

OCPP 2.0.1

### Part 5 - Certification Profiles

Core & Advanced Security, FINAL, 2023-06-30

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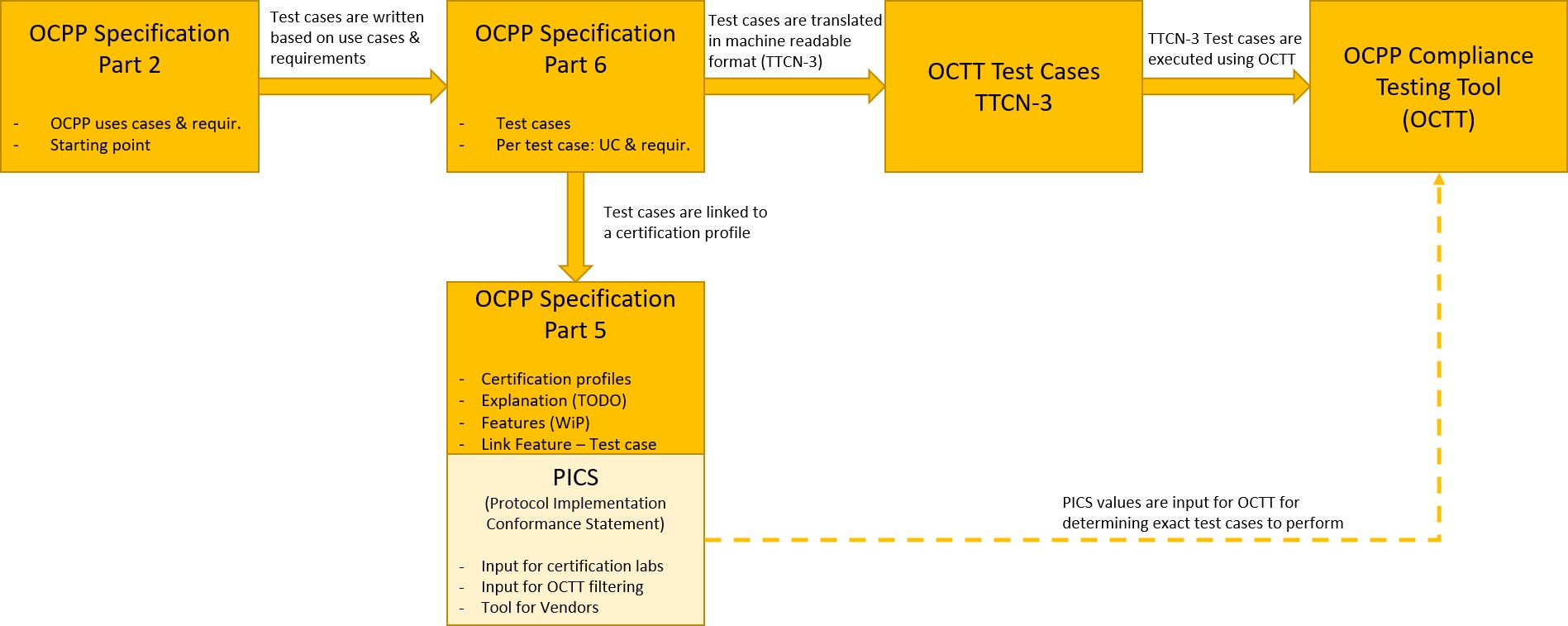
# Introduction & Reading Guide

This document describes the certification profiles for OCPP 2.0.1. These profiles are sets of use cases that can be certified via the Open Charge Alliance. This document contains the details on what is part of the OCPP 2.0.1 Certification. This document contains:

* + The [certification profiles](#_bookmark1) and an overview of the functionality per profile.
  + The list of optional [features](#_bookmark2). This list contains specific functionality that is not mandatory for certification, but which can optionally be certified.
  + The list of test cases for each of the certification profiles.
  + The overview of the controller components that must be implemented per profile for certification testing.

For clarity: in the context of the OCPP Certification Program, the term *test case* refers to a sequence of messages for testing a use case from OCPP. The term *feature* refers to a functionality, that can be tested with one or more test cases (see [Features](#_bookmark2) for a more detailed explanation). Instead of making specific test cases mandatory or optional, the certification program for OCPP 2.0.1 works with *features* that are optional. Depending on whether the System Under Test (SUT) has implemented a feature, the test case(s)

that belong to this feature, must be successfully passed or not.



*Figure 1. Link between different OCPP Documents in OCPP Certification Program*

# Certification profiles

The OCPP protocol has been designed to support a wide variety of charging stations ranging from simple AC home chargers to advanced DC hyperchargers and megawatt chargers. It will be obvious that these charging stations and associated CSMSs will have very different capabilities. As a result it does not make sense to require every vendor to certify for the full OCPP functionality, when only subset is needed for the specific application.

The OCPP certification is built around certification profiles that describe a set of supported functions. A full OCPP certification comprises all certification profiles, but it is possible to get certified for a subset, since not all OCPP functionality may be needed for some vendors.

The OCPP "Core" profile must always be present. It contains the basic OCPP functionality. On top of that other profiles can be added to the certification. These profiles are independent of each other, the only exception being the "ISO 15118 support" profile, which requires a number of "Advanced security" and "Smart charging" test cases to be implemented.

The following table lists the certification profiles and an overview of the functionality per profile:

*Table 1. Certification profiles*

|  |  |
| --- | --- |
| **Certification Profile** | **Description** |
| **Core** | Basic Authentication  TLS - server-side certificate  Update Charging Station Password for HTTP Basic Authentication Security Event Notification  Booting a Charging Station Configuring a Charging Station Resetting a Charging Station / EVSE Authorization incl. GroupId  Stop Transaction with a Master Pass  Local start transaction - Cable plugin first & Authorization first Start / Stop transaction options  Disconnect cable on EV-side Check Transaction status Remote start / stop transaction Remote unlock Connector Remote Trigger  Change Availability - Charging Station / EVSE / Connector Clock-aligned Meter & Sampled Meter Values  Install CA certificates  Retrieve certificates from Charging Station Delete a certificate from a Charging Station AdditionalRootCertificateCheck  Retrieve Log Information  Get / Clear Customer Information Secure Firmware Update  Store / Clear Authorization Data in Authorization Cache  Authorization through authorization cache |
| **Advanced Security** | TLS - Client-side certificate  Update Charging Station Certificate Upgrade Charging Station Security Profile |
| **Local Authorization List Management** | Authorization through local authorization list Send Local Authorization List  Get Local List Version |
| **Smart Charging** | Set charging profile  Remote start transaction with charging profile Get Composite Schedule  Get Charging Profile Clear Charging Profile |

|  |  |
| --- | --- |
| **Certification Profile** | **Description** |
| **Advanced Device Management** | Get Monitoring report Set Monitoring Base Set Variable Monitoring Set Monitoring Level Get Custom Report  Clear / Remove Monitoring Event Notification |
| **Advanced User Interface** | Set Display Message Get Display Message Clear a Display Message  Show EV Driver Running / Final Total Cost During / After Charging Show EV Driver-specific Tariff Information  Update Tariff Information During Transaction  Configure Fallback Tariff Information & Total Cost Message |
| **Reservation** | Reserve a specific EVSE Reserve an unspecified EVSE  Reserve a connector with a specific type  Reservations using GroupIdToken Cancel reservation of an EVSE |
| **ISO 15118 support** | *ISO 15118 Certificate Management:*  Update Charging Station Certificate (Contract) Certificate Installation / Update EV Get Certificate Status  Install V2G / MO CA certificates  Retrieve V2G / MO certificates from Charging Station Delete a certificate from a Charging Station  *ISO 15118 EIM / PnC Authorization:*  Authorization using External Identification Means Authorization using Contract Certificates  *ISO 15118 Smart Charging:*  Set charging profile  Remote start transaction with charging profile Get Composite Schedule  Get Charging Profile Clear Charging Profile  Renegotiating a Charging Schedule ISO 15118 signed meter values |

# Features

The concept of certification profiles is not enough to cover the variety in OCPP implementations. The OCPP specification contains many optional features, often in the form of optional message fields or configuration variables, that a vendor can use to support advanced functions. Whereas the certification profiles determine *which* OCPP functionality is implemented, the features describe *how much* of a certain functionality in a profile has been implemented.

The OCTT test tool uses the features to determine which test cases have to be executed for a charging station or CSMS. For example, the set of [TxStartPoints](#_bookmark4) that a charging station supports, has a big impact on the execution of certain test cases. The behavior of a charging station that starts a transaction based on a successful authorization is different from a charging station that starts a transaction as soon as a cable is connected. Similarly, a CSMS that only controls DC fast chargers will not need functionality to unlock a cable at the charging station. For such a CSMS the vendor may decide to not implement the feature [Support for unlocking connector](#_bookmark6).

