


# Power and State of Charge Fields

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https://github.com/ocpi & https://evroaming.org

1.0, 2026-10-29: Awaiting Implementation

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The EVRoaming Foundation strives to keep OCPI as free from IPR as possible. If you want to contribute by adding new functionality/features, you are required to send us the signed Contributor Agreement (CA) document before contributing. To get the CA, ask for it by send an e-mail to: info@evroaming.org.

**Version History**

| Version | Date | Contributors | Description |
|---|---|---|---|
| 1.0 | 2026-10-29 | Reinier Lamers | Adjust type and definition of latest_power according to review feedback. |
| RC1 | 2026-09-25 | Greg Fitzpatrick | Remove references to OCPI 2.1.1 and 2.2.1 |
| 0.3 | 2026-08-28 | Greg Fitzpatrick | Cast the document in the extension template |
| 0.2 | 2026-07-28 | Greg Fitzpatrick | After discussing this further in the contributors meeting we've decided to:<br>• keep charging_periods in the session (session only charging periods were removed from OCPI 3.0)<br>• add latest_power and latest_state_of_charge to sessions in OCPI 3.0 and OCPI 2.x<br>• we decided to backport this to 2.x as they are optional fields and therefore a non-breaking change. We've also created an implementation guide for these new fields with the intention of adding it to the implementation guides github repository once it becomes public. |
| 0.1 | 2026-01-19 | Greg Fitzpatrick, Rebecca Privé | Initial draft |

# 1. Motivation

Providing real-time power and State of Charge (SoC) data is highly valuable to EV drivers. It lets a driver see how fast their vehicle is charging and how full the battery is without walking back to the charging station. However, the methods that OCPI has offered so far for sharing this data caused structural confusion.

This extension describes the rationale and the implementation directives for the retroactive addition of the `latest_power` and `latest_state_of_charge` fields to OCPI 2.3.0, so that this data is transmitted the same way as in OCPI 3.0.

## 1.1. Session-Only Charging Periods

OCPI 2.3.0 offers "session-only" Charging Periods to handle real-time data, specifically using the `POWER` and `STATE_OF_CHARGE` dimensions. This approach has created significant confusion in the industry, because these session-only periods behave fundamentally differently from standard Charging Periods:

- **No invoicing function**: they are entirely unrelated to billing and invoicing.
- **Not a time series**: they are not intended to be stored sequentially as a historical time series.

Because standard Charging Periods are deeply tied to financial breakdowns, mixing real-time telemetry data into the same structure is problematic. Receivers that store every Charging Period they receive as part of the billing record end up with invoice breakdowns that contain telemetry samples, and receivers that treat session-only periods as a time series end up with data that senders never intended to be kept.

To clear up this confusion, and to separate billing data from telemetry data, the EV Roaming Foundation has updated the best practices for sharing power and SoC:

1. **Stop using session-only Charging Periods.** The ChargingPeriod object must only be used for invoice-related breakdowns.
2. **Use the new dedicated fields.** Implement the new `latest_power` and `latest_state_of_charge` fields to transmit real-time Session telemetry.

# 2. Domain

## 2.1. Use Cases

### 2.1.1. UC1. As a *Driver*, I want to *see the current charging power and state of charge of my vehicle* in order to *know how fast my vehicle is charging and when it will be ready*.

A driver who has left their vehicle at a charging station wants to know whether the session is progressing as expected and when it is worth returning to the vehicle. This information is only useful while the Session is ongoing, so it has to be shared during the Session rather than in the CDR that follows it.

### 2.1.2. UC2. As an *MSP*, I want to *receive the latest power and state of charge values while a Session is ongoing* in order to *show them to my Drivers*.

In OCPI 2.3.0 this is possible through session-only Charging Periods, but that mechanism is difficult to use correctly and easy to misinterpret.

### 2.1.3. UC3. As a *CPO*, I want to *share real-time telemetry without affecting the invoicing data I send* in order to *keep my billing records unambiguous and auditable*.

