IDACS

ID and Data Collection for Sustainable fuels in Europe

Report

Deliverable 1.1.1 *Development of a format for the establishment of the first 5-digits of the e-mobility IDs for CPOs and EMPs*

Deliverable 1.1.2 *Report on the usefulness of having an EU wide format for the remaining digits of the e-mobility codes*

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Main author	Michel Bayings
Reviewers	Anneke Bosma, Netherlands Enterprise Agency Suzan Reitsma, Netherlands Enterprise Agency Hielke Schurer, Netherlands Enterprise Agency

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Introduction

This document describes the agreed ID format for Service Providers and Charge Point Operators for contracts and charge stations.

This document covers **Deliverable 1.1.1** (First 5 digits from e-mobility ID) and **Deliverable 1.1.2** (EU-wide format for remaining digits of e-mobility IDs) from the IDACS project.

1.1 Process

The project partners have to decide on the first 5 digits of the ID format and agree on a proposal for the second part of the ID format. The concept of IDs, why they are needed and what the first part and second part is, will be explained in next paragraphs and chapters.

Agreement on the format is based on reaching consensus with all consortium members. The following process was followed:

1. The concept of the IDs has been explained
2. The current format is explained and discussed
3. Discussions with consortium members and in the participating countries resulted in feedback on the current format with pros and cons – they have been described
4. Conclusions have been drawn taking into account all feedback
5. The result is an agreement on format for first and second part of the IDs and the next steps.

The above mentioned process, in which each step is explained, is also part of the deliverables.

1.2 Reason for IDs

Unique IDs for organisations that manage charge stations (Charge Point Operators) or offer charge services to EV drivers (Service Providers) are needed to identify these organisation for international billing and data exchange. For example:

- An EV driver has a charge card from company A. This company has a roaming agreement with several charge point operators to enable their customers to charge at these networks.
    - When this EV driver want to charge at a charge point from operator Z, this operator must check if they have a roaming agreement with service provider A. So they must be able to identify the service provider.
    - Before, during and after charging all kind of data is exchanged between service provider A and charge point from operator Z:
        - Before: location and availability
        - During: information about status of the charge session
        - After: transaction information for billing
- A large part of the data exchange is done via IT systems. These systems need unique IDs from the organisations to setup the connections and data exchange.

The Unique IDs from charge point operators are also used in the National Access Point to connect a charge station to the operator; otherwise several charge stations could have the same identifier which makes it impossible for IT systems to deal with. These unique IDs are also used in all kind of navigation systems to find the right charge points.

IDs are only for identifying companies and their assets. Nothing else. It is pure an identifier.

The next chapter explains the two different IDs in more detail.

Two ID Types

To identify contracts from EV drivers and charge points that can be used by EV drivers, it is needed to recognise the owner of contracts and operator of charge points, as described in chapter 1.2.

For these purposes two type of IDs were created:

1. ID for EV driver contract (EMAID – E-mobility Account Identifier)
   - This comparable with IBAN code from a bank card
   - Currently* consist of:
     - Country ID
     - Service Provider ID
     - Contract ID (one contract can contain several individual tokens/cards)
2. Electric Vehicle Supply Equipment ID (EVSE-ID)
   - To identify a charge station
   - Currently* consists of:
     - Country ID
     - Operator ID
     - Charge point ID or EVSE ID (one station can have several charge points)

(= current used format in several countries and by several organisations in Europe: Format / Syntax based on ISO 15118 & eMI3 standard)*

Figure 1 below shows how the two types are currently used in practice:

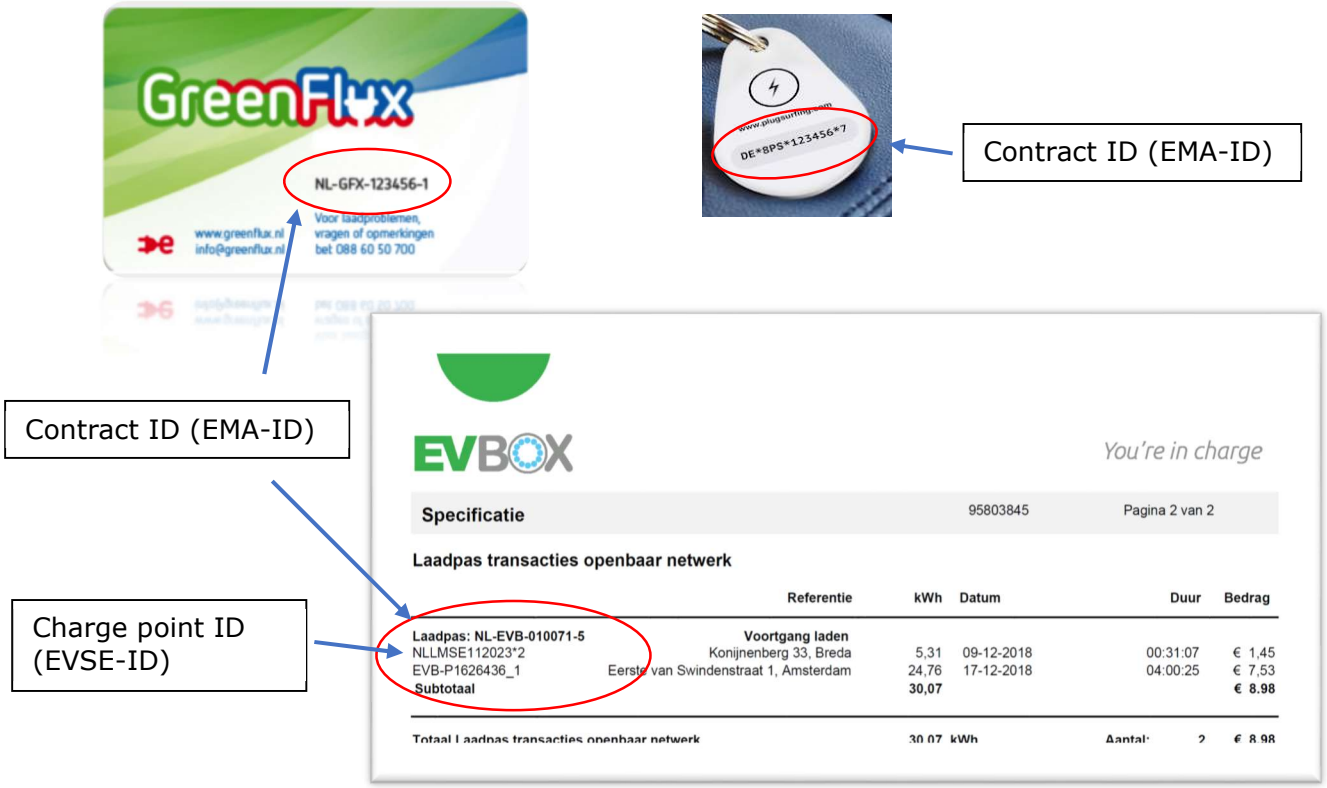

Figure 1: Explanation of the two types of IDs that are currently in use

Current Format

1.3 ID Setup

Since several years there is an ID syntax format which is agreed by important organisations in 4 countries, used in approximately 10 countries and approximately used by 1200 organisations (CPO & MSP) in Europe.
These 4 countries and organisations are:

- The Netherlands, with organisation eViolin
- France, with organisations Afirev and Gireve
- Germany, with organisation BDEW
- Austria, with organisation Austrian Mobile Power.

ISO and international organisation eMI3 agreed with this format. eMI3 specified and clarified some characters of the ISO 15118-2:2014 code.
The following overview describes the existing format.

Issued by:	ID Registation Organisations (IDRO)				Emobility Provider (EMP)			
Description	Country	Separator	EMP	Separator	Type	Contract ID instance	Separator	Check digit
Example	AT	"-"	EVB	"-"	C	12A23GHI	"-"	3
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-2]{2}	**optional** [-]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	**optional** [-]{1}	1 character type identifier (alphanumeric) [A-Z]{1}	8 characters (alphanumeric) [A-Z;a-z;0-9]{8}	**optional** [-]{1}	**Optional** calculated check digit [0-9]{1}

part one — part two

Issued by:	ID Registation Organisations (IDRO)				Charge point operator / unit (CPO)	
Description	Country	Separator	CPO or LOC	Separator	Type	Charge point ID
Example	FR	"*"	EDF	"*"	E	2542AX8769
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-] {2}	**optional** [*]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	**optional** [*]{1}	1 character type identifier E for EVSE or P for Pool (alphanumeric) [A-Z]{1}	Up to 30 characters (alphanumeric) [A-Z;a-z;0-9]{max 30}
	= optional					

part one — part two

Deliverable 1.1.1 — Deliverable 1.1.2

Figure 1: Existing ID format, before IDACS project started

This format is also used by the Sustainable Transport Forum (STF), Sub-group on electro mobility services (SGEMS)

