

EVC5 OCPP Implementation

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1. Status of document

This document describes all OCPP related messages and key names and their implementation status. Commands and/or key names can be implemented fully or partially or not implemented at all (so returning an error).

This document reflects the status of the application version: EVC5 V32R30

The OCPP version currently supported is: 1.6J

2. Overview of all OCPP messages

Table 1. Overview of all messages

Command	Initiator	Supported
Authorize	Charge Point	yes
Bootnotification	Charge Point	yes
CancelReservation	Central System	no
ChangeAvailability	Central System	yes
ChangeConfiguration	Central System	yes
ClearCache	Central System	yes
ClearChargingProfile	Central System	yes
DataTransfer	Central System	yes
DiagnosticsStatusNotification	Charge Point	yes
FirmwareStatusNotification	Charge Point	yes
GetCompositeSchedule	Central System	yes
GetConfiguration	Central System	yes
GetDiagnostics	Central System	yes
GetLocalListVersion	Central System	yes
Heartbeat	Charge Point	yes
MeterValues	Charge Point	yes
RemoteStartTransaction	Central System	yes
RemoteStopTransaction	Central System	yes
ReserveNow	Central System	no
Reset	Central System	yes
SendLocalList	Central System	yes
SetChargingProfile	Central System	yes
StartTransaction	Charge Point	yes
StopTransaction	Charge Point	yes
TriggerMessage	Central System	yes
UnlockConnector	Central System	yes
UpdateFirmware	Central System	yes

3. Messages supported (by profile)

3.1. Core Profile

Table 2. Core Profile

Message	Support	Remark
Authorize	yes	
BootNotification	yes	See BootNotification fields
ChangeAvailability	yes	
ChangeConfiguration	yes	
ClearCache	yes	
DataTransfer	yes	
GetConfiguration	yes	
Heartbeat	yes	
MeterValues	partially	See Measurands supported
RemoteStartTransaction	yes	See RemoteStartTransaction support
RemoteStopTransaction	yes	
Reset	yes	
StartTransaction	yes	See StartTransaction support
StatusNotification	yes	See StatusNotification support
StopTransaction	yes	
UnlockConnector	yes	

3.1.1. BootNotification fields

The **meterSerialNumber** and **meterType** are not supported because we have no chargers that contain a central/common meter.

The **chargeBoxSerialNumber** is currently present but will be removed in a future version.

3.1.2. Measurands supported

Table 3. Measurands supported

Value	Remarks
Current.Import	
Current.Offered	
Energy.Active.Import.Register	
SoC	

Value	Remarks
Voltage	
Frequency	When the attached kWh meter supports it
Power.Factor	When the attached kWh meter supports it
Power.Active.Import	
Temperature	



Phase values (.L1 - .L3) are applicable to all measurands that support it, unless stated otherwise.

3.1.3. RemoteStartTransaction support

Sending a **ChargingProfile** along with the RemoteStartTransaction is not supported. (FW-610)

The **idTag** sent is not checked at all, even if the variable **AuthorizeRemoteTxRequests** is set. (FW-611)

3.1.4. StartTransaction support

The field **reservationId** is not supported because we do not support the reservation profile.

3.1.5. StatusNotification support

Table 4. **status** field

Value status field	Remarks
Available	
Preparing	
Occupied	This is not compliant with the OCPP standard.
Charging	
SuspendedEVSE	
SuspendedEV	
Finishing	
Reserved	Not supported because we do not support the reservation profile.
Unavailable	
Faulted	

Table 5. **errorCode** field

Value errorCode field	Remarks
ConnectorLockFailure	
EVCommunicationError	

Value errorCode field	Remarks
GroundFailure	
HighTemperature	Not supported.
InternalError	Not supported.
LocalListConflict	
Mode3Error	Not supported.
NoError	
OtherError	
OverCurrentFailure	Not supported.
OverVoltage	
PowerMeterFailure	
PowerSwitchFailure	Not supported.
ReaderFailure	
ResetFailure	Not supported.
UnderVoltage	Not supported.
WeakSignal	Not supported.

The **vendorId** field is not used.

3.2. Firmware Management Profile

Table 6. Firmware Management Profile

Message	Support	Remark
GetDiagnostics	yes	See GetDiagnostics support
DiagnosticStatusNotification	yes	
FirmwareStatusNotification	yes	
UpdateFirmware	yes	

3.2.1. GetDiagnostics support

There is a storage limit on the charger of approximately 2 MiB. When diagnostics are read the data will be deleted.