In most cases a feature corresponds the existence of a configuration variable or its value.

## Optional feature list for charging station

The following table lists the optional features. These are features that are not mandatory to implement within a certification profile. Where applicable the associated configuration variable is mentioned in parenthesis.

*Table 2. Optional features for charging stations*

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **Charging Station** |
| **Core** | | |
| C-01 | Support for offline authorization of transactions | Optional.  Supporting this feature depends on whether at least one of the  following is supported;   * Certification Profile: Local   Authorization List Management   * C-02: Support for allowing offline authorization for   unknown ids   * C-49: Authorization Cache (AuthCacheEnabled) |
| C-02 | Support for allowing Offline Authorization for Unknown Ids (OfflineTxForUnknownIdEnabled) | Optional |
| C-03 | Support for maximizing energy for invalid ids (MaxEnergyOnInvalidId) | Optional |
| C-04 | Support to limit StatusNotifications (MinimumStatusDuration) | Optional |
| C-05 | Support for changing WebSocketPingInterval (WebSocketPingInterval) | Optional |
| C-06 | Authorization status after cable disconnected on EV side (StopTxOnEVSideDisconnect) | { list } at least one |
| C-06.1 | Support for maintaining authorization when cable disconnected on EV side | Optional |
| C-06.2 | Support for not maintaining authorization when cable disconnected on EV side | Optional |
| C-07 | Support for using a Master Pass for charging stations with UI (MasterPassGroupId) | Optional |
| C-08 | Support for using a Master Pass for charging stations without UI (MasterPassGroupId) | Optional |
| C-09 | Supported Transaction Start points (TxStartPoint) | { list } at least one |
| C-09.1 | Start transaction options - EVConnected | Optional |
| C-09.2 | Start transaction options - Authorized | Optional |
| C-09.3 | Start transaction options - DataSigned | Optional |
| C-09.4 | Start transaction options - PowerPathClosed | Optional |
| C-09.5 | Start transaction options - EnergyTransfer | Optional |
| C-09.6 | Start transaction options - ParkingBayOccupancy | Optional |
| C-10 | Supported Transaction Stop points (TxStopPoint) | { list } at least one |
| C-10.1 | Stop transaction options - EVConnected | Optional |
| C-10.2 | Stop transaction options - Authorized | Optional |
| C-10.3 | Stop transaction options - PowerPathClosed | Optional |
| C-10.4 | Stop transaction options - EnergyTransfer | Optional |
| C-10.5 | Stop transaction options - ParkingBayOccupancy | Optional |
| C-12 | Unlocking of connector when cable disconnected on EV side (UnlockOnEVSideDisconnect) | { list } at least one |
| C-12.1 | Support for unlocking connector when cable disconnected on EV side | Optional |
| C-12.2 | Support for not unlocking when cable disconnected on EV side | Optional |
| C-13 | Support for Reset per EVSE (AllowReset) | Optional |
| C-14 | Support for retrieving / deleting CustomerInformation - CustomerIdentifier | Optional |
| C-20 | Allowing New Sessions Pending a FirmwareUpdate (AllowNewSessionsPendingFirmwareUpdate ) | Optional |
| C-21 | Support for queuing all or only Transaction related messages until they are delivered to the CSMS (QueueAllMessages) | Optional |

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **Charging Station** |
| *Time related settings* | | |
| C-23 | Supported time sources (TimeSource) | { list } at least Heartbeat |
| C-25 | Support for setting a TimeOffset (TimeOffset) | Optional |
| C-26 | Support for setting the TimeZone (TimeZone) | Optional |
|  | | |
| C-28 | Toggle sending clock aligned meter values when a transaction is ongoing / Idle (AlignedDataSendDuringIdle) | Optional |
| C-29 | TriggerMessage | { list } 1 or more (Heartbeat MUST be supported) (Security related triggers are separate.) |
| C-29.1 | Trigger message - MeterValues | Optional |
| C-29.2 | Trigger message - TransactionEvent | Optional |
| C-29.3 | Trigger message - LogStatusNotification | Optional |
| C-29.4 | Trigger message - FirmwareStatusNotification | Optional |
| C-29.5 | Trigger message - StatusNotification | Optional |
| C-29.6 | Trigger message - BootNotification | Optional |
| *Authorization options for local start* | | |
| C-30 | Authorization - using RFID ISO14443 | Optional |
| C-31 | Authorization - using RFID ISO15693 | Optional |
| C-32 | Authorization - using KeyCode | Optional |
| C-33 | Authorization - using locally generated id | Optional |
| C-34 | Authorization - MacAddress | Optional |
| C-35 | Authorization - NoAuthorization | Optional |
| *Authorization options for remote start (mandatory to support at least one)* | | |
| C-36 | Authorization - using RFID ISO14443 | Optional |
| C-37 | Authorization - using RFID ISO15693 | Optional |
| C-38 | Authorization - using centrally, in the CSMS (or other server) generated id | Optional |
| C-39 | Authorization - NoAuthorization | Optional |
| C-40 | Supported MeterValue Measurands |  |
| C-40.1 | SampledTxStartedMeasurands | { list of supported } at least one |
| C-40.2 | SampledTxUpdatedMeasurands | { list of supported } at least one |
| C-40.3 | SampledTxEndedMeasurands | { list of supported } at least one |
| C-40.4 | AlignedDataMeasurands | { list of supported } at least one |
| C-40.5 | AlignedDataTxEndedMeasurands | { list of supported } at least one |
| C-41 | Supported Cipher Suites | { list of cipher suites } → at  least one of TLS\_ECDHE\_ECDSA\_WITH\_AES  \_128\_GCM\_SHA256 TLS\_ECDHE\_ECDSA\_WITH\_AES  \_256\_GCM\_SHA384 OR  TLS\_RSA\_WITH\_AES\_128\_GCM  \_SHA256 TLS\_RSA\_WITH\_AES\_256\_GCM  \_SHA384 |
| C-42 | Signed Metervalues (SampledDataSignReadings) | Optional |
| C-43 | Install Firmware with ongoing transaction(s) (AllowNewSessionsPendingFirmwareUpdate) | Optional |
| C-47 | Support for falling back to default OCPP reconnection mechanism when NetworkConnection profile connection has failed | Optional |
| C-48 | Authorization of remote start (AuthorizeRemoteStart) | { list } at least one |
| C-48.1 | Option for authorization in case of a remote start | Optional |
| C-48.2 | Option for no authorization in case of a remote start | Optional |

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **Charging Station** |
| C-58 | Option for disabling remote authorization (DisableRemoteAuthorization) | Optional |
| C-49 | Authorization Cache (AuthCacheEnabled) | Optional |
| C-59 | Option for disabling remote authorization for cached invalid idTokens (AuthCacheDisablePostAuthorize) | Optional |
| C-51 | Configurable TxStartPoint | Optional |
| C-52 | Configurable TxStopPoint | Optional |
| C-53 | Support for lifetime cached token (AuthCacheLifeTime) | Optional |
| C-54 | Supported policies for replacing cached entries (AuthCachePolicy) | { list } at least one that is / are supported. |
| C-56 | Support for providing the SummaryInventory | Optional |
| C-57 | Support for cancelling ongoing log file upload | Optional |
| C-60 | Support for cancelling ongoing firmware update | Optional |
|  | | |
| **Advanced Security** | | |
| AS-2 | Additional root certificate check mechanism implemented (AdditionalRootCertificateCheck) | Optional |
| AS-3 | Update Charging Station Certificate - CertificateSignedRequest Timeout (CertSigningWaitMinimum,CertSigningRepeatTimes) | Optional |

## Optional feature list for CSMS

The features of a CSMS are not determined by configuration variables. Features in the list below are allowed not to be supported by a CSMS.

