OCPP Log Understanding Sheet

Beginner-Friendly Technical Reference for Hackathon Participants

1. What is an OCPP log?

An OCPP log is a recorded communication between an EV charger (charge point) and a central backend server. These logs capture charger status updates, user authentication steps, charging activity, and system responses.
Each interaction between the charger and server is stored as a log entry and represents a specific action or event.

2. Structure of an OCPP log

Field	Description
Timestamp	Time at which the message was generated
Charger ID	Unique identifier of the charge point
Direction	Message flow between charger and server
Message Type	Type of OCPP operation performed
Payload	Associated data in JSON format

Participants are not required to interpret every JSON field. The focus should be on understanding the action represented by each message.

3. Common OCPP messages

BootNotification: Charger startup and registration with the server.
Heartbeat: Periodic connectivity confirmation.
Authorize: User authentication request.
StartTransaction: Start of a charging session.
MeterValues: Live electrical and energy measurements.
StopTransaction: End of a charging session.
StatusNotification: Charger operational state update.

4. Message direction

Direction	Description
Charger to Server	Status updates and data reporting
Server to Charger	Commands and control instructions

For example, a charger sends a BootNotification and waits for an Accepted response from the server before becoming operational.

5. Logical flow of a charging session

Charger boots and registers
Charger remains online
User authentication is performed
Charging session starts
Charging data is reported
Charging session ends
Logs should always be analyzed by grouping events using charger ID and timeline.

6. Operational issues identifiable from logs

Observed Issue	Indication in Logs
Charger offline	Missing or delayed heartbeat messages
Authorization failure	Authorize request rejected
Charging without power delivery	Absence of MeterValues
Hardware or internal fault	Status reported as Faulted
Network instability	Irregular message intervals

7. Expected outcomes during the hackathon

Participants are expected to analyze logs to identify operational issues, visualize charger behavior and performance, and derive actionable insights. Solutions may include dashboards, monitoring tools, alerting mechanisms, or analytical models based on log patterns.

Scope clarification

Participants are not expected to implement the OCPP protocol or develop charger firmware. The focus is strictly on log analysis, interpretation, and insight generation.

Closing note

Effective solutions focus on identifying the operational condition of chargers and clearly explaining the issues or patterns observed from log data.