EVRoaming Foundation
Realising cross-border charging

Webinar
OCPI v2.3.0

March 2025

EVRoaming Foundation
Realising cross-border charging

Practical information

- The meeting will be recorded and shared via our website
- App. 20 minutes presentation and 20 minutes Q&A
- Make use of chat and other meeting tools

EVRoaming Foundation
Realising cross-border charging

Presenters

Michel Bayings
Director EVRoaming Foundation

Reinier Lamers
Swtch Energy (CA)
Architect & editor OCPI

EVRoaming Foundation
Realising cross-border charging

What will be presented

- Word from the EU Commission

- Why did we create OCPI v2.3.0
- The main functional differences with v2.2.1
- Connection with NAP

- Connection with North America legislation
- Hub support
- Information about extension possibilities

- Further support

- Q & A

EVRoaming Foundation
Realising cross-border charging

A word from the European Commission

Dr Saki Gerassis
Davite
Policy and Data Officer at
European Commission
DG MOVE

EVRoaming Foundation
Realising cross-border charging

Why OCPI v2.3.0?

Current	Legislation	Architectural
2.2.1	**2.3.0**	**3.0**
- Successor of 2.1.1 (released July 2017) - Released Oct 2021 - Doc update Sept 2023		- Split static/dynamic data - Improved efficiency - Improved security - Different tariff setup - Extended V2X services - Release H2 2025

Big leap to 3.0
Intermediate alignment legislation needed

EVRoaming Foundation
Realising cross-border charging

Why OCPI v2.3.0?

Legislation

2.3.0

Current

2.2.1

Architectural

3.0

- Succes
- Releas
- Doc up

data

ices

Sept 2023 – EU AFIR, with NAP requirements
=> **12 static data <u>fields</u> / 3 dynamic**

Dec 2024 – Mar 2025, implementing act with additional NAP data fields
=> **34 static data <u>sets</u> / 3 dynamic**

NORTH AMERICA

Challenges dealing with different tax levels at tariffs

Intermediate alignment legislation needed

EVRoaming Foundation
Realising cross-border charging

What's new in v2.3.0?

2.3.0

- Support for new **EU National Access Point data requirements**
- Possibility for **adding extra modules and fields** via enum values
- **Charge parking bay - EVSE**
- **9 Vehicle types** added to know if your vehicle can charge, with **UN-ECE** info
- Support to **indicate** if people with **disabilities** can charge (via vehicle type)
- Indication **ISO 15118** possibility
- Support for **North America tax structures**
- **Direct payment module**

EVRoaming Foundation
Realising cross-border charging

Connection with NAPs

NAPs use DATEX II to STORE the data = Entity Relation Model

OCPI used to SHARE/TRANSFER the data

No competion/conflict between DATEX II and OCPI

NAP
Coordination
Organisation
Europe

EVRoaming Foundation
Realising cross-border charging

Connection with NAPs

2.3.0

- Based on implementing regulation information incl Annex: “Specifications related to the data format for making available the data types referred to in Article 20(2) of Regulation (EU) 2023/1804”
- Required data* can be shared via OCPI v2.3.0
- Mapping overview available
- It is not a 1 on 1 situation, sometimes translation is needed, e.g.:
  - **availability catering services (y/n)**, OCPI: “restaurant” as value at Facility in Location module
  - **number of charge parking spaces**; to be counted at location level
  - OCPI using **vehicle types** like “Van” and “Bus” instead of UN-ECE code, which can be added in optional info.

** Three need to be discussed, if possible with NAP organizations*

EVRoaming Foundation
Realising cross-border charging

OCPI 2.3.0 - NAP vehicle types

8.4.28. VehicleType *OpenEnum*

A categorization of vehicles to indicate which type of vehicles can use a certain EVSE. Approximate UNECE codes corresponding to our categories are given in the third column in the table.