*Table 3. Optional features for CSMS*

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **CSMS** |
| **Core** | | |
| C-11 | Support for unlocking connector for charging station with detachable cable (UnlockConnector message). | Optional |
| C-13 | Support for Reset per EVSE | Optional |
| C-14 | Support for retrieving / deleting CustomerInformation - CustomerIdentifier | Optional |
| C-15 | Support for scheduled firmware updates | Optional |
| C-16 | Support for checking the TransactionStatus | Optional |
| C-17 | Support for retrieving the ConfigurationInventory | Optional |
| C-29 | TriggerMessage | { list } 0 or more (Security related triggers are separate.) |
| C-29.1 | Trigger message - MeterValues | Optional |
| C-29.2 | Trigger message - TransactionEvent | Optional |
| C-29.3 | Trigger message - LogStatusNotification | Optional |
| C-29.4 | Trigger message - FirmwareStatusNotification | Optional |
| C-29.5 | Trigger message - StatusNotification | Optional |
| *Authorization options for local start* | | |
| C-30 | Authorization - using RFID ISO14443 | Required |
| C-31 | Authorization - using RFID ISO15693 | Required |
| C-32 | Authorization - using KeyCode | Optional |
| C-33 | Authorization - using locally generated id | Optional |
| C-34 | Authorization - MacAddress | Optional |
| C-35 | Authorization - NoAuthorization | Required |
| *Authorization options for remote start (mandatory to support at least one)* | | |
| C-36 | Authorization - using RFID ISO14443 | Required |
| C-37 | Authorization - using RFID ISO15693 | Required |
| C-38 | Authorization - using centrally, in the CSMS (or other server) generated id | Optional |

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **CSMS** |
| C-39 | Authorization - NoAuthorization | Optional |
| C-44 | Support for sending a BootNotification Pending before Accepting | Optional |
| C-45 | Support for Multiple elements GetVariablesRequest | Optional |
| C-46 | Support for Multiple elements SetVariablesRequest | Optional |
| C-50 | GetBaseReport - FullInventory | { list } at least one |
| C-50.1 | GetBaseReport - FullInventory - During onboarding | Optional |
| C-50.2 | GetBaseReport - FullInventory - Manual trigger | Optional |
|  | | |
| **Advanced Security** | | |
|  | No optional features for this profile |  |

# List of test cases

## Introduction

This table lists the test cases that are part of the OCPP Certification program. For each of the test cases, the columns "Conf. Test for Charging Station" and "Conf. Test for CSMS" indicate whether the test case is mandatory or not within a Certification Profile. The abbrevations have the following meaning:

* M = Mandatory . This means that IF you implement the certification profile this test case belongs to, you MUST successfully pass this test case.
* C = Conditional. This means that IF you meet a condition, you MUST pass this test case. Most conditions refer to the optional features that are listed in the [Features](#_bookmark2).

## Test Cases Core

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| **OCTT Id** | **OCPP Compliance Testing Tool scenario** | **Conf. Test for Charging Station** | **Conf. test for CSMS** | **Condition / remark** | **Feature no.** | **Feature** |
|  | **Basic Authentication** |  |  |  |  |  |
| TC\_A\_01 | Valid username/password combination | M | M |  |  |  |
| TC\_A\_02 | Username does not equal ChargingStationId |  | M |  |  |  |
| TC\_A\_03 | Invalid password |  | M |  |  |  |
|  | **Update Charging Station Password for HTTP Basic Authentication** |  |  |  |  |  |
| TC\_A\_09 | Accepted | M | M |  |  |  |
| TC\_A\_10 | Rejected | M | M |  |  |  |
|  | **TLS - server-side certificate** |  |  |  |  |  |
| TC\_A\_04 | Valid certificate | M | M |  |  |  |
| TC\_A\_05 | Invalid certificate | M |  |  |  |  |
| TC\_A\_06 | TLS version too low | M | M |  |  |  |
|  | **Upgrade Charging Station Security Profile** |  |  |  |  |  |
| TC\_A\_19 | Accepted | M | M |  |  |  |
| TC\_A\_20 | No valid CSMSRootCertificate installed | C |  | If the last CSMSRootCertificate can be removed. | AQ-1 | Can the last CSMSRootCertificate be removed? |
| TC\_A\_22 | Downgrade security profile - Rejected | M |  |  |  |  |
|  | **Cold Boot Charging Station** |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_B\_01 | Accepted | M | M |  |  |  |
| TC\_B\_02 | Pending | M | C | CSMS: If Pending mechanism is implemented | C-44 | BootNotification Pending |
| TC\_B\_03 | Rejected | M |  |  |  |  |
| TC\_B\_30 | Pending/Rejected - SecurityError | M | C | For CSMS: if CSMS can be configured to first respond to a BootNotificationRequest with status Pending or Rejected | C-44 or NOT AQ-6 | BootNotification Pending or Does the CSMS reject unknown Charging Stations during websocket connection setup? |
| TC\_B\_31 | Pending/Rejected - TriggerMessage |  | C | For CSMS: if CSMS can be configured to first respond to a BootNotificationRequest with status Pending or Rejected | C-44 or NOT AQ-6 | BootNotification Pending or Does the CSMS reject unknown Charging Stations during websocket connection setup? |
|  | **Status change during offline period** |  |  |  |  |  |
| TC\_B\_51 | > Offline Threshold | M |  |  |  |  |
| TC\_B\_52 | < Offline Threshold | M |  |  |  |  |
|  | **Get Variables** |  |  |  |  |  |
| TC\_B\_06 | single value | M | M |  |  |  |
| TC\_B\_07 | multiple values | M | C | If the CSMS supports multiple elements in a GetVariablesRequest | C-45 | multiple values elements GetVariablesRequest |
| TC\_B\_32 | Unknown component | M |  |  |  |  |
| TC\_B\_33 | Unknown variable | M |  |  |  |  |
| TC\_B\_34 | Not supported attribute type | M |  |  |  |  |
| TC\_B\_08 | limit to maximum number of values | C |  | If the Charging Station supports BytesPerMessageGetVariables | ORS-5 | BytesPerMessageGetVariables |
|  | **Set Variables** |  |  |  |  |  |
| TC\_B\_09 | single value | M | M |  |  |  |
| TC\_B\_10 | multiple values | M | C | If the CSMS supports multiple elements in a SetVariablesRequest | C-46 | multiple values elements SetVariablesRequest |
| TC\_B\_35 | Unknown component | M |  |  |  |  |
| TC\_B\_36 | Unknown variable | M |  |  |  |  |
| TC\_B\_37 | Not supported attribute type | M |  |  |  |  |
| TC\_B\_11 | invalidly formatted values | M |  |  |  |  |
| TC\_B\_39 | Read-only | M |  |  |  |  |
|  | **Get Base Report** |  |  |  |  |  |
| TC\_B\_12 | ConfigurationInventory | M | C |  | C-17 | ConfigurationInventory |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_B\_13 | FullInventory | M | C |  | C-50.2 | GetBaseReport - FullInventory - Manual trigger |
| TC\_B\_15 | Not Supported base report | C |  | For CS: If reportBase SummaryInventory is not supported. This is the case when Certification Profile *Advanced Device Management* is not supported. | Not C-56 |  |
| TC\_B\_53 | Test mandatory DM variables via FullInventory | M |  |  |  |  |
|  | **Reset Charging Station** |  |  |  |  |  |
| TC\_B\_20 | Without ongoing transaction - OnIdle | M | M |  |  |  |
| TC\_B\_21 | With Ongoing Transaction - OnIdle | M | M |  |  |  |
| TC\_B\_22 | With Ongoing Transaction - Immediate | M | M |  |  |  |
| TC\_B\_23 | Unavailable persists reset | M |  |  |  |  |
| TC\_B\_41 | With multiple ongoing transactions - OnIdle | C |  | For CS: if no. of EVSEs > 1 | HFS-8 > 1 |  |
|  | **Reset EVSE** |  |  |  |  |  |
| TC\_B\_25 | Without ongoing transaction | C | C |  | C-13 | Reset per EVSE |
| TC\_B\_26 | With Ongoing Transaction - OnIdle | C | C |  | C-13 | Reset per EVSE |
| TC\_B\_27 | With Ongoing Transaction - Immediate | C | C |  | C-13 | Reset per EVSE |
| TC\_B\_28 | Not Supported | C |  | For CS: Charging Station does not support resetting an individual EVSE | NOT C-13 | Reset per EVSE |
| TC\_B\_29 | With ongoing transaction - Not Supported | C |  | For CS: Charging Station does not support resetting an individual EVSE | NOT C-13 | Reset per EVSE |
|  | **Set new NetworkConnectionProfile** |  |  |  |  |  |
| TC\_B\_42 | Accepted |  | M |  |  |  |
| TC\_B\_43 | Rejected | M |  |  |  |  |
| TC\_B\_44 | Failed |  | M |  |  |  |
|  | **Migrate to new ConnectionProfile** |  |  |  |  |  |
| TC\_B\_45 | Success - Same CSMS Root | M |  | For CS: at least two configuration slots for networkConnectionProfiles must be supported |  |  |
| TC\_B\_46 | Fallback mechanism - Same CSMS Root | M |  | For CS: at least two configuration slots for networkConnectionProfiles must be supported |  |  |
| TC\_B\_47 | Fallback after NetworkProfileConnectionAttempts per NetworkConfigurationPriority failed - New CSMS Root - New CSMS | C |  | For CS: at least two configuration slots for networkConnectionProfiles must be supported | AS-2 and C-47 | Additional Root Certificate check mechanism implemented & Reconnect after NetworkProfileConnectionAttempt s |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_B\_49 | Fallback after NetworkProfileConnectionAttempts per NetworkConfigurationPriority failed - Same CSMS Root | C |  | For CS: at least two configuration slots for networkConnectionProfiles must be supported | C-47 | Reconnect after NetworkProfileConnectionAttempt s |
| TC\_B\_50 | Success - New CSMS Root - New CSMS | C |  | For CS: at least two configuration slots for networkConnectionProfiles must be supported | AS-2 | Additional Root Certificate check |
|  | **Network Reconnection** |  |  |  |  |  |
| TC\_B\_57 | After connection loss | M |  |  |  |  |
|  | **Local start transaction** |  |  |  |  |  |
| TC\_C\_02 | Authorization Invalid/Unknown | C | M | Charging Station:   * The Charging Station supports at least one of the following local start authorization options   C-30, C-31, C-32, C35   * The Charging Station does NOT have a cable lock that prevents the EV driver to connect the EV and EVSE before authorization. | (C-30 or C-31 or C-32 or C-35) and NOT AQ-2 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode / NoAuthorization and Does the Charging Station have a cable lock, which prevents the EV driver to connect the EV and EVSE before authorization? |
| TC\_C\_06 | Authorization Blocked | C | M | For CS:   * The Charging Station supports at least one of the following local start authorization options:   C-30, C-31, C-32   * The Charging Station does NOT have a cable lock, which prevents the EV driver to connect   the EV and EVSE before authorization. | NOT AQ-2 and (C-30 or C-31 or C-32) | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |
| TC\_C\_07 | Authorization Expired | C | M | For CS:   * The Charging Station supports at least one of the following local start authorization options :   C-30, C-31, C-32   * The Charging Station does NOT have a cable lock, which prevents the EV driver to connect   the EV and EVSE before authorization. | NOT AQ-2 and (C-30 or C-31 or C-32) | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |
| TC\_E\_38 | EV not ready | C | M | For CS: not supporting start transaction options EnergyTransfer | NOT C-09.5 and NOT  Product Subtype "Mode 1/2-only Charging Station" | Start transaction options - EnergyTransfer |
| TC\_C\_56 | Authorization Unknown | C |  | Charging Station:  - The Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-30 or C-31 or C-32 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_C\_05 | Authorization invalid - Cable lock | C |  | For CS:   * The Charging Station has a cable lock, which prevents the EV driver to connect the EV and   EVSE before authorization.   * The Charging Station supports at least one of the following local start authorization options   C-30, C-31, C-32, C35   * The Charging Station does NOT have the following configuration: TxStartPoint ReadOnly AND value Authorized is NOT set. | (C-30 or C-31 or C-32  or C-35) and AQ-2 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode / NoAuthorization |
|  | **Local Stop Transaction** |  |  |  |  |  |
| TC\_C\_04 | Different idToken | C |  | Charging Station:  - The Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-30 or C-31 or C-32 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |
| TC\_E\_06 | Accepted | C |  | The Charging Station supports E07 Transaction locally stopped by IdToken with at least one of the following local start authorization options: C-30, C-31, C-32, C35 | C-30 or C-31 or C-32 or C35 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode / NoAuthorization |
|  | **Authorization by GroupId** |  |  |  |  |  |
| TC\_C\_39 | Success | C | M | For CS: the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-30 or C-31 or C-32 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |
| TC\_C\_45 | Master pass - Not able to start transaction + groupId | C |  | For CS: the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 and Master Pass | (C-30 or C-31 or C-32) AND (C-07 OR C-08) | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode and Master Pass |
| TC\_C\_42 | Not stopped by GroupId | C |  | For CS: the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-30 or C-31 or C-32 | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode |
|  | **Offline Authorization** |  |  |  |  |  |
| TC\_C\_26 | Unknown Id | C |  | If the feature Unknown Offline Authorization is supported AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-02 and (C-30 or C-31 or C-32) | Unknown Offline Authorization |
|  | **Stop Transaction with a Master Pass** |  |  |  |  |  |
| TC\_C\_47 | With UI - All transactions | C | M | CS: If the feature Master Pass with UI is supported AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-07 and (C-30 or C-31 or C-32) | Master Pass - With UI |

