may change in a few years. That's the reason why it is important to introduce an index of eMI3 rules

WGI Scope

Sets the boundaries of the work for Inter Operability Working Group

WGI Targets

What WGI wants to obtain/deliverables related to time schedule

Whitelist

A blacklist is an Access Control List that identifies users that are to be granted access to the service.

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