

Open intercharge Protocol

Release Notes

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1 Introduction

This document aims to provide an overview of all changes implemented with the release of version 2.2 of the OICP protocol. In the Chapters that follow, the respective changes in comparison to OICP 2.1 are highlighted to provide a quick overview of the affected services and data fields. For detailed descriptions, please refer to the full-blown OICP 2.2 specification also available for download on the Hsubject website (see <https://www.hsubject.com/downloads/oicp/>). Please note that the leading document for a fully compliant implementation of OICP 2.2 is the full-blown OICP 2.2 document rather than this document. Also, this document serves as a revision of the initial Release Notes published in July 2017 and supersedes the contents of the July 2017 document.

OICP 2.2 Changes on Endpoint Level

2 OICP 2.2 Changes on Endpoint Level

Beginning with OICP 2.1, service endpoints are versioned individually and independent of the OICP version. The table below gives an overview of all web services upgraded with the release of OICP 2.2 (note: all existing services experienced endpoint changes with the release of OICP 2.2). Please note that the eRoamingDynamicPricing service listed below is a completely new service that did not exist in OICP 2.1.

Service	Version in OICP 2.1	Version in OICP 2.2
eRoamingAuthorization	2.0	2.1
eRoamingReservation	1.0	1.1
eRoamingEvseData	2.1	2.2
eRoamingEvseStatus	2.0	2.1
eRoamingAuthenticationData	2.0	2.1
eRoamingDynamicPricing	N/A	1.0

The sections that follow provide the following details with respect to endpoint level changes:

- An overview of changes per affected OICP service
- Type of change
- Affected fields
- Affected OICP operations/messages
- Brief description of the change implemented

OICP 2.2 Changes on Endpoint Level

2.1 eRoamingAuthorization

The table below provides an overview of field level changes to existing operations.

Change	Field Name	Affected operations / messages	Change Details
Deleted Field	PartnerSessionID	<ul style="list-style-type: none"> ▪ eRoamingAuthorizeStart ▪ eRoamingAuthorizeStop ▪ eRoamingAuthorizeRemoteStart ▪ eRoamingAuthorizeRemoteStop 	For the eRoamingAuthorization service, the field “ <i>PartnerSessionID</i> ” in OICP 2.1 is transformed into the following 2 separate fields in OICP 2.2 :
New Field	EMPPartnerSessionID	<ul style="list-style-type: none"> ▪ eRoamingChargeDetailRecord ▪ eRoamingAcknowledgement ▪ eRoamingAuthorizationStart ▪ eRoamingAuthorizationStop 	<p><i>EMPPartnerSessionID</i> - [String (250)]</p> <p><i>CPOPartnerSessionID</i> - [String (250)]</p> <p>This should enable both partners involved in the authorization process to distinctly add their respective Session IDs to the requests. An EMP partner shall use the <i>EMPPartnerSessionID</i> field and a CPO partner the <i>CPOPartnerSessionID</i> field. The <i>EMPPartnerSessionID</i> and <i>CPOPartnerSessionID</i> fields shall be accordingly mapped to the <i>PartnerSessionID</i> (and vice versa) for OICP 2.2 to OICP 2.1 communication (and vice versa). For the mapping, an <i>EMPPartnerSessionID</i> or <i>CPOPartnerSessionID</i> that exceeds 50 characters will be truncated to enable the mapping.</p>
New Field	CPOPartnerSessionID		
Updated Format	PartnerProductID	<ul style="list-style-type: none"> ▪ eRoamingAuthorizeRemoteStart ▪ eRoamingChargeDetailRecord ▪ eRoamingAuthorizeStart 	The field <i>PartnerProductID</i> now allows a maximum length of 50 characters (instead of the 100 characters length defined in OICP 2.1).

OICP 2.2 Changes on Endpoint Level

2.2 eRoamingReservation

The table below provides an overview of field level changes to existing operations.

Change	Field Name	Affected operations / messages	Change Details
Deleted Field	PartnerSessionID (optional)	<ul style="list-style-type: none"> eRoamingAuthorizeRemoteReservationStart eRoamingAuthorizeRemoteReservationStop eRoamingAcknowledgement 	<p>For the eRoamingReservation service, the field “<i>PartnerSessionID</i>” in OICP 2.1 is transformed into the following 2 separate fields in OICP 2.2:</p> <p><i>EMPPartnerSessionID</i> - [String (250)]</p> <p><i>CPOPartnerSessionID</i> - [String (250)]</p> <p>This should enable both partners involved in the reservation process to distinctly add their respective Session IDs to the requests. An EMP partner shall use the <i>EMPPartnerSessionID</i> field and a CPO partner the <i>CPOPartnerSessionID</i> field. The <i>EMPPartnerSessionID</i> and <i>CPOPartnerSessionID</i> fields shall be accordingly mapped to the <i>PartnerSessionID</i> (and vice versa) for OICP 2.2 to OICP 2.1 communication (and vice versa). For the mapping, an <i>EMPPartnerSessionID</i> or <i>CPOPartnerSessionID</i> that exceeds 50 characters will be truncated to enable the mapping.</p>
New Field	EMPPartnerSessionID (optional)		
New Field	CPOPartnerSessionID (optional)		
New Field	Duration (optional)	<ul style="list-style-type: none"> eRoamingAuthorizeRemoteReservationStart 	<p>For the eRoamingReservation service, the new field <i>Duration</i> has been introduced in the reservation start message to enable exchange of reservation time details between EMPs and a CPOs.</p>

OICP 2.2 Changes on Endpoint Level

Change	Field Name	Affected operations / messages	Change Details
Updated Format	PartnerProductID	<ul style="list-style-type: none"> eRoamingAuthorizeRemoteReservationStart 	The field <i>PartnerProductID</i> now allows a maximum length of 50 characters (instead of the 100 characters length defined in OICP 2.1).