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|  | | | | | **Related features** | |
| TC\_C\_48 | With UI - With UI - Specific transactions | C | M | CS: If the feature Master Pass with UI is supported AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-07 and (C-30 or C-31 or C-32) | Master Pass - With UI |
| TC\_C\_49 | Without UI | C | M | CS: If the feature Master Pass with UI is supported AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-08 and (C-30 or C-31 or C-32) | Master Pass - Without UI |
|  | **Store Authorization Data in the Authorization Cache** |  |  |  |  |  |
| TC\_C\_32 | Persistent over reboot | C |  | If the Charging Station has an authorization cache, then it must support this use case AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_33 | Update on AuthorizeResponse | C |  | If the Charging Station has an authorization cache, then it must support this use case AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_34 | Update on TransactionResponse | C |  | If the Charging Station has an authorization cache, then it must support this use case AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_36 | AuthCacheCtrlr.LocalPreAuthorize = false | C |  | If the Charging Station has an authorization cache and AuthCacheEnabled is implemented AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_46 | AuthCacheLifeTime | C |  | If the Charging Station has an authorization cache, then it must support this use case AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-53 and (C-30 or C-31 or C-32) | AuthCacheLifeTime |
|  | **Clear Authorization Data in Authorization Cache** |  |  |  |  |  |
| TC\_C\_37 | Accepted | C | M | If the Charging Station has an authorization cache, then it must support this use case AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |

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|  | | | | | **Related features** | |
| TC\_C\_38 | Rejected | C | M | If the Charging Station has an authorization cache and AuthCacheEnabled is implemented AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
|  | **Authorization by GroupId** |  |  |  |  |  |
| TC\_C\_41 | Success with Authorization Cache | C |  | For CS:   * The Charging Station supports at least one of the following local start authorization options:   C-30, C-31, C-32   * If the Charging Station has an authorization cache. | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_44 | Invalid status with Authorization Cache | C |  | For CS:   * The Charging Station supports at least one of the following local start authorization options:   C-30, C-31, C-32   * If the Charging Station has an authorization cache. | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
|  | **Authorization through authorization cache** |  |  |  |  |  |
| TC\_C\_08 | Accepted | C | M | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_09 | Invalid & Not Accepted | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_12 | Invalid & Accepted | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_10 | Blocked | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_11 | Expired | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |

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|  | | | | | **Related features** | |
| TC\_C\_13 | Accepted but cable not connected yet. | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_15 | StopTxOnInvalidId = false, MaxEnergyOnInvalidId > 0 | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start  authorization options: C-30, C-31, C-32  If MaxEnergyOnInvalidId is implemented. | C-49 and C-03 and (C- 30 or C-31 or C-32) | Authorization Cache & MaxEnergyOnInvalidId |
| TC\_C\_16 | StopTxOnInvalidId = true | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_17 | StopTxOnInvalidId = false | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-49 and (C-30 or C-31 or C-32) | Authorization Cache |
| TC\_C\_18 | StopTxOnInvalidId = true, MaxEnergyOnInvalidId > 0 | C |  | If the Charging Station has an authorization cache AND the Charging Station supports at least one of the following local start  authorization options: C-30, C-31, C-32  If MaxEnergyOnInvalidId is implemented. | C-49 and C-03 and (C- 30 or C-31 or C-32) | Authorization Cache & MaxEnergyOnInvalidId |
| TC\_C\_20 | Invalid |  | M |  |  |  |
| TC\_C\_57 | AuthCacheDisablePostAuthorize | C |  | If the Charging Station supports the option for disabling remote authorization for cached invalid idTokens AND has an authorization cache AND the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 | C-59 and C-49 and (C- 30 or C-31 or C-32) |  |
|  | **Local start transaction - Cable plugin first** |  |  |  |  |  |
| TC\_E\_03 | Success | C | M | Applicable if one or more of the local start authorization options is implemented. | NOT AQ-2 and (C-30 - C-35 or ISO 15118  support) | Authorization options for local start |
|  | **Local start transaction - Authorization first** |  |  |  |  |  |
| TC\_E\_04 | Success | C | M | Applicable if one or more of the local start authorization options is implemented. | C-30 - C-35 or ISO  15118 support | Authorization options for local start |
| TC\_E\_05 | Cable plugin timeout | C |  | Applicable if one or more of the local start authorization options is implemented. | C-30 - C-35 or ISO  15118 support | Authorization options for local start |
| TC\_E\_52 | DisableRemoteAuthorization | C |  | If the Charging Station supports the option for disabling remote authorization | C-58 |  |