The fields **retries** / **retryInterval** / **startTime** / **stopTime** are not supported and ignored.

3.3. Local Auth List Management Profile

Table 7. Local Auth List Management Profile

Message	Support	Remark
GetLocalListVersion	yes	
SendLocalList	yes	

3.4. Reservation Profile

Table 8. Reservation Profile

Message	Support	Remark
CancelReservation	no	
ReserveNow	no	

3.5. Smart Charging Profile

Table 9. Smart Charging Profile

Message	Support	Remark
ClearChargingProfile	yes	
GetCompositeSchedule	yes	
SetChargingProfile	partially	See note below



The full supported of **SetChargingProfile** still has to be documented.

3.6. Remote Trigger

Table 10. Remote Trigger

Message	Support	Remark
TriggerMessage	partially	See Triggers Supported

3.6.1. Triggers Supported

This table shows the trigger support of the **requestedMessage**

Table 11. Triggers Supported

Value	Support	Remark
BootNotification	yes	
DiagnosticsStatusNotification	no	
FirmwareStatusNotification	no	
Heartbeat	yes	
StatusNotification	yes	
MeterValues	yes	

3.7. Security Profile (OCPP extension 1.3)

Table 12. Security Profile

Message	Support	Remark
Authorize	no	
CertificateSigned	no	
DeleteCertificate	no	
Get15118EVCertificate	no	
GetCertificateStatus	no	
GetInstalledCertificateIds	no	
InstallCertificate	no	
SignCertificate	no	
Update15118EVCertificate	no	
ExtendedTriggerMessage	no	

4. Configuration Keys and Values (by profile)

The chapter documents each profile and its associated key names that are fully or partially supported. When a key name is not supported at all, you will find it in the next chapter: [Missing/incomplete Configuration Key Names \(by profile\)](#).

4.1. Core Profile

Table 13. Core Profile variables

Variable/Key name	Req/Opt	Access	Type	Remark
ConnectionTimeOut	Req	RW	Int	
AllowOfflineTxForUnknownId	Opt	RW	Bool	
AuthorizationCacheEnabled	Opt	RW	Bool	
AuthorizeRemoteTxRequests	Req	RW	Bool	
ClockAlignedDataInterval	Req	RW	Int	
GetConfigurationMaxKeys	Req	R	Int	Hardcoded to 50.
HeartbeatInterval	Req	RW	Int	Always taken from the BootNotification, see note below.
LightIntensity	Opt	RW	Int	Range from 50-100%, default=100%, values below 50% are rounded up to 50%.
LocalAuthorizeOffline	Req	RW	Bool	
LocalPreAuthorize	Req	RW	Bool	
MeterValuesAlignedData	Req	RW	CSL	
MeterValuesSampledData	Req	RW	CSL	
MeterValueSampleInterval	Req	RW	Int	
NumberOfConnectors	Req	R	Int	
ResetRetries	Req	RW	Int	BUG: Hardcoded to 1, unused in code.
StopTransactionOnInvalidId	Req	RW	Bool	
StopTransactionOnEVSideDisconnect	Req	RW	Bool	
StopTxnSampledData	Req	RW	CSL	
SupportedFeatureProfiles	Req	R	CSL	Hardcoded to "Core,FirmwareManagement,LocalAuthListManagement,SmartCharging,RemoteTrigger".

Variable/Key name	Req/Opt	Access	Type	Remark
UnlockConnectorOnEVSideDisconnect	Req	RW	Bool	
WebsocketPingInterval	Opt	RW	Int	



The HeartbeatInterval is always taken from the BootNotification, however you can change it during runtime by setting this variable. On the next boot it will use the bootnotification its value.

4.2. Firmware Management Profile

Table 14. Firmware Management Profile variables

Variable/Key name	Req/Opt	Access	Type	Remark

4.3. Local Auth List Management Profile

Table 15. Local Auth List Management Profile variables

Variable/Key name	Req/Opt	Access	Type	Remark
LocalAuthListEnabled	Req	RW	Bool	
LocalAuthListMaxLength	Req	R	Int	
SendLocalListMaxLength	Req	R	Int	Hardcoded to 60.

4.4. Reservation Profile

Not supported.

4.5. Smart Charging Profile

Table 16. Smart Charging Profile variables

Variable/Key name	Req/Opt	Access	Type	Remark
ChargingScheduleAllowedChargingRateUnit	Req	R	CSL	Hardcoded to "Current,Power".
ChargingScheduleMaxPeriods	Req	R	Int	
ConnectorSwitch3to1PhaseSupported	Opt	R	Bool	
MaxChargingProfilesInstalled	Req	R	Int	

4.6. Remote Trigger Profile

No variables defined.