2.3 eRoamingEVSEData

The table below provides an overview of field level changes to existing operations.

Change	Field Name	Affected operations / messages	Change Details
Updated Format	Country	<ul style="list-style-type: none"> eRoamingPushEVSEData eRoamingPullEVSEData 	The <i>Country</i> field has been changed from accepting both Alpha-2 and Alpha-3 country codes (as defined in OICP 2.1) to accepting only Alpha-3 country codes (as defined in ISO 3166-1) in OICP 2.2.
Updated Format	AdditionalInfo	<ul style="list-style-type: none"> eRoamingPushEVSEData eRoamingPullEVSEData 	The format of the <i>AdditionalInfo</i> field (within the <i>EVSEDataRecord</i> data type) has been changed from a string field to a complex data type that provides a better means of delivering language-specific additional information for EVSEs. In OICP 2.2, the field structure consists of a <i>LanguageCode</i> field for specifying the language of the info being provided and a <i>text</i> field for the actual text in string format.

OICP 2.2 Changes on Endpoint Level

Change	Field Name	Affected operations / messages	Change Details
Deleted Field	EnAdditionalInfo	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	This field has been removed and therefore does not exist in OICP 2.2. For OICP 2.1 to OICP 2.2 communication, the <i>EnAdditionalInfo</i> field is mapped to the <i>AdditionalInfo</i> field.
New Field	ChargingPoolID (optional)	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	The new field <i>ChargingPoolID</i> is introduced to enable grouping of EVSEs. For each EVSE, a Pool ID according to the emi ³ standard definition can be provided using this field.
New Input Option	Accessibility	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	For the field <i>AccessibilityType</i> , a new option "Test Station" has been added to the list of options to enable labeling of Stations that are for Test purposes (e.g. EVSEs for exhibitions) only as such.
Updated Format	Address	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	The data fields <i>Street</i> and <i>Timezone</i> within the <i>AddressIso19773</i> data type have been modified as follows: <ul style="list-style-type: none"> - <i>Street</i>: the minimum length of the field has been changed from 5 characters to 2 characters. - <i>Timezone</i>: the data type of the field has been changed from string to a simple restricted string that must be validated by a regular expression (see OICP document for details).

OICP 2.2 Changes on Endpoint Level

Change	Field Name	Affected operations / messages	Change Details
Updated Format	ChargingFacilities	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	<p>The data type for the <i>ChargingFacility</i> field has been changed from a simple specification type (i.e. predefined list of options) to a complex data type consisting of the following fields:</p> <ul style="list-style-type: none"> - <i>PowerType</i> - <i>Voltage</i> - <i>Amperage</i> - <i>Power</i> <p>See OICP document for details</p>
Updated Format	OpeningTimes	<ul style="list-style-type: none"> ▪ eRoamingPushEVSEData ▪ eRoamingPullEVSEData 	<p>The name of the field <i>OpeningTime</i> (within the <i>EVSEDataRecord</i> data type) has been changed to <i>OpeningTimes</i> and the format has been changed from a string field to a complex data type that provides a better means of delivering information on when EVSEs are available for use by EV drivers. In OICP 2.2, the field structure consists of a <i>Periods</i> field for specifying time in hours and minutes and an <i>On</i> field for specifying a specific weekday (see OICP for more details).</p>

OICP 2.2 Changes on Endpoint Level

2.4 eRoamingAuthenticationData

The table below provides an overview of field level changes to existing operations.

Change	Field Name	Affected operations / messages	Change Details
New Input Option	RFIDIdentification	<ul style="list-style-type: none"> ▪ eRoamingPushAuthenticationData ▪ eRoamingPullAuthenticationData 	The data type <i>RFIDIdentificationType</i> has been introduced as an additional option within the <i>Identification</i> field to enable the assignment of UIDs to EVCOIDs.
Updated Input Option	HashFunctionType	<ul style="list-style-type: none"> ▪ eRoamingPushAuthenticationData ▪ eRoamingPullAuthenticationData 	The <i>HashFunction</i> data type offers only one input option, namely "Bcrypt" in OICP 2.2. The options "MD5" and "SHA-1" that were available as input options in OICP 2.1 are no longer supported in OICP 2.2.