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|  | | | | | **Related features** | |
|  | **Start transaction options** |  |  |  |  |  |
| TC\_E\_09 | EVConnected | C | M | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EVConnected is a supported value. And it should be possible to not set ParkingBayOccupancy. | C-09.1 and (C-51 or NOT C-09.6) |  |
| TC\_E\_10 | Authorized - Local | C | M | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized is  a supported value.  - If one or more of the local start authorization options is implemented. | C-09.2 and (C-30 - C-35  or ISO 15118 support) | Supported Transaction Start Points & Authorization options for local start & Authorization - eMAID |
| TC\_E\_13 | Authorized - Remote | C |  | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized is a supported value. | C-09.2 | Supported Transaction Start points |
| TC\_E\_11 | DataSigned | C | M | CS: TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value DataSigned is a supported value. And it should be possible to not set ParkingBayOccupancy and  EVConnected and Authorized.  CSMS: Must at least be able to receive a signed MeterValue. It does not need to be able to read it. | C-09.3 and (C-51 or NOT (C-09.1 or C-09.2 or C-09.6)) | Supported Transaction Start points |
| TC\_E\_01 | PowerPathClosed | C | M | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value PowerPathClosed is a supported value. And it should be possible to not set ParkingBayOccupancy and EVConnected and Authorized and DataSigned. | C-09.4 and (C-51 or NOT (C-09.1 or C-09.2 or C-09.3 or C-09.6)) | Supported Transaction Start points |

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|  | | | | | **Related features** | |
| TC\_E\_02 | EnergyTransfer | C | M | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EnergyTransfer is a supported value. And it should be possible to not set ParkingBayOccupancy and EVConnected and Authorized and DataSigned and PowerPathClosed | C-09.5 and (C-51 or NOT (C-09.1 or C-09.2  or C-09.3 or C-09.4 or C-09.6)) | Supported Transaction Start points |
| TC\_E\_12 | ParkingBayOccupied | C | M | TxStartPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value ParkingBayOccupied is a supported value. | C-09.6 | Supported Transaction Start points |
|  | **Stop transaction options** |  |  |  |  |  |
| TC\_E\_14 | EVDisconnected - Charging Station side | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EVConnected is a supported value. And it should be possible to not set EnergyTransfer and  PowerPathClosed and Authorized.  Charging Station does NOT have a fixed cable. | HFS-1 and C-10.1 and (C-52 or NOT (C-10.2 or C-10.3 or C-10.4)) | Supported Transaction Stop points |
| TC\_E\_20 | EVDisconnected - EV side (able to charge IEC 61851-1 EV) | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EVConnected is a supported value. And it should be possible to not set EnergyTransfer and  PowerPathClosed AND  The Charging Station does NOT have following configuration combination; **StopTxOnEVSideDisconnect** mutability ReadOnly with value *true* AND TxStopPoint mutability is *ReadOnly* and contains *Authorized* | C-10.1 and (C-52 or NOT (C-10.2 or C-10.3 or C-10.4)) AND NOT C-06.1) AND (AQ-9 OR  Product Subtype "Mode 1/2-only Charging Station") | Supported Transaction Stop points |

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|  | | | | | **Related features** | |
| TC\_E\_54 | EVDisconnected - EV side (not able to charge IEC 61851-1 EV) | C |  | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EVConnected is a supported value. And it should be possible to not set EnergyTransfer and  PowerPathClosed AND  The Charging Station does NOT have following configuration combination; **StopTxOnEVSideDisconnect** mutability ReadOnly with value *true* AND TxStopPoint mutability is *ReadOnly* and contains *Authorized* | C-10.1 and (C-52 or NOT (C-10.2 or C-10.3 or C-10.4)) AND (HFS-4  OR ISO15118 support) AND NOT Product Subtype "Mode 1/2- only Charging Station" | Supported Transaction Stop points |
| TC\_E\_15 | StopAuthorized - Local | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized is  a supported value.  The Charging Station supports E07 Transaction locally stopped by IdToken with at least one of the following local start authorization options: C-30, C-31, C-32, C35 | C-10.2 and (C-30 or C- 31 or C-32 or C35) | Supported Transaction Stop Points & Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode / NoAuthorization |
| TC\_E\_21 | StopAuthorized - Remote | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized is a supported value. | C-10.2 | Supported Transaction Stop points |
| TC\_E\_16 | Deauthorized - Invalid idToken | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized or  PowerPathClosed is a supported value. Charging Station: If one or more of the local  start authorization options is implemented. AND either a cache, local authorization list or UnknownIdtag (C15) is implemented. | (C-10.2 or C-10.3) and (C-30 - C-35 or ISO  15118 support) and C- 01 | Supported Transaction Stop Points & Local Authorization options for local start & Authorization - eMAID |
| TC\_E\_17 | Deauthorized - EV side disconnect | C | M | * TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized or   PowerPathClosed is a supported value.   * StopTxOnEVSideDisconnect needs to ReadWrite or ReadOnly with value true | (C-10.2 or C-10.3) and C-06.2 and AQ-9 | Supported Transaction Stop points |

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|  | | | | | **Related features** | |
| TC\_E\_39 | Deauthorized - timeout | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value Authorized is a supported value. | C-10.2 | Supported Transaction Stop points |
| TC\_E\_07 | PowerPathClosed - Local stop | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value PowerPathClosed is a supported value. And it  should be possible to not set Authorized.  The Charging Station supports E07 Transaction locally stopped by IdToken with at least one of the following local start authorization options: C-30, C-31, C-32, C35 | C-10.3 and (C-52 or NOT C-10.2) and (C-30  or C-31 or C-32 or C35) | Supported Transaction Stop Points & Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode / NoAuthorization |
| TC\_E\_35 | PowerPathClosed - Remote stop | C |  | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value PowerPathClosed is a supported value. And it should be possible to not set Authorized. | C-10.3 and (C-52 or NOT C-10.2) | Supported Transaction Stop points |
| TC\_E\_37 | PowerPathClosed - EV side disconnect | C |  | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value PowerPathClosed is a supported value. And it should be possible to not set EnergyTransfer and EVConnected. | C-10.3 and (C-52 or NOT (C-10.1 or C- 10.4)) AND (AQ-9 OR  Product Subtype "Mode 1/2-only Charging Station") | Supported Transaction Stop points |
| TC\_E\_08 | EnergyTransfer stopped - StopAuthorized | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EnergyTransfer is a supported value. And it should be possible to not set PowerPathClosed and Authorized. | C-10.4 and (C-52 or NOT (C-10.2 or C- 10.3)) | Supported Transaction Stop points |
| TC\_E\_22 | EnergyTransfer stopped - SuspendedEV | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value EnergyTransfer is a supported value. | C-10.4 | Supported Transaction Stop points |

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|  | | | | | **Related features** | |
| TC\_E\_19 | ParkingBayUnoccupied | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value ParkingBayOccupancy is a supported value. And it should be possible to not set EnergyTransfer and Authorized and PowerPathClosed and EVConnected. | C-10.5 and (C-52 or NOT (C-10.1 or C-10.2 or C-10.3 or C-10.4)) | Supported Transaction Stop points |
|  | **Disconnect cable on EV-side** |  |  |  |  |  |
| TC\_E\_24 | Deauthorize transaction - UnlockOnEVSideDisconnect is true | C |  | The Charging Station does NOT have a permanently attached cable.  UnlockOnEVSideDisconnect can be set to true StopTxOnEVSideDisconnect can be set to true | HFS-1 and C-06.2 and C-12.1 and AQ-9 and NOT Product Subtype "Mode 1/2-only Charging Station" | Support for not maintaining authorization when cable disconnected on EV side & Support for unlocking connector when cable disconnected on EV side |
| TC\_E\_25 | Deauthorize transaction - UnlockOnEVSideDisconnect is false | C |  | UnlockOnEVSideDisconnect can be set to false StopTxOnEVSideDisconnect can be set to true | C-06.2 and C-12.2 and (AQ-9 OR Product Subtype "Mode 1/2- only Charging Station") | Support for not maintaining authorization when cable disconnected on EV side & Support for not unlocking connector when cable disconnected on EV side |
| TC\_E\_26 | Suspend transaction | C | M | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value ParkingBayOccupancy or Authorized is a supported value. And it should be possible to not set EnergyTransfer and PowerPathClosed  and EVConnected. UnlockOnEVSideDisconnect can be set to false  StopTxOnEVSideDisconnect can be set to false | (C-10.2 or C-10.5) and (C-52 or NOT (C-10.1 or C-10.3 or C-10.4))  and C-06.1 and C-12.2 and AQ-9 and NOT Product Subtype "Mode 1/2-only Charging Station" |  |
| TC\_E\_27 | Suspend transaction - Fixed cable connection timeout | C |  | TxStopPoint can either be ReadOnly with a subset of the values or have a valueList of supported values, that contains a subset. This testcase is applicable if the value ParkingBayOccupancy or Authorized is a supported value. And it should be possible to not set EnergyTransfer and PowerPathClosed  and EVConnected.  The Charging Station has a permanently  attached cable at the Charging Station side.  UnlockOnEVSideDisconnect can be set to false StopTxOnEVSideDisconnect can be set to false | (C-10.2 or C-10.5) and (C-52 or NOT (C-10.1 or C-10.3 or C-10.4))  and C-06.1 and C-12.2 and HFS-2 and AQ-9 and NOT Product Subtype "Mode 1/2- only Charging Station" |  |

