

United Chargers OCPP

request-response example

Revision 1.0



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Revision History

Version	Changes / Comments	Date	By
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1 INTRODUCTION

This document describes the example of requests and responses for OCPP implementation. It is used for communication between charge point(station) and central station(server). Represented in raw JSON format.

By default, for data commands like Get Diagnostics, Update Firmware used FTP protocol.

Information in this document can be applied to United Charges stations:

1. Ultimate 48, FW ver. ULGRW00EA-03.11.0 and newer.
2. Ultimate 80, FW ver. UUGRW000A-03.11.0 and newer.
3. Mini, FW ver. UMGRW000A-03.11.0 and newer.

2 OPERATIONS INITIATED BY CHARGE POINT

2.1 Authorize

Request from the charging station

```
[2, "12", "Authorize", {  
  "idTag": "uc_default_auth"  
}]
```

Server response

```
[3, "12", {  
  "idTagInfo": {  
    "status": "Accepted"  
  }  
}]
```

2.2 Boot Notification

Request from the charging station

```
[2, "5", "BootNotification", {  
  "chargePointModel": "GRU 48A 2024",  
  "chargePointSerialNumber": "GRU-L00000TEST",  
  "chargePointVendor": "UnitedChargers",  
  "firmwareVersion": "ULGRW00EA-03.11.0",  
  "meterType": "0"  
}]
```

Server response

```
[3, "5", {  
  "status": "Accepted",  
  "currentTime": "2025-04-08T12:23:10.012Z",  
  "interval": 60  
}]
```

2.3 Data Transfer

Not implemented

2.4 Diagnostics Status Notification

Request from the charging station

```
[2, "19", "DiagnosticsStatusNotification", {  
  "status": "Uploading"  
}]
```

Server response

```
[3, "19", {}]
```

2.5 Firmware Status Notification

Request from the charging station

```
[2, "11", "FirmwareStatusNotification", {  
  "status": "Downloading"  
}]
```

Server response

```
[3, "11", {}]
```

2.6 Heartbeat

Request from the charging station

```
[2, "41", "Heartbeat", {}]
```

Server response

```
[3, "41", {  
  "currentTime": "2025-04-08T11:02:37.354Z"  
}]
```

2.7 Meter Values

Request from the charging station

```
[2, "6", "MeterValues", {
  "connectorId": 1,
  "transactionId": 1125675,
  "meterValue": [
    {
      "timestamp": "2025-04-08T12:43:49Z",
      "sampledValue": [
        {
          "measurand": "Current.Import",
          "unit": "A",
          "value": "0.00",
          "context": "Sample.Periodic"
        },
        {
          "measurand": "Voltage",
          "unit": "V",
          "value": "228.00",
          "context": "Sample.Periodic"
        },
        {
          "measurand": "Energy.Active.Import.Register",
          "unit": "Wh",
          "value": "0",
          "context": "Sample.Periodic"
        },
        {
          "measurand": "Power.Active.Import",
          "unit": "kW",
          "value": "0.00",
          "context": "Sample.Periodic"
        },
        {
          "measurand": "Temperature",
          "unit": "Celsius",
          "value": "30",
          "context": "Sample.Periodic"
        }
      ]
    }
  ]
}]
```

Server response

```
[3, "6", {}]
```

2.8 Start Transaction

Request from the charging station

```
[2, "4", "StartTransaction", {  
    "connectorId": 1,  
    "meterStart": 105575,  
    "idTag": "uc_default_auth",  
    "timestamp": "2025-04-08T12:43:18Z"  
}]
```

Server response

```
[3, "4", {  
    "idTagInfo": {  
        "status": "Accepted"  
    },  
    "transactionId": 1125675  
}]
```

2.9 Status Notification

Request from the charging station

```
[2, "6", "StatusNotification", {  
    "connectorId": 0,  
    "errorCode": "NoError",  
    "status": "Available"  
}]
```

Server response

```
[3, "6", {}]
```

Or for failure:

Request from the charging station

```
[2, "3", "StatusNotification", {  
    "connectorId": 1,  
    "errorCode": "GroundFailure",  
    "status": "Faulted",  
    "vendorErrorCode": "0x1"  
}]
```

Server response

```
[3, "3", {}]
```

2.10 Stop Transaction

Request from the charging station

```
[2, "8", "StopTransaction", {  
    "idTag": "uc_default_auth",  
    "meterStop": 105575,  
    "timestamp": "2025-04-08T12:50:58Z",  
    "transactionId": 1125675,  
    "reason": "Remote"  
}]
```

Server response

```
[3, "8", {  
    "idTagInfo": {  
        "status": "Accepted"  
    }  
}]
```