2.3.0

Value	Description	UNECE Code
MOTORCYCLE	A motorcycle	L
PERSONAL_VEHICLE	A personal vehicle, a passenger car	M1
PERSONAL_VEHICL E_WITH_TRAILER	A personal vehicle with a trailer attached	M1 + O
VAN	A light-duty van with a height smaller than 275 cm	N1
SEMI_TRACTOR	A heavy-duty tractor unit without a trailer	T
RIGID	A heavy-duty truck without an articulation point	N2 (under 12 tonnes) / N3 (over 12 tonnes)
TRUCK_WITH_TRAILER	A heavy-duty truck (tractor or rigid) with a trailer attached	N2/N3 + O
BUS	A bus or a motor coach.	M2 (under 5 tonnes) / M3 (over 5 tonnes)
DISABLED	A vehicle with a permit for parking spaces for people with disabilities	M1 (assuming that these are typically based on personal vehicles)

Connection with North America legislation

2.3.0

- OCPI was originally conceived for Europe
- Some tax practices in US/Canada conflict with earlier OCPI's assumptions:
  - Parties involved may not know tax rates before the transaction happens
  - There may be multiple sales taxes on one transaction
  - Sales taxes may be per kWh instead of a percentage
- North American OCPI users found their ways
- ChargeHub (EVRF Contributor) offered their way for standardization

EVRoaming Foundation
Realising cross-border charging

OCPI 2.3.0 Tariff with North American tax

2.3.0


```
{
   "country_code": "CA",
   "party_id": "ABC",
   "id": "12",
   "currency": "CAD",
   "elements": [{
    "price_components": [{
      "type": "TIME",
      "price": 2.00,
      "step_size": 1
    }]
  }],
  "tax_included": "NO",
  "last_updated": "2024-12-
  05T18:30:14Z"
}
```

EVRoaming Foundation
Realising cross-border charging

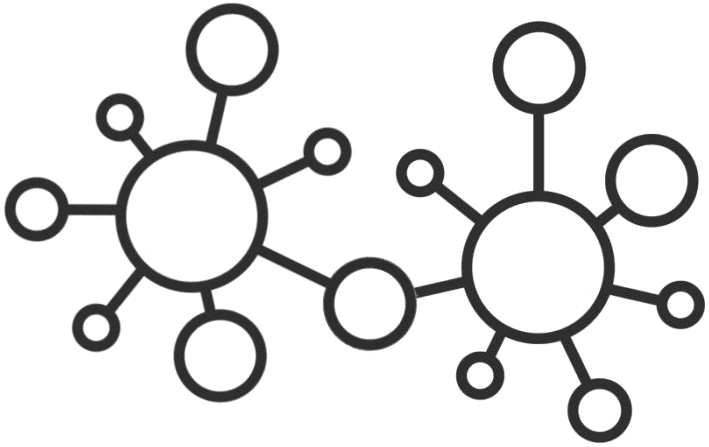
OCPI 2.3.0 Tariff with North American tax

2.3.0


```
"price": {
  "before_taxes": 5,
  "taxes" : [{
    "name": "QST",
    "amount": 1.75
    "account_number":
"#1234567890TQ0001",
    "percentage": 9.975
  }]
}
```

EVRoaming Foundation
Realising cross-border charging

Hub support



2.3.0

- OCPI 2.2.1 has Roaming Hub support.
- Roaming Hubs are required to behave differently from non-Hub multi-party platforms, like Saas Providers.
- This made gradual adoption of Hub features difficult.
- OCPI 2.3.0 makes it so that multi-party platforms can begin to support Hub features without breaking their earlier multi-party support.
- This also aligns with the OCPI 3.0 draft.

EVRoaming Foundation
Realising cross-border charging

Extension possibilities

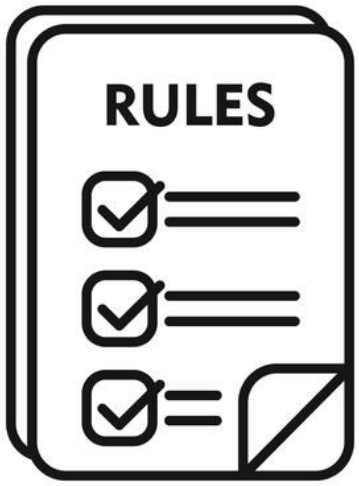
2.3.0

- Both previous improvements came about through engineers at OCPI **contributors trying to improve their systems**.
- We want to **encourage improvements**! Don't wait for the EVRF to do it for you!
- But also, we have to **maintain order**.
- RFC 6648 gives experience-based advice on dealing with this trade-off and we try to follow that.