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|  | | | | | **Related features** | |
|  | **Retry sending transaction message when failed** |  |  |  |  |  |
| TC\_E\_41 | Max retry count reached | M |  |  |  |  |
| TC\_E\_42 | Success before reaching the max retry count | M |  |  |  |  |
| TC\_E\_50 | Max retry count reached - CallError | M |  |  |  |  |
| TC\_E\_51 | Success before reaching the max retry count - CallError | M |  |  |  |  |
|  | **Offline Behaviour** |  |  |  |  |  |
| TC\_E\_40 | Connection loss during transaction | M |  |  |  |  |
| TC\_E\_43 | Transaction during offline period | C |  | Charging Station: If one or more of the local start authorization options is implemented. | C-01 and (C-30 - C-35  or ISO 15118 support) | Offline transaction support & Local Authorization options for local start |
| TC\_E\_44 | Stop transaction during offline period | C |  | Charging Station: If one or more of the local start authorization options is implemented. | C-01 and (C-30 - C-35  or ISO 15118 support) | Offline transaction support & Local Authorization options for local start & Authorization - eMAID |
| TC\_E\_45 | Stop transaction during offline period - Same GroupId | C |  | For CS: the Charging Station supports at least one of the following local start authorization options: C-30, C-31, C-32 and Local Authorization List or Authorization Cache | (C-30 or C-31 or C-32)  AND (Local Authorization List Management or C-49) | Local Authorization - using RFID ISO14443 / RFID ISO15693 /  KeyCode and Local Authorization List or Authorization Cache |
|  | **Check Transaction status** |  |  |  |  |  |
| TC\_E\_28 | TransactionId unknown | M |  |  |  |  |
| TC\_E\_29 | Transaction with id ongoing - with message in queue | M | C |  | C-16 | Check TransactionStatus |
| TC\_E\_30 | Transaction with id ongoing - without message in queue | M | C |  | C-16 | Check TransactionStatus |
| TC\_E\_31 | Transaction with id ended - with message in queue | M | C |  | C-16 | Check TransactionStatus |
| TC\_E\_32 | Transaction with id ended - without message in queue | M |  |  |  |  |
| TC\_E\_33 | Without transactionId - with message in queue | M | C |  | C-16 | Check TransactionStatus |
| TC\_E\_34 | Without transactionId - without message in queue | M | C |  | C-16 | Check TransactionStatus |
|  | **Reset Sequence Number** |  |  |  |  |  |
| TC\_E\_53 | CSMS accepting *seqNo* = 0 at start of transaction |  | M |  |  |  |
|  | **Remote start transaction** |  |  |  |  |  |
| TC\_F\_01 | Cable plugin first | C | M | If the Charging Station does not have a cable lock. | NOT AQ-2 and (C-36  -(or) C-39) | Authorization options for remote start |