3 OPERATIONS INITIATED BY CENTRAL SYSTEM

3.1 Cancel Reservation

Not implemented

3.2 Change Availability

Request from the server

```
[2, "ed3fcc45-0383-403c-9e7b-6a848016f0e8",  
  "ChangeAvailability", {  
    "connectorId": 1,  
    "type": "Inoperative"  
  }  
]
```

Charging station response

```
[3, "ed3fcc45-0383-403c-9e7b-6a848016f0e8", {  
  "status": "Accepted"  
}]
```

3.3 Change Configuration

Request from the server

```
[2, "0decdcce-2c58-41ba-ad85-63f0df3728d1", "ChangeConfiguration", {  
  "key": "AuthorizeRemoteTxRequests",  
  "value": "true"  
}]
```

Charging station response

```
[3, "0decdcce-2c58-41ba-ad85-63f0df3728d1", {  
  "status": "Accepted"  
}]
```

3.4 Clear Cache

Not implemented

3.5 Clear Charging Profile

Request from the server

```
[2, "c7765f91-4da0-43ea-8c9a-835241206702",  
"ClearChargingProfile", {  
  "stackLevel": 0  
}]
```

Charging station response

```
[3, "c7765f91-4da0-43ea-8c9a-835241206702", {  
  "status": "Accepted"  
}]
```

3.6 Data Transfer

Not implemented

3.7 Get Composite Schedule

Not implemented

3.8 Get Configuration

Request from the server

```
[2, "de1521df-1a63-43a8-9457-82568e2e1641", "GetConfiguration", {}]
```

Charging station response

```
[3, "de1521df-1a63-43a8-9457-82568e2e1641", {  
  "configurationKey": [  
    {  
      "key": "ChargeProfileMaxStackLevel",  
      "readonly": true,  
      "value": "4"  
    },  
    {  
      "key": "ChargingScheduleAllowedChargingRateUnit",  
      "readonly": true,  
      "value": "Current"  
    },  
    {  
      "key": "ChargingScheduleMaxPeriods",  
      "readonly": true,  
      "value": "35"  
    },  
    {  
      "key": "MaxChargingProfilesInstalled",  
      "readonly": true,  
      "value": "12"  
    },  
    {  
      "key": "AuthorizeRemoteTxRequests",  
      "readonly": false,  
      "value": "false"  
    },  
    {  
      "key": "ConnectorPhaseRotation",  
      "readonly": true,  
      "value": "NotApplicable"  
    },  
    {  
      "key": "HeartbeatInterval",  
      "readonly": false,  
      "value": "60"  
    },  
    {  
      "key": "ConnectionTimeOut",  
      "readonly": false,  
      "value": "30"  
    }  
  ]  
}
```

```

    },
    {
      "key": "LocalAuthorizeOffline",
      "readonly": false,
      "value": "true"
    },
    {
      "key": "LocalPreAuthorize",
      "readonly": false,
      "value": "true"
    },
    {
      "key": "MeterValueSampleInterval",
      "readonly": false,
      "value": "30"
    },
    {
      "key": "NumberOfConnectors",
      "readonly": true,
      "value": "1"
    },
    {
      "key": "ResetRetries",
      "readonly": true,
      "value": "1"
    },
    {
      "key": "StopTransactionOnInvalidId",
      "readonly": false,
      "value": "false"
    },
    {
      "key": "SupportedFeatureProfiles",
      "readonly": true,
      "value":
"Core,FirmwareManagement,SmartCharging,RemoteTrigger"
    },
    {
      "key": "UnlockConnectorOnEVSideDisconnect",
      "readonly": true,
      "value": "false"
    },
    {
      "key": "AllowOfflineTxForUnknownId",
      "readonly": false,
      "value": "true"
    }
  ]
}

```

```

},
{
  "key": "MeterValuesAlignedData",
  "readonly": false,
  "value": "Temperature"
},
{
  "key": "ClockAlignedDataInterval",
  "readonly": false,
  "value": "60"
},
{
  "key": "GetConfigurationMaxKeys",
  "readonly": true,
  "value": "33"
},
{
  "key": "MeterValuesSampledData",
  "readonly": false,
  "value": "Energy.Active.Import.Register"
},
{
  "key": "StopTransactionOnEVSideDisconnect",
  "readonly": false,
  "value": "false"
},
{
  "key": "StopTxnAlignedData",
  "readonly": false,
  "value": "Energy.Active.Import.Register"
},
{
  "key": "StopTxnSampledData",
  "readonly": false,
  "value": "Energy.Active.Import.Register"
},
{
  "key": "TrasnsactionMessageAttempts",
  "readonly": false,
  "value": "1"
},
{
  "key": "TrasnsactionMessageRetryInterval",
  "readonly": false,
  "value": "10"
},