A CPO that sends power and SoC samples as session-only Charging Periods risks having those samples interpreted as part of the price breakdown of the Session. Sending telemetry in dedicated fields keeps the ChargingPeriod objects strictly about money.

## 2.2. Security and Privacy Concerns

### 2.2.1. Security Concerns

The fields added by this extension carry no authentication or authorization information and grant no new capabilities, so they do not widen the attack surface of a Platform beyond the Session object that already carries them. Receivers should treat both fields as untrusted input and validate their ranges, as they would for any other field: `latest_state_of_charge` is a percentage between 0 and 100, and `latest_power` may legitimately be negative when the vehicle discharges to the grid.

Because these fields are updated more often than the rest of the Session object, a Sender that pushes an update on every telemetry sample can generate a high volume of requests. Senders should limit how often they push Session updates so that these updates cannot become a denial-of-service vector against a Receiver, and Receivers should be able to rate-limit or reject excessive updates without failing the Session.

### 2.2.2. Privacy Concerns

There are no privacy conerns with this extension

## 2.3. Use of the extension

### 2.3.1. Version-specific implementation directives

How this change is implemented depends on which version or versions of OCPI a Platform is running.

| OCPI Version | Implementation Directive |
|---|---|
| 2.3.0 | Transition away from session-only Charging Periods. Use `latest_power` and `latest_state_of_charge` instead. |
| 3.0 | No retroactive changes needed. Session-only Charging Periods have been permanently removed from the OCPI 3.0 specification and these fields have been added. |

## 2.3.2. Impact assessment

This update is classified as a low-impact, non-breaking change in OCPI 2.3.0. Because both `latest_power` and `latest_state_of_charge` are optional fields, systems that do not immediately adopt them will not experience broken integrations or validation failures.

Implementing them is nevertheless strongly recommended, as it provides a better end-user experience without compromising the integrity of invoicing data structures.

## 2.3.3. Use of the extension in OCPI 3.0

This extension is part of the base OCPI 3.0 specification. Session-only Charging Periods do not exist in OCPI 3.0, and the two telemetry fields are already present on the Session object. No extension is needed.

### 2.3.3.1. New enum values

No new enum values are added.

### 2.3.3.2. New object fields

No new object fields are added.

### 2.3.3.3. New Party Issued Objects

No new Party Issued Object types are added.

### 2.3.3.4. New Remote Procedure Calls

No new RPC operations are added.

### 2.3.3.5. New Types

No new types are added.

### 2.3.3.6. Extension discovery in OCPI 3.0

Not applicable. The functionality is part of base OCPI 3.0, so there is nothing to discover.

## 2.3.4. Use of the extension in OCPI 2.3.0

Two new optional fields are added to the Session object. A CPO sends them, and updates them, while the Session is ongoing. A Charging Period MUST NOT be used to convey power or state of charge values that are not part of an invoice breakdown.

### 2.3.4.1. New enum values

No new enum values are added.

### 2.3.4.2. New object fields

**Session *class***

| Property | Type | Card. | Description |
|---|---|---|---|
| latest_power | number | ? | The most recent power measured during this Session, in kW (kilowatt). The power should be measured over a time interval as short as possible, and specifically not over the entire session. When negative, the power is flowing from the EV to the grid. |
| latest_state_of_charge | int | ? | The most recent state of charge of the EV for this Session, as a percentage. Allowed values are 0 to 100. |

#### 2.3.4.3. New HTTP endpoints

No new HTTP endpoints are added. The fields are sent through the existing Sessions module, in the same requests that already carry Session objects and Session patches.

#### 2.3.4.4. New Types

No new types are added.

#### 2.3.4.5. Extension discovery in OCPI 2.3.0

A Receiver can see that a Sender supports this extension by the presence of the `latest_power` or `latest_state_of_charge` fields in the Session objects it receives. Because both fields are optional, their absence in a given Session does not prove that the Sender does not support the extension.

In addition, Senders SHOULD stop sending session-only Charging Periods, and use these fields instead. Receivers that still accept session-only Charging Periods from Senders that have not migrated MUST NOT treat those periods as part of the price breakdown of the Session.

# 3. References

No additional reference documents.