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|  | | | | | **Related features** | |
| TC\_F\_02 | Remote start first - AuthorizeRemoteStart is true | C | M | If AuthorizeRemoteStart can be set to true | C-48.1 and (C-36 -(or) C-39) | Authorization options for remote start |
| TC\_F\_03 | Remote start first - AuthorizeRemoteStart is false | C | M | If AuthorizeRemoteStart can be set to false | C-48.2 and (C-36 -(or) C-39) | Authorization options for remote start |
| TC\_F\_04 | Remote start first - Cable plugin timeout | M | M |  |  |  |
|  | **Remote stop transaction** |  |  |  |  |  |
| TC\_F\_08 | Success | M |  |  |  |  |
| TC\_F\_09 | Rejected | M |  |  |  |  |
|  | **Remote unlock Connector** |  |  |  |  |  |
| TC\_F\_05 | With ongoing transaction | C |  | If the Charging Station has a detachable cable. | HFS-1 and NOT  Product Subtype "Mode 1/2-only Charging Station" |  |
| TC\_F\_06 | Without ongoing transaction - Accepted | HFS-1 and NOT  Product Subtype "Mode 1/2- only Charging Station" | C-11 | If the Charging Station has a detachable cable. If the CSMS support the Unlocking connector for Charging Station with detachable cable (UnlockConnector) feature. | See column 3/4 |  |
| TC\_F\_07 | Without ongoing transaction - No cable connected | C |  | If the Charging Station has a detachable cable. | HFS-1 and NOT  Product Subtype "Mode 1/2-only Charging Station" |  |
| TC\_F\_10 | Without ongoing transaction - UnknownConnector | C |  | If the Charging Station has a detachable cable. | HFS-1 and NOT  Product Subtype "Mode 1/2-only Charging Station" |  |
|  | **Trigger message** |  |  |  |  |  |
| TC\_F\_11 | MeterValues - Specific EVSE | C | C | If the SUT supports TriggerMessage for requestedMessage MeterValues for a specific EVSE. | C-29.1 | TriggerMessage |
| TC\_F\_12 | MeterValues - All EVSE | C | C | If the SUT supports TriggerMessage for requestedMessage MeterValues for a all EVSE. | C-29.1 | TriggerMessage |
| TC\_F\_13 | TransactionEvent - Specific EVSE | C | C | If the SUT supports TriggerMessage for requestedMessage TransactionEvent for a specific EVSE. | C-29.2 | TriggerMessage |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_F\_14 | TransactionEvent - All EVSE | C | C | If the SUT supports TriggerMessage for requestedMessage TransactionEvent for a all EVSE. | C-29.2 | TriggerMessage |
| TC\_F\_15 | LogStatusNotification - Idle | C | C | If the SUT supports TriggerMessage for requestedMessage LogStatusNotification. | C-29.3 | TriggerMessage |
| TC\_F\_16 | LogStatusNotification - Uploading | C |  | If the Charging Station supports TriggerMessage for requestedMessage LogStatusNotification. | C-29.3 | TriggerMessage |
| TC\_F\_17 | FirmwareStatusNotification - Specific EVSE not relevant | C |  | If the Charging Station supports TriggerMessage for requestedMessage FirmwareStatusNotification. | C-29.4 | TriggerMessage |
| TC\_F\_18 | FirmwareStatusNotification - Idle | C | C | If the SUT supports TriggerMessage for requestedMessage FirmwareStatusNotification. | C-29.4 | TriggerMessage |
| TC\_F\_19 | FirmwareStatusNotification - Downloading | C |  | If the Charging Station supports TriggerMessage for requestedMessage FirmwareStatusNotification. | C-29.4 | TriggerMessage |
| TC\_F\_20 | Heartbeat | M | M |  |  |  |
| TC\_F\_23 | StatusNotification - Specific EVSE - Available | C | C | If the SUT supports TriggerMessage for requestedMessage StatusNotification for a specific EVSE. | C-29.5 | TriggerMessage |
| TC\_F\_24 | StatusNotification - Specific EVSE - Occupied | C | C | If the SUT supports TriggerMessage for requestedMessage StatusNotification for a specific EVSE. | C-29.5 | TriggerMessage |
| TC\_F\_26 | BootNotification - Rejected | C |  | If the Charging Station supports TriggerMessage for requestedMessage BootNotification. | C-29.6 | TriggerMessage |
| TC\_F\_27 | NotImplemented | C | M | For CS: can only be done when SignCombinedCertificate is notimplemented | NOT ISO-3 |  |
|  | **Connector status Notification** |  |  | Charging Station: This can either be implemented with the StatusNotification or  NotifyEvent message.  CSMS: Both StatusNotification and NotifyEvent must be supported. |  |  |
| TC\_G\_01 | Available to Occupied | M |  |  |  |  |
| TC\_G\_02 | Occupied to Available | M |  |  |  |  |
| TC\_G\_20 | Lock Failure |  | M |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
|  | **Change Availability EVSE** |  |  | Charging Station: This can either be implemented with the StatusNotification or  NotifyEvent message.  CSMS: Both StatusNotification and NotifyEvent must be supported. |  |  |
| TC\_G\_03 | Operative to inoperative | M | M |  |  |  |
| TC\_G\_09 | Operative to operative | M |  |  |  |  |
| TC\_G\_04 | Inoperative to operative | M | M |  |  |  |
| TC\_G\_10 | Inoperative to inoperative | M |  |  |  |  |
| TC\_G\_11 | With ongoing transaction | M | M |  |  |  |
| TC\_G\_18 | state persists across reboot | M |  |  |  |  |
|  | **Change Availability Charging Station** |  |  | Charging Station: This can either be implemented with the StatusNotification or  NotifyEvent message.  CSMS: Both StatusNotification and NotifyEvent must be supported. |  |  |
| TC\_G\_05 | Operative to inoperative | M | M |  |  |  |
| TC\_G\_12 | Operative to operative | M |  |  |  |  |
| TC\_G\_06 | Inoperative to operative | M | M |  |  |  |
| TC\_G\_13 | Inoperative to inoperative | M |  |  |  |  |
| TC\_G\_21 | state persists across reboot | M |  |  |  |  |
| TC\_G\_14 | With ongoing transaction | M | M |  |  |  |
|  | **Change Availability Connector** |  |  | Charging Station: This can either be implemented with the StatusNotification or  NotifyEvent message.  CSMS: Both StatusNotification and NotifyEvent must be supported. |  |  |
| TC\_G\_07 | Operative to inoperative | M | M |  |  |  |
| TC\_G\_15 | Operative to operative | M |  |  |  |  |
| TC\_G\_08 | Inoperative to operative | M | M |  |  |  |
| TC\_G\_16 | Inoperative to inoperative | M |  |  |  |  |
| TC\_G\_17 | With ongoing transaction | M | M |  |  |  |
| TC\_G\_19 | state persists across reboot | M |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
|  | **Clock-aligned Meter Values** |  |  | Charging Station can choose which  measurands are supported (At least one). This can either be implemented with the MeterValues or NotifyEvent message. |  |  |
| TC\_J\_01 | No transaction ongoing | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_02 | Transaction ongoing | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_03 | EventType Ended | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_04 | Signed | C | M | Charging Station: If signed MeterValues is  implemented  CSMS: Must at least be able to receive a signed MeterValue. It does not need to be able to read it. | C-40 and C-42 | Supported MeterValue Measurands & Signed Metervalues |
| TC\_J\_06 | No Meter Values during transaction | C |  | If AlignedDataSendDuringIdle is supported. | C-28 | AlignedDataSendDuringIdle |
|  | **Sampled Meter Values** |  |  | Charging Station can choose which measurands are supported (At least one). |  |  |
| TC\_J\_07 | EventType Started - EVSE known | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_08 | Context Transaction.Begin - EVSE not known | C | M |  | C-40 and NOT AQ-8 AND (C-09.2 OR C- 09.6) | Supported MeterValue Measurands & possibility to enforce EVSE being known. |
| TC\_J\_09 | EventType Updated | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_10 | EventType Ended | M | M |  | C-40 | Supported MeterValue Measurands |
| TC\_J\_11 | Signed | C | M | Charging Station: If signed MeterValues is  implemented  CSMS: Must at least be able to receive a signed MeterValue. It does not need to be able to read it. | C-42 | Supported MeterValue Measurands & Signed Metervalues |
|  | **Remote start transaction with charging profile** |  |  |  |  |  |
| TC\_K\_38 | Ignore chargingProfile | C |  | The Charging Station does NOT support Smart Charging. | NOT Smart Charging |  |
|  | **Secure Firmware Update** |  |  |  |  |  |
| TC\_L\_01 | Installation successful | M | M |  |  |  |
| TC\_L\_02 | InstallScheduled | M | C |  | C-15 | Scheduled firmware updates |
| TC\_L\_03 | DownloadScheduled | M | C |  | C-15 | Scheduled firmware updates |
| TC\_L\_04 | RevokedCertificate |  | M |  |  |  |
| TC\_L\_05 | InvalidCertificate | M | M |  |  |  |
| TC\_L\_06 | InvalidSignature | M | M |  |  |  |
| TC\_L\_07 | DownloadFailed | M | M |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_L\_08 | InstallVerificationFailed or InstallationFailed | M | M |  |  |  |
| TC\_L\_09 | InstallationFailed |  | M |  |  |  |
| TC\_L\_10 | AcceptedCanceled | C | M | The Charging Station supports cancellling an ongoing firmware update | C-60 |  |
| TC\_L\_11 | Unable to cancel | C | M | The Charging Station does NOT supports cancellling an ongoing firmware update | NOT C-60 |  |
| TC\_L\_18 | Missing firmware signing certificate and signature | M |  |  |  |  |
| TC\_L\_12 | Unable to download/install firmware with ongoing transaction - AllowNewSessionsPendingFirmwareUpdate is true | C |  | AllowNewSessionsPendingFirmwareUpdate is  implemented.  The Charging Station is unable to download AND install firmware while there is an ongoing transaction. | C-20 and NOT C-43  and NOT AQ-7 and HFS-8 > 1 | AllowNewSessionsPendingFirmwa reUpdate |
| TC\_L\_13 | Unable to download/install firmware with ongoing transaction - AllowNewSessionsPendingFirmwareUpdate is false | C | M | AllowNewSessionsPendingFirmwareUpdate is  implemented.  The Charging Station is unable to download AND install firmware while there is an ongoing transaction. | NOT C-43 and NOT AQ- 7 |  |
| TC\_L\_14 | Unable to install firmware with ongoing transaction - AllowNewSessionsPendingFirmwareUpdate is true | C |  | AllowNewSessionsPendingFirmwareUpdate is  implemented.  The Charging Station is unable to install firmware while there is an ongoing transaction | C-20 and NOT C-43  and AQ-7 and HFS-8 > 1 | AllowNewSessionsPendingFirmwa reUpdate |
| TC\_L\_15 | Unable to install firmware with ongoing transaction - AllowNewSessionsPendingFirmwareUpdate is false | C |  | AllowNewSessionsPendingFirmwareUpdate is  implemented.  The Charging Station is unable to install firmware while there is an ongoing transaction | NOT C-43 and AQ-7 |  |
| TC\_L\_16 | Able to update firmware with ongoing transaction | C |  | If the Charging Station supports Install Firmware with ongoing transaction(s) | C-43 | Install Firmware with ongoing transaction(s) |
|  | **Retrieve certificates from Charging Station** |  |  |  |  |  |
| TC\_M\_12 | CSMSRootCertificate | M |  |  |  |  |
| TC\_M\_13 | ManufacturerRootCertificate | M | M |  |  |  |
| TC\_M\_17 | CSMSRootCertificate & ManufacturerRootCertificate | M |  |  |  |  |
| TC\_M\_18 | All certificateTypes | M | M |  |  |  |
| TC\_M\_19 | No matching certificate found | M | M |  |  |  |
|  | **Delete a certificate from a Charging Station** |  |  |  |  |  |
| TC\_M\_20 | Success | M | M |  |  |  |
| TC\_M\_21 | Failed |  | M |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_M\_22 | No matching certificate found | M |  |  |  |  |
| TC\_M\_23 | Unable to delete the Charging Station Certificate | M |  |  |  |  |
|  | **Install CA certificate** |  |  |  |  |  |
| TC\_M\_01 | CSMSRootCertificate | M | M |  |  |  |
| TC\_M\_02 | ManufacturerRootCertificate | M | M |  |  |  |
| TC\_M\_05 | Failed |  | M |  |  |  |
| TC\_M\_07 | Rejected - Certificate invalid | M |  |  |  |  |
| TC\_M\_09 | AdditionalRootCertificateCheck - Rejected | C |  | If the Charging Station supports AdditionalRootCertificateCheck with value true | AS-2 | Additional Root Certificate check mechanism implemented |
| TC\_M\_30 | AdditionalRootCertificateCheck - Reconnect using new CSMS Root - Success | C |  | If the Charging Station supports AdditionalRootCertificateCheck with value true | AS-2 | Additional Root Certificate check mechanism implemented |
| TC\_M\_31 | AdditionalRootCertificateCheck - Reconnect using new CSMS Root - Fallback mechanism | C |  | If the Charging Station supports AdditionalRootCertificateCheck with value true | AS-2 | Additional Root Certificate check mechanism implemented |
|  | **Retrieve Log Information** |  |  |  |  |  |
| TC\_N\_25 | Diagnostics Log - Success | M | M |  |  |  |
| TC\_N\_34 | Rejected |  | M |  |  |  |
| TC\_N\_26 | Diagnostics Log - Upload failed | M |  |  |  |  |
| TC\_N\_35 | Security Log - Success | M | M |  |  |  |
| TC\_N\_36 | Second Request | C | M | If the Charging Station is able to cancel an ongoing log file upload. | C-57 |  |
|  | **Get Customer Information** |  |  |  |  |  |
| TC\_N\_27 | Accepted + data | C | M | For CS: The Charging Station needs to support Local Authorization and either the Local  Authorization List or Authorization Cache. IdToken is used as customer information. | (C-30 or C-31 or C-34)  and (Local Authorization List Management or C-49) |  |
| TC\_N\_28 | Accepted + no data | C | M | For CS: The Charging Station needs to support Local Authorization and either the Local  Authorization List or Authorization Cache. IdToken is used as customer information. | (C-30 or C-31 or C-34)  and (Local Authorization List Management or C-49) |  |
| TC\_N\_29 | Not Accepted |  | M |  |  |  |
|  | **Clear Customer Information** |  |  |  |  |  |
| TC\_N\_30 | Clear and report + data | C | M | For CS: The Charging Station needs to support  Local Authorization or the Authorization Cache. IdToken is used as customer information. | (C-30 or C-31 or C-34)  and (Local Authorization List Management or C-49) |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| TC\_N\_31 | Clear and report + no data | C | M | For CS: The Charging Station needs to support  Local Authorization or the Authorization Cache. IdToken is used as customer information. | (C-30 or C-31 or C-34)  and (Local Authorization List Management or C-49) |  |
| TC\_N\_32 | Clear and no report | M | M |  |  |  |
| TC\_N\_62 | Clear and report - customerIdentifier | C | C | Support for retrieving / deleting CustomerInformation - CustomerIdentifier | C-14 |  |
|  | **Data Transfer to the Charging Station** |  |  |  |  |  |
| TC\_P\_01 | Rejected / Unknown VendorId / Unknown MessageId | M |  | Charging Station must be able to Reject the message. |  |  |
|  | **Data Transfer to the CSMS** |  |  |  |  |  |
| TC\_P\_02 | Rejected / Unknown VendorId / Unknown MessageId |  | M | CSMS must be able to Reject the message. |  |  |
|  | **CustomData** |  |  |  |  |  |
| TC\_P\_03 | Receive custom data | M | M |  |  |  |