```

```

    {
      "key": "SupportedFileTransferProtocols",
      "readonly": true,
      "value": "HTTP,FTP"
    },
    {
      "key": "Autostart",
      "readonly": false,
      "value": "false"
    },
    {
      "key": "DipSwitchCurrentLimit",
      "readonly": true,
      "value": "48"
    },
    {
      "key": "AuthTag",
      "readonly": false,
      "value": "uc_default_auth"
    },
    {
      "key": "CertificateStoreMaxLength",
      "readonly": true,
      "value": "3"
    },
    {
      "key": "SecurityProfile",
      "readonly": false,
      "value": "0"
    }
  ],
  "unknownKey": []
}
]

```

3.9 Get Diagnostics

Request from the server

```
[2, "687515db-cc4f-4244-ab20-7a4528bdc883", "GetDiagnostics", {  
  "location":  
  "evsehost_test:123TestTest@evsehost.ftp.tools:21/",  
  "retries": 1,  
  "retryInterval": 30  
}]
```

Charging station response

```
[3, "687515db-cc4f-4244-ab20-7a4528bdc883", {  
  "fileName": "GRU-L000000TEST_2025-04-08.csv"  
}]
```

*By default, used FTP protocol.

3.10 Get Local List Version

Not implemented

3.11 Remote Start Transaction

Request from the server

```
[2, "73c9107f-1023-4659-a08a-01e286201374",  
  "RemoteStartTransaction", {  
    "connectorId": 1,  
    "idTag": "uc_default_auth"  
  }  
]
```

Charging station response

```
[3, "73c9107f-1023-4659-a08a-01e286201374", {  
  "status": "Accepted"  
}]
```

3.12 Remote Stop Transaction

Request from the server

```
[2, "713c49f1-8031-4d12-819b-35950bce8010",  
  "RemoteStopTransaction", {  
    "transactionId": 1125746  
  }  
]
```

Charging station response

```
[3, "713c49f1-8031-4d12-819b-35950bce8010", {  
  "status": "Accepted"  
}]
```

3.13 Reserve Now

Not implemented

3.14 Reset

Request from the server

```
[2, "7e13b98c-4772-4c67-a693-77b45c198139", "Reset", {  
  "type": "Soft"  
}]
```

Charging station response

```
[3, "7e13b98c-4772-4c67-a693-77b45c198139", {  
  "status": "Accepted"  
}]
```

3.15 Send Local List

Not implemented

3.16 Set Charging Profile

Request from the server

```
[2, "b966f64c-77a2-4289-b014-b1bfaf06a57a", "SetChargingProfile",  
{  
  "connectorId": 0,  
  "csChargingProfiles": {  
    "chargingProfileId": 1,  
    "stackLevel": 2,  
    "chargingProfileKind": "Absolute",  
    "chargingProfilePurpose": "ChargePointMaxProfile",  
    "chargingSchedule": {  
      "chargingRateUnit": "A",  
      "chargingSchedulePeriod": [  
        {  
          "startPeriod": 0,  
          "limit": 16  
        }  
      ]  
    }  
  }  
}]
```

Charging station response

```
[3, "b966f64c-77a2-4289-b014-b1bfaf06a57a", {  
  "status": "Accepted"  
}]
```


3.17 Trigger Message

Request from the server

```
[2, "315b4db6-fe9b-4b77-97d5-df4d6e3de1f", "TriggerMessage", {  
  "requestedMessage": "BootNotification"  
}]
```

Charging station response

```
[3, "315b4db6-fe9b-4b77-97d5-df4d6e3de1f", {  
  "status": "Accepted"  
}]
```

3.18 Unlock Connector

Not implemented

3.19 Update Firmware

Request from the server

```
[2, "b06b6974-f685-469e-9066-55a875c38c47", "UpdateFirmware", {  
  "location": "165.22.3.85/files/ULGRW000A-03.11.3.bin",  
  "retrieveDate": "2025-04-08T13:10:27.110Z",  
  "retryInterval": 1,  
  "retries": 1  
}]
```

Charging station response

```
[3, "b06b6974-f685-469e-9066-55a875c38c47", {}]
```

*By default, used FTP protocol.

4 TYPICAL WORKFLOW

At this point, the station should already be connected to the Wi-Fi with access to internet and the OCPP server data should already be configured.
Plug not connected to car.

4.1 Connection to server

wss://ocpp.unitedchargers.com/ocpp1.6?station=GRU-L000000TEST

4.2 Boot Notification

Step 1.

Charging station request

```
[2,"0","BootNotification",{
  "chargePointModel": "GRU 48A 2024",
  "chargePointSerialNumber": "GRU-L000000TEST",
  "chargePointVendor": "UnitedChargers",
  "firmwareVersion": "ULGRW000A-03.11.3",
  "meterType": "0"
}]
```

Server response

```
[3,"0",{
  "status": "Accepted",
  "currentTime": "2025-04-08T15:14:06.865Z",
  "interval": 60
}]
```

Step 2.

