EV Roam ID Guidance

September 2020

The UK's EV Chargepoint ID Registration Organisation

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1. Introduction

In 2019, several countries met to discuss the format of e-Mobility Service Provider (MSP) and Charge Point Operator (CPO) IDs, at the request of the EU as part of the EU ID and Data Collection for Sustainable fuels in Europe (IDACS) project[1]. Their conclusions form the basis for the setup of ID Registration Organisations (IDROs) in all participating countries who have agreed that they will register the IDs in line with the agreed format and conforming to the agreed rules. This is particularly relevant for charging companies using the Open Charge Point Interface (OCPI).

This document describes in detail the agreed ID format for MSPs for customer contracts and billing, and for CPOs for charge points, charge stations and charge pools. It also sets out the agreed rules.

1.1 Rationale for IDs

EV Roam, the IDRO in the United Kingdom, issues MSPs and CPOs with a unique, 5-character ID in the agreed format. The MSPs and CPOs use these unique 5-character IDs to create longer, individual identifiers, for each MSP customer contract and for each chargepoint, charge station and/or charge pool operated by the CPO. Having these unique identifiers means the MSPs and CPOs can exchange data, allowing for a seamless charging and billing experience for the EV driver.

The ID works as an identifier only, helping to identify businesses and their charging assets or their charging customers. Without these unique identifiers MSPs and/or CPOs could have the same identifiers meaning relevant IT systems would not be able to deal with the exchange of data accurately.

1.2 MSP ID

Once an MSP has its 5-character ID registered by EV Roam, it will issue a further longer number for each customer contract which comprises a set of alphanumeric characters in the format agreed by the IDACS project and set out below. The full ID is known as an e-Mobility Account Identifier (eMA-ID). Where an MSP has a roaming agreement with a CPO, a customer's eMA-ID allows them to charge at a chargepoint operated by the CPO and be billed accurately for that charge by their MSP.

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[1] Countries involved in the IDACS Project include: Netherlands, Spain, Belgium, Luxemberg, Austria, Czech Republic, Slovenia, Poland, Portugal, Germany, croatia, Lithuania, Hungary, France and Greece.

1.3 CPO ID

Once a CPO has its 5-character ID registered by EV Roam, it will issue a further longer number for each chargepoint, charge station and/or charge pool it operates, which comprises a set of alphanumeric characters in the format agreed by the IDACS project and set out below. The full ID is known as an Electric Vehicle Supply Equipment ID (EVSE-ID). Where a CPO has a roaming agreement with an MSP, this EVSE-ID allows the MSP's customers to find out real-time data about the CPO's chargepoints, including location, availability, and available payment methods.

1.4 How does it all work?

Before, during and after charging, data is exchanged between the relevant MSP and CPO. The data exchanged before, during and after charging comprises:

- **Before charging** - information about the location and availability of a chargepoint, showing an MSP's customers where they can charge, whether the chargepoint is available and operational, and how they will be able to pay at the chargepoint e.g. credit card, pay as you go, RFID cards etc.;
- **During charging** - information about the status of the charge session in real time; this affects the availability data available to any future customers;
- **After charging** - information about the customer's charging session to allow the MSP to bill that customer accurately.

A large part of the data exchange is done via IT systems and does not interfere with the customer's charging experience. These systems need the CPO and MSP to have unique IDs so that they can first set up the connections and then manage the exchange of data.

Example

- Mr EV has a charge card from MSP 'A'. This card is linked to Mr EV's unique eMA-ID.
- MSP 'A' has a roaming agreement with several CPOs to enable its customers to charge at any of these CPOs' networks. One of these CPOs is CPO Z.
- Mr EV wants to charge his car at a chargepoint operated by CPO Z.
- Because of MSP A and CPO Z's roaming agreement and CPO Z's unique EVSE-IDs, Mr EV can check where CPO Z's charging stations are located, whether they are in use and in operation, and how payment can be made.
- Once Mr EV arrives at CPO Z's charging station, CPO Z can identify Mr EV as a customer of MSP A using his eMA-ID and send MSP A Mr EV's charging information.
- MSP A can then bill Mr EV for that charge in the manner agreed between MSP A and Mr EV.

1.5 National Access Point

A CPO's unique ID is also used in the National Access Point[2] to connect a charge station to the CPO and to collect data. Collecting this data facilitates access to, and the easy exchange and reuse of, transport-related data. This is intended to help support the provision of EU-wide interoperable travel and traffic services for end-users. The fact that each CPO has a unique ID for each of its charge stations allows the relevant IT systems to deal with the exchange of data accurately.

For more information on the National Access Point see here.

The next section provides more detail about eMA-IDs and EVSE-IDs.

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[2] The Dept of Transport currently runs the UK's National Access Point (https://www.wearefuturegov.com/work/department-for-transport-national-access-point)

2. Two ID Types

As discussed above, MSPs issue eMA-IDs for each of their customer contracts and CPOs issue EVSE-IDs for each of their chargepoints, charge stations and charge pools. This section provides more information about the format of eMA-IDs and EVSE-IDs.

2.1 eMA-IDs

eMA-IDs consist of the 5 characters allocated by the IDRO, and a further set of alphanumeric characters in the format set out below.