1.2 Feedback on current ID format

During the discussions about the ID format with consortium members from the project, several remarks and limitations about the current ID format were made. In random order, the main comments were:

1. The 3 character company abbreviation after the country code, makes it hard to keep them unique and the same in all countries. With 3 characters, codes can look similar and big possibility that the code of a company is already in use for a different country with different country code
2. **Optional separators are confusing** as some use it and some do not. More and more companies do not use them at all.
3. **The check digit** after the ID of the contract is optional, which makes it unclear if used or not. The current standard states: "Optional but highly recommended", which is unclear.
4. When new insights would result in **different versions** of the ID setup, they cannot be identified – which makes **updates hard to do**.

The main positive feedback was:

1. For the setup of and ID Registration organisation, a change in format is **not needed**
2. Already over a thousand **organisations in Europe use the existing format**
3. **The impact on IT systems** from users of existing codes can be large, when you change the code – even if the exiting codes can still be used they must change their systems to accept also a new setup.

1.3 Proposed new ID format

A new format/ID setup is proposed as result of the feedback with the aim:

- To show an alternative, taking into account the issues with current setup
- To support active discussion

As the new proposed format was finally not the outcome of the discussion (there was no consensus about it), it is not further described and presented in this document.

1.4 ID format conclusions

Taking into account all feedback (positive and negative) on the current ID setup and format (part 1 with 5 characters and part 2 with remaining characters), the following conclusions have been drawn:

- The current used format/syntax is used by many CPOs and MSPs
- Many companies are satisfied with current format
- There are market companies that discern several limitations and have certain desires concerning the current ID setup
- Currently no common agreement is expected on short term on an alternative ID format and a majority of consortium members see no need for it
- ID issuing in Europe is crucial and needs to be done in or on behalf of all countries

- For ID issuing organisations, the format is not an obstacle – every format can be issued, although agreement between these organisations about the used and issued format is important.
- The transition to an alternative format requires international alignment with market players and possibly with standardization bodies.

Decision on ID format part 1 (first 5 characters) and 2 (remaining characters)

During IDACS Consortium meeting which was held on the 22nd of May 2019 and follow up meeting on 19th November 2019, the following decisions have been made and agreed upon:

- Agreement to use the current format for part 1 and 2 as this is adequate for European ID issuing and usable for the market.
- It is strongly advised companies NOT to use the optional separators between IT systems. They are meant for visibility only. It is up to individual companies how to display the IDs and where which separators are put.
- Leave it up to Mobility Service Provider (MSP) to use or not use the 'Check digit', as it is mainly for their own benefits and usage and it has no impact on connected organisations, like CPOs.
- The 'Type character' must be used in all new situations for Contracts with "C" as 'type character', and at least an EVSE ID is needed for all charge points with "E" as 'type character'. If the CPO or Location owners is also using the IDs for Pools or Stations is up to the CPO. If used that way a "P" or "S" must be used.
- The IDACS consortium acknowledge that possible changes in the future can be processed based on consensus.

This result in the following agreed ID format:

Issued by:	ID Registation Organisations (IDRO)				Emobility Provider			
Description	Country	Separator	EMP	Separator	Type	Contract ID instance	Separator	Check digit
Example	AT	"-"	EVB	"-"	C	12A23GHI	"-"	3
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-2]{2}	**optional** [-]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	**optional** [-]{1}	1 character type identifier (alphanumeric) [A-Z]{1}	8 characters (alphanumeric) [A-Z;a-z;0-9]{8}	**optional** [-]{1}	**optional** calculated check digit [0-9]{1}
	part one					part two		

Issued by:	ID Registation Organisations (IDRO)				Charge point operator / unit	
Description	Country	Separator	CPO or LOC	Separator	Type	Charge point ID
Example	FR	"*"	EDF	"*"	E	2542AX8769
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-] {2}	**optional** [*]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	**optional** [*]{1}	1 character type identifier E for EVSE or P for Pool or S for Station (alphanumeric) [A-Z]{1}	Up to 30 characters (alphanumeric) [A-Z;a-z;0-9]{max 30}
	= optional, but strong advice not to use it between IT systems but only for visibility					
	= optional, and used for helpdesk or internal MSP checks. Usage up to MSP					
	= obliged to use (non optional) at least at EVSE level and Contract level					
	= obliged to use					
	part one				part two	