EVRoaming Foundation
Realising cross-border charging

Extension possibilities: our rules

2.3.0

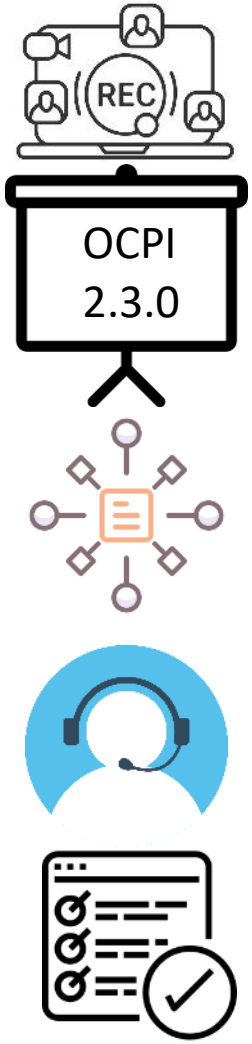


- 2.3.0 implementations accept non-specified JSON object keys, and also enum values to most enumeration types.
- Assume that your extensions will become part of OCPI, or otherwise widely used.
- Choose names that are meaningful and currently unused.
- Don’t use name modifiers to indicate the non-specified nature like “x-...” or “custom_…”
- **Consult https://evroaming.org/extending-ocpi/, which tells you how your extensions can be integrated into the spec.**

And of course, **requirements remain requirements**; don’t contradict them.

EVRoaming Foundation
Realising cross-border charging

Further support



- **Webinar**
- **Presentation**
- **Mapping overview OCPI – NAP**
- **Support translation to NAP data (e.g. white paper EVRF + NAPs)**
- **Support via EU, national governments, NAP organisations**
- **Part of test tool & conformance testing system**

You can support us by becomming a Contributor or Sponsor

EVRoaming Foundation
Realising cross-border charging

Q & A

More information:
www.evroaming.org
operations@evroaming.org

Twitter: @evroaming
LinkedIn: https://www.linkedin.com/company/evroaming-foundation

EVRoaming Foundation
Realising cross-border charging

Thank you !

More information:
www.evroaming.org
operations@evroaming.org

Twitter: @evroaming
LinkedIn: https://www.linkedin.com/company/evroaming-foundation/

Items to be discussed

#	Type of alternative fuels infrastructure	Type of data	Data category	Data type	Data level	Description	Data format	OPCI 2.3.0
A.22	Recharging and refuelling infrastructure of alternative fuels	Static	Payment options	Other ad-hoc payment option	Station	Indication on the existence (yes/no) of the following ad-hoc payment options: ·Specific (i.e., dynamically generated) QR code ·Payment through a website (e.g., static QR code) ·Cash ·Other (expressed as free text)	Discrete value (string/text)	- TBD - To be discussed **if** and **how** this can be done in best way - No relevance of static or dynamic QR code: no real UC except for NAP
A.23	Recharging and refuelling infrastructure of alternative fuels	Static	Payment options	Additional information about payment providers accepted	Station	Additional information indicating the payment service providers that accept electronic payments in the ad hoc payment option.	Discrete value (string/text) in list format	- TBD - Probably the card networks / card payment types are meant and NOT the PSPs - Part of 3.0 as card_payment_options at Station level - Adding it in 2.3.0 can result in migration issues
B.9	Electric recharging infrastructure	Static	Smart recharging functionalities	Smart recharging services	Point	Possibility of using smart recharging services in a recharging point. The possibility of using the following smart recharging services must be indicated (yes/no): ·Remote monitoring and control recharging. ·User preference configuration for recharging power optimization. ·Bidirectional recharging. ·Other (expressed as free text)	Discrete value (string/text)	- To be discussed **if** and **how** this can be done in best way. - No OCPI use case (besides NAP) - Smart charging and V2X capable can be added via Value to the Capability OpenEnum