Charging station request

```
[2,"1","StatusNotification",{
  "connectorId": 0,
  "errorCode": "NoError",
  "status": "Available"
}]
[2,"2","StatusNotification",{
  "connectorId": 1,
  "errorCode": "NoError",
  "status": "Available"
}]
```

Server response

```
[3,"1",{}]
[3,"2",{}]
```

4.3 User connect plug to car

Charging station request

```
[2, "3", "StatusNotification", {  
    "connectorId": 1,  
    "errorCode": "NoError",  
    "status": "Preparing"  
}]
```

Server response

```
[3, "3", {}]
```

4.4 Transaction start – remote start

Step 1.

Server request

```
[2, "7b1e2834-cc69-4ee3-8c93-eabf37787645",  
"RemoteStartTransaction", {  
  "connectorId": 1,  
  "idTag": "uc_default_auth"  
}]
```

Charging station response

```
[3, "7b1e2834-cc69-4ee3-8c93-eabf37787645", {  
  "status": "Accepted"  
}]
```

Step 2.

Charging station request

```
[2, "5", "StartTransaction", {  
  "connectorId": 1,  
  "meterStart": 105575,  
  "idTag": "uc_default_auth",  
  "timestamp": "2025-04-08T15:14:08Z"  
}]
```

Server response

```
[3, "5", {"idTagInfo": {"status": "Accepted"}, "transactionId": 1125934  
}]
```

Step 3.

Charging station request

```
[2, "6", "StatusNotification", {  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "SuspendedEV"  
}]
```

Server response

```
[3, "6", {}]
```

Step 4.

Charging station request

```
[2, "7", "StatusNotification", {  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "Charging"  
}]
```

Server response

```
[3, "7", {}]
```

4.5 Transaction stop – plug disconnected

Step 1.

User disconnects plug from car.

Step 2.

Charging station request

```
[2, "8", "StatusNotification", {  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "Finishing"  
}]
```

Server response

```
[3, "8", {}]
```

Step 3.

Charging station request

```
[2, "9", "StopTransaction", {  
  "idTag": "uc_default_auth",  
  "meterStop": 105575,  
  "timestamp": "2025-04-08T15:14:17Z",  
  "transactionId": 1125934,  
  "reason": "Remote"  
}]
```

Server response

```
[3, "9", {  
  "idTagInfo": {  
    "status": "Accepted"  
  }  
}]
```

Step 4.

Charging station request

```
[2, "10", "StatusNotification", {  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "Available"  
}]
```

Server response

```
[3, "10", {}]
```

4.6 Transaction stop – remote stop

Step 1.

Server request

```
[2, "d147c6cb-1d41-4d62-b86b-5f84b1f22ed2",  
"RemoteStopTransaction",{  
  "transactionId": 1125936  
}]
```

Charging station response

```
[3, "d147c6cb-1d41-4d62-b86b-5f84b1f22ed2", {  
  "status": "Accepted"  
}]
```

Step 2.

Charging station request

```
[2, "8", "StatusNotification",{  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "Finishing"  
}]
```

Server response

```
[3, "8", {}]
```

Step 3.

Charging station request

```
[2, "9", "StopTransaction",{  
  "idTag": "uc_default_auth",  
  "meterStop": 105575,  
  "timestamp": "2025-04-08T15:14:17Z",  
  "transactionId": 1125934,  
  "reason": "Remote"  
}]
```

Server response

```
[3, "9",{  
  "idTagInfo":{"status":"Accepted"}  
}]
```

Step 4.

Charging station request

```
[2, "10", "StatusNotification",{  
  "connectorId": 1,  
  "errorCode": "NoError",  
  "status": "Available"  
}]
```

Server response

```
[3, "10", {}]
```

4.7 Transaction stop - faulted

Step 1.

Some fault occurs.

Step 2.

Charging station request

```
[2, "25", "StatusNotification", {  
    "connectorId": 1,  
    "errorCode": "GroundFailure",  
    "status": "Faulted",  
    "vendorErrorCode": "0x1"  
}]
```

Server response

```
[3, "25", {}]
```

Step 3.

Charging station request

```
[2, "26", "StopTransaction", {  
    "idTag": "uc_default_auth",  
    "meterStop": 105575,  
    "timestamp": " 2025-04-08T15:15:02Z",  
    "transactionId": 1125938,  
    "reason": "Remote"  
}]
```

Server response

```
[3, "26", {  
    "idTagInfo": {"status": "Accepted"}  
}]
```

Step 4.

Recovery has found that the problem has disappeared - continue the charging process.
Not all faults can be self-recovered.

Step 5.

Charging station request

```
[2, "29", "StatusNotification", {  
    "connectorId": 1,  
    "errorCode": "NoError",  
    "status": "Preparing"  
}]
```

Server response

```
[3, "29", {}]
```