An EV driver's customer contract clearly shows their eMA-ID which is like a bank account number. An MSP will allocate an EV driver with charge cards/ charge tokens for them to use at chargepoints. When scanned at a chargepoint before charging, the CPO can identify who the customer is and which MSP they have a contract with. An EV driver's customer contract may be linked to several individual charge cards/ charge tokens.

eMA-ID Format

Allocated by IDRO	Country code	e.g. GB
	MSP's unique ID	e.g. 1BC
Allocated by MSP	Type character 'C'	Identifying that the ID is a contract ID
	Unique contract ID	8 alphanumeric characters
	Check digit (optional)	1 alphanumeric character- for MSP's own usage to verify valid contract codes, has no impact on connected organisations.

Example eMA-ID Format

An example of a valid eMA-ID is **GB1BCCA2B3C4D5L** (or with dashes **GB-1BC-CA2B3C4D5-L**) with 'GB' representing United Kingdom, '1BC' representing the MSP, 'C' representing the contract, 'A2B3C4D5' representing the unique contract ID and 'L' representing the Check digit. Please note that it is strongly advised that companies do NOT use the optional separators within IT systems. They are meant for visibility only. It is up to individual companies to decide how to display the IDs and where which separators are put. eMA-IDs are not case sensitive.

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		

This format is the current format already in use in several EU countries and by several organisations in Europe. Format / Syntax based on ISO 15118 & eMI3 standard.

2.2 EVSE-IDs

EVSE-IDs consist of the 5 characters allocated by the IDRO and a further set of alphanumeric characters in the format agreed by the IDACS project.

One charging station can have several chargepoints each of which has its own EVSE-ID.

EVSE-ID Format

Allocated by IDRO	Country code	e.g. GB
	CPO's unique ID	e.g. 1BC
Allocated by CPO	'Type' character	'E' for chargepoint 'S' for charge station 'P' for charge pool
	Charge point ID	up to 30 alphanumeric characters, uniquely identifies the specific EVSE.

Example EVSE-ID format

An example of a valid EVSE-ID is **GB1BCE45B78C** (or **GB*1BC*E45B78C** with separators) with 'GB' indicating United Kingdom, '1BC' representing a particular CPO, 'E' indicating that it is of type charge point and '45B78C' representing the unique EVSE-ID. Please note that it is strongly advised that companies do NOT use the optional separators within 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. EVSE-IDs are not case sensitive.

Issued by:	ID Registation Organisations (IDRO)				Charge point operator / unit	
Description	Country	Seperator	CPO or LOC	Seperator	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 and only for visibility	
	= optional, and used for helpdesk or internal MSP checks. Usage up to MSP	
	= obliged to use (non optional) at least on EVSE level and Contract level	
	= obliged to use	

part one   part two

This format is the current format already in use in several EU countries and by several organisations in Europe. Format / Syntax based on ISO 15118 & eMI3 standard.

Figure 1 below shows how the two types of ID are currently used in practice.

3. General rules

Below are the general rules, agreed by the parties to the IDACS, that apply to IDs. These rules should not be confused with the EV Roam Terms which manage the relationship between the administrator of EV Roam, Renewable Energy Assurance Ltd, and organisations registered with EV Roam.

1. The MSP and CPOs and/or location owners requesting an ID must be a legal entity, meaning a natural or legal person. An IDRO may issue a CPO Location Owner with an ID in the agreed format. A Location Owner is defined as an entity that owns a charging station/ pool who may appoint a CPO to manage that station or pool. The Location Owner may change the CPO which operates their station/ pool without having to change the ID. Where a Location Owner requests an ID, the IDRO must request the applicant to specify:
    1.1.   the identity and contact address of the location owner of these charging stations
    1.2.   the identity and contact address of the CPO which operates the Charging Station.
2. The legal entity requesting an ID shall request its first ID in the country where they are legally based.
3. The legal entity requesting an ID may be legally based in a different country than where the ID is requested.
4. EVSE IDs (IDs for chargepoints) can be used in other countries, as it is only an identifier. Any laws or regulations that might be applicable can be based on the country location of an EVSE and should not be based on the country code.
5. A legal entity can request multiple IDs.
6. Legal entities that are both MSPs and CPOs need 2 IDs: a provider ID for the MSP role used on contracts, and an operator ID to identify charge points. The IDs can use the same 5 character code allocated by the IDRO as the different purpose of the code is specified via the 'Type' character in the IDs. That string of characters must remain unique to the company. An identical ID cannot be given to more than one organisation.
7. An IDRO may charge an applicant to issue and maintain the IDs; this can be a one-time fee and/or an annual fee. IDROs are free to do this as long as any fees are clearly set out at the point of application.
8. MSP IDs and CPO IDs are only valid when published on the IDRO's website. Other IDs may not be used.
9. If an ID is not used for 12 months or more, the IDRO may reissue the ID to another organisation.
10. An ID cannot be sold or transferred to a third party.

Please note that rules 9 and 10 are not yet formally approved by the IDACS project.

The IDACS consortium acknowledges that possible changes in the future could be processed based on a consensus.

Annex 1: Syntax 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 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 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 for CPOs, Location Owners, and the charge points or Electric Vehicle Supply Equipment

(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 CPO 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 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 CPO, "E" indicating that it is of type "EVSE" and "45B78C" representing the Charge Point 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/