OICP 2.2 Data Type Changes

3 OICP 2.2 Data Type Changes

Updates of the regular expressions for validating certain data types as well as an update of the handling of Date/Time fields have been implemented in OICP 2.2 to improve data quality on the platform. Sections 3.1 and 3.2 below provide the relevant details:

3.1 Changes - Regular Expressions

The regular expressions for validating the following simple restricted string data fields have been modified in OICP 2.2:

- EVCOIDType
- EVSEIDType
- ProviderIDType
- OperatorIDType
- GeoCoordinatesGoogleFormatType
- GeoCoordinatesDecimalDegreeFormatType
- GeoCoordinatesDegreeMinuteSecondsFormatType
- SessionIDType
- PhoneNumberType
- UIDType
- HashValueType

See the full OICP 2.2 Specification for the updated regular expressions.

3.2 Changes - Handling of Date/Time fields

Date/Time values need to be delivered in the format “complete date plus hours, minutes and seconds” referring to ISO 8601:1988 (E), with a time zone offset in hours and minutes. A time zone offset of "+hh:mm" indicates that the date/time uses a local time zone which is "hh" hours and "mm" minutes ahead of UTC. A time zone offset of "-hh:mm" indicates that the date/time uses a local time zone which is "hh" hours and "mm" minutes behind UTC.

YYYY-MM-DDThh:mm:ssTZD, e.g. “2014-02-01T15:45:00+02:00”,

where:

YYYY = four-digit year MM = two-digit month (01=January, etc.)

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- DD = two-digit day of month (01 through 31)
- T = separator
- hh = two digits of hour (00 through 23) (am/pm NOT allowed)
- mm = two digits of minute (00 through 59)
- ss = two digits of second (00 through 59)
- TZD = time zone designator (+hh:mm or -hh:mm)

Messages that are sent to Hsubject and that Hsubject directly passes to another partner (e.g. eRoamingChargeDetailRecord from CPO to EMP) will not be changed by Hsubject (including time zone specifics).

Because of the need for time based charging fees it is mandatory for CPO's to provide date time values including a time zone offset which refers to the charge point location. Beginning with OICP 2.2, the HBS will store all Date/Time values in their original form. Also, the original Date/Time values as received and stored by the HBS will be provided in the response to requests from partner systems.

4 OICP 2.2 – New Services and Operations

4.1 eRoamingEVSEStatus

A new operation *eRoamingPullEVSEStatusByOperatorID* has been introduced within the eRoamingEVSEStatus service. Starting with OICP 2.2, the HBS offers EMPs the possibility to pull (download) EVSE status data for specific operators (CPOs). The operation works in a similar fashion to the already existing *eRoamingPullEVSEStatusByID* operation, except this new operation requires that a list of OperatorIDs is sent with the request message. For every requested OperatorID, Hubject identifies the currently valid EVSE status data. The identified EVSE status records are grouped by OperatorID as it is done with the *eRoamingPullEVSEStatus* operation. In case a requested OperatorID does not exist in the Hubject database, Hubject sets the value of the corresponding response field EVSEStatus to “EVSENotFound”.

- Request message: eRoamingPullEVSEStatusByOperatorID
- Response message: eRoamingEVSEStatusByOperatorID

Please refer to the full OICP 2.2 Specification for the message and data type details.

4.2 eRoamingDynamicPricing

The HBS with OICP 2.2 offers the possibility to flexibly or dynamically price Authorization services. The service mainly enables pushing (upload) and pulling (download) of pricing data to and from the HBS through webservice requests and/or downloads/uploads in the Hubject portal.

Flexible pricing enables CPOs to offer differentiated pricing (in multiple currencies) of charging processes at their charging stations. The differentiation of prices can be done along relevant dimensions such as charging facility characteristics (e.g. maximum charging power), EVSE location and time. OICP 2.2 offers the possibility to exchange this flexible price differentiation over webservice communication between CPOs and EMPs.

In addition to the above flexible pricing capability, OICP 2.2 enables more frequent and near real-time update and exchange of pricing information between CPOs and EMPs. This is achieved whereby a CPO continuously pushes valid prices to the HBS for specific EMPs to pull these prices.

With OICP 2.2, the HBS offers an extensive breadth of technical capabilities for flexible and dynamic pricing of charging services for CPOs. Please refer to the supplementary document “*Dynamic Pricing - Functional Guide for Service Implementation*” for more details and a holistic view (technical and business perspectives) of how to best capitalize on the capabilities offered by the eRoamingDynamicPricing service.

OICP 2.2 – New Services and Operations

The eRoamingDynamicPricing service offers four operations, namely the:

1. eRoamingPushPricingProductData operation which gives CPOs the possibility to upload (push) pricing product information. Pricing products refer to the different tariffs offered by a CPO based on the differentiation dimensions mentioned above.
2. eRoamingPushEVSEPrising operation which gives CPOs the possibility to assign their various pricing products to individual EVSEs and thereby upload (push) location/EVSE-specific pricing data.
3. eRoamingPullPricingProductData operation which gives EMPs the possibility to download (pull) pricing product information uploaded by a CPO for the respective EMP.
4. eRoamingPullEVSEPrising operation which gives EMPs the possibility to download (pull) location/EVSE-specific pricing data uploaded by CPOs for the respective EMP.

Please refer to the full OICP 2.2 Specification for the message and data type details.