Figure 2: Updated agreed ID formats

Annex 1: Syntax IDs for MSPs and their contracts

(Also and more extensively explained by eMI3 deliverable: V1.0 Electric Vehicle ICT Interface Specifications: Part 2 Business Objects)

The Electric Mobility Account (eMA) ID MUST match the following structure – this is used for identifying MSPs and their contracts:

(the notation corresponds to the augmented Backus-Naur Form (ABNF) as defined in RFC 5234):

<eMA ID> = <Country Code> <S> <Provider ID> <S> <ID Type> <Contract ID-Instance> <S> <Check Digit>

Explanation:
<Country Code> = 2 ALPHA; two character country code according to ISO-3166-1 (Alpha-2-Code)

<Provider ID> = 3 (ALPHA / DIGIT); three alphanumeric characters, referring to the MSP

<ID Type> = "C"; one character "C" indicating that this ID represents a reference to a "Contract"

<Contract ID Instance> = 8 (ALPHA / DIGIT); eight alphanumeric characters referring to the internal service contract between MSP and its customer

<Check Digit> = *1 (ALPHA / DIGIT); Optional, for own MSP usage to verify valid contract codes

<S> = *1 ("-"); optional separator, but advised not to use it between IT systems and only for visibility purposes

ALPHA = %x41-5A / %x61-7A; according to RFC 5234 (7-Bit ASCII)

DIGIT = %x30-39; according to RFC 5234 (7-Bit ASCII)

An example for a valid eMA ID therefore is "DE8AACA2B3C4D5L" or with dashes "DE-8AA-CA2B3C4D5-L".

Note: This identifier definition is a more precise interpretation of ISO/ IEC 15118 eMA ID Id in a sense that ISO/IEC 15118 eMA ID is proposing an instance of 9 Alpha/digits.

Alpha characters SHALL be interpreted case insensitively.

Annex 2: Syntax IDs for CPOs, Location Owners and the charge points or Electric Vehicle Supply Equipment ID (EVSE ID)

(Also and more extensively explained by eMI3 deliverable: V1.0 Electric Vehicle ICT Interface Specifications: Part 2 Business Objects)

The EVSE ID MUST match the following structure (the notation corresponds to the augmented Backus-Naur Form (ABNF) as defined in RFC5234):

<EVSE ID> = <Country Code> <S> <CPO or Loc owner ID> <S> <ID Type> <Charge Point ID>

Explanation:
<Country Code> = 2 ALPHA; two character country code according to ISO-3166-1 (Alpha-2-Code)

<CPO or Location Owner ID> = 3 (ALPHA / DIGIT); three alphanumeric characters, referring to the EVSE Operator or Location Owner

<ID Type> = "E" for EVSE (Charge point), "S" for Charge Station, P for Charge Pool; one character indicating that this ID represents an "EVSE", "Station" or "Pool".

<Charge Point ID> = 1-30 (ALPHA / DIGIT); between 1 and 30 sequence of alphanumeric characters, allowing the EVSE Operator (CPO) to identify one specific EVSE. In case of "Station" it refers to identify the station (which can have one or more charge points. In case of "Pool" it refers to a charge pool.

A charge point MUST have an ID, Pools and Stations are up to the owners/operators.

<S> = *1 ("*"); optional separator, but advised not to use it between IT systems and only for visibility purposes

ALPHA = %x41-5A / %x61-7A; according to RFC 5234 (7-Bit ASCII)
DIGIT = %x30-39; according to RFC 5234 (7-Bit ASCII)

An example for, a valid EVSE ID is "FRA23E45B78C" with "FR" indicating France, "A23" representing a particular EVSE Operator, "E" indicating that it is of type "EVSE" and "45B78C" representing the power outlet ID, that is to say one of its EVSEs.

NOTE: In contrast to the eMA ID, no check digit is specified for the EVSE ID.

Alpha characters SHALL be interpreted case insensitively.

Annex 3: Check digit & ID validator tool

Calculation:
http://www.ochp.eu/wp-content/uploads/2014/02/E-Mobility-IDs_EVCOID_Check-Digit-Calculation_Explanation.pdf

Template for calculation and verification check digit:
http://www.ochp.eu/wp-content/uploads/2014/02/E-Mobility-IDs_EVCOID_Check-Digit-Calculation_Template_20140205.xls

Online ID Validator:
http://www.ochp.eu/id-validator/