4.7. Security Profile (OCPP extension 1.3)

Table 17. Security Profile variables

Variable/Key name	Req/Opt	Access	Type	Remark
AuthorizationKey	Opt	W	String	

5. Missing/incomplete Configuration Key Names (by profile)

The chapter documents all key names that are not supported at all. Some of the keys are optional so those are not a problem. The mandatory key names ('Req') shall be implemented in a future version to make the support complete.

5.1. Core Profile

Table 18. Core Profile unsupported variables

Variable/Key name	Req/Opt	Access	Type	Remark
ConnectorPhaseRotation	Req	RW	CSL	BUG: Is hardcoded to empty, unused in code.
ConnectorPhaseRotationMaxLength	Opt	R	Int	Missing completely, but is optional.
StopTxnAlignedData	Req	RW	CSL	Is hardcoded to empty, unused in code.
StopTxnAlignedDataMaxLength	Opt	R	Int	Missing completely, but is optional.
SupportedFeatureProfilesMaxLength	Opt	R	Int	Missing completely, but is optional.
TransactionMessageAttempts	Req	RW	Int	Can be set/get but unused in code.
TransactionMessageRetryInterval	Req	RW	Int	Can be set/get but unused in code.
BlinkRepeat	Opt	RW	Int	Missing completely, but is optional.

5.2. Firmware Management Profile

Table 19. Firmware Management Profile unsupported variables

Variable/Key name	Req/Opt	Access	Type	Remark
SupportedFileTransferProtocols	Req	R	CSL	Missing completely.

5.3. Local Auth List Management Profile

Fully supported, nothing missing.

5.4. Reservation Profile

Not supported, so the next variables are missing:

Table 20. Reservation Profile unsupported variables

Variable/Key name	Req/Opt	Access	Type	Remark
ReserveConnectorZeroSupport	Opt	R	Bool	Missing because the profile is unsupported.

5.5. Smart charging Profile

Table 21. Smart charging Profile unsupported variables

Variable/Key name	Req/Opt	Access	Type	Remark
ChargeProfileMaxStacklevel	Req	R	Int	Missing completely.

5.6. Remote Trigger Profile

There are no variables defined for remote triggers, so nothing is missing.

5.7. Security Profile (OCPP extension 1.3)

Table 22. Security Profile unsupported variables

Variable/Key name	Req/Opt	Access	Type	Remark
CertificateSignedMaxChain	Opt	R	Int	Missing completely, but is optional.
CertificateStoreMaxLength	Opt	R	Int	Missing completely, but is optional.
CpoName	Opt	RW	String	Missing completely, but is optional.
SecurityProfile	Opt	RW	Int	Profile 1 / 2, indirect via URL parsing.

6. Vendor-specific variables

All vendor specific variables are documented in the EVC5 manual. So the definition is not repeated here.

The configuration keys are listed for reference only to have an idea about all variables.

Table 23. Vendor-specific variables

Variable/Key name
bdi_config
chg_Ch1Options
chg_Ch2Options
chg_ChannelsEnabled
chg_Debug
chg_IndicatorScheme
chg_KWH[1,2,3]
chg_MinChargingCurrent
chg_Mode3Current
chg_Options
chg_PayAmount
chg_PayTerm
chg_RatedCurrent
chg_Reader[1,2]
chg_SktType
chg_StationMaxCurrent
chg_TempCtrl[1,2,3,4]
com_AuthOptions
com_AuthTimeOut
com_AutoCommitHrs
com_Endpoint
com_FwOptions
com_OCPCID
com_OCPCInfo
com_Options
com_ProtCh
com_ProtType

Variable/Key name
eth_Cfg
eth_host_port
eth_parent
grid_CommChannel
grid_InstallationMaxcurrent
grid_InstallationSaveCurrent
grid_Role
grid_SupervisorCfg
grid_SupervisorTotalcurrent
grid_TotalcurrentOffset
gsm_APN
gsm_Oper
gsm_Options
gsm_SMS
io_InputCfg
io_OutputCfg
io_OutputCfgDCC
lcd_language
lcd_type

7. Revision history

2023-08-08

- Initial draft (not complete/correct).

2023-08-09

- Add vendor specific variables (keys only).

2023-08-14

- Complete the details for all profiles.

8. Open issues

- The exact support for the **SetChargingProfile** should be investigated. Currently it is unclear what is supported and what not.