## Test Cases Advanced Security

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Related features** | |
| **OCTT Id** | **OCPP Compliance Testing Tool scenario** | **Conf. Test for Charging Station** | **Conf. test for CSMS** | **Condition / remark** | **Feature no.** | **Feature** |
|  | **TLS - Client-side certificate** |  |  |  |  |  |
| TC\_A\_07 | valid certificate | M | M |  |  |  |
| TC\_A\_08 | Invalid certificate |  | M |  |  |  |
|  | **Update Charging Station Certificate by request of CSMS** |  |  |  |  |  |
| TC\_A\_11 | Success - Charging Station Certificate | M | M |  |  |  |
| TC\_A\_14 | Invalid certificate | M | M |  |  |  |
| TC\_A\_15 | SignCertificateRequest Rejected | M |  |  |  |  |
| TC\_A\_23 | CertificateSignedRequest Timeout | C |  | If the Charging Station supports CertificateSignedRequest Timeout | AS-3 |  |
|  | **Upgrade Charging Station Security Profile** |  |  |  |  |  |
| TC\_A\_21 | No valid ChargingStationCertificate installed | C |  | If the last ChargingStationCertificate can be removed (Via other means than OCPP). | AQ-1 |  |

## Test Cases Local Authorization List Management

*List will become available in a later version of this document.*

## Test Cases Smart Charging

*List will become available in a later version of this document.*

## Test Cases Advanced Device Management

*List will become available in a later version of this document.*

## Test Cases Reservation

*List will become available in a later version of this document.*

## Test Cases Advanced User Interface

*List will become available in a later version of this document.*

## Test Cases ISO 15118 Support

*List will become available in a later version of this document.*

# OCPP 2.0.1 Mandatory Controller components per profile

Controller components contain variables that describe the supported features of a Charging Station and influence its behavior. In OCPP 2.0.1 we have configuration variables that are required or optional, but these are contained by controller components.

Functionalities cannot be tested without the accompanying controller component, so for certification the following controller components are mandatory:

|  |  |
| --- | --- |
| **Certification Profile** | **Description** |
| **Core** | OCPPCommCtrlr TxCtrlr DeviceDataCtrlr ClockCtrlr SecurityCtrlr SampledDataCtrlr  AlignedDataCtrlr AuthCtrlr |
| **Advanced Security** | SecurityCtrlr (already part of Core) |
| **Smart Charging** | SmartChargingCtrlr |
| **ISO 15118 Support** | ISO15118Ctrlr SmartChargingCtrlr |
| **Advanced Diagnostics** | MonitoringCtrlr |
| **Local Authorization List Management** | LocalAuthListCtrlr |
| **Advanced UI** | TariffCostCtrlr DisplayMessageCtrlr |
| **Reservation** | ReservationCtrlr |

# Appendix A: additional questions for the Protocol Implementation Conformance Statement

To perform the certification testing, the test lab need some additional information (for the test selection). This concerns the following questions:

## Questions for Charging Stations

|  |  |
| --- | --- |
| **Id** | **Additional questions for lab testing** |
| AQ-1 | Can the last CSMSRootCertificate be removed? |
| AQ-2 | Does the Charging Station have a cable lock, which prevents the EV driver to connect the EV and EVSE before authorization? |
| AQ-3 | Can the last ChargingStationCertificate be removed (via other means than OCPP)? |
| AQ-4 | Is there at least one unsupported NumberOfPhases? |
| AQ-5 | Does the Charging Station have at least one hardWired monitor? If yes, which hardWired monitor should be used for the certification test |
| AQ-6 | Does the Charging Station have a pre-configured monitor? If yes, which pre-configured monitor should be used for the certification test |
| AQ-7 | Is your Charging Station able to download firmware while there is an ongoing transaction? |
| AQ-8 | Does your Charging Station enforce a selection of EVSE (by design) prior to authorization? |
| AQ-9 | Does your Charging Station support charging an EV using IEC 61851-1 (Mode 3)? |

## Questions for CSMSs

|  |  |
| --- | --- |
| **Id** | **Additional questions for lab testing** |
| AQ-1 | Can your CSMS be configured to first respond to a BootNotificationRequest with status Pending or Rejected? |
| AQ-2 | Is a FullInventory requested during onboarding / booting test cases? |
| AQ-6 | Does the CSMS reject unknown Charging Stations during websocket connection setup? |

# Appendix B: Hardware feature set

The table below gives an overview of the hardware feature set Ids that are used for determining whether test cases are needed / applicable for certification.

*Table 4. Hardware features*

|  |  |
| --- | --- |
| **Id** | **Hardware Feature** |
| HFS-1 | Charging Station has a detachable cable |
| HFS-2 | Charging Station has a fixed cable |
| HFS-3 | Charging Station has AC support |
| HFS-4 | Charging Station has DC support |
| HFS-5 | Charging Station has 1 phase support |
| HFS-6 | Charging Station has 2 phase support |
| HFS-7 | Charging Station has 3 phase support |
| HFS-8 | No. EVSEs of Charging Station |

# Appendix C: Features vs. OCPP use cases

The table below gives an overview of the use cases / configuration variables that the features are applicable for / referring to in the OCPP 2.0.1 Specificiation Part 2.

*Table 5. Optional features vs. related use cases*

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **Related use cases** |
| **Core** | | |
| C-01 | Support for offline authorization of transactions | C15, C10, C11, C12 |
| C-02 | Support for allowing Offline Authorization for Unknown Ids (OfflineTxForUnknownIdEnabled) | C15 |
| C-03 | Support for maximizing energy for invalid ids (MaxEnergyOnInvalidId) | C15, E05 |
| C-04 | Support to limit StatusNotifications (MinimumStatusDuration) | Configuration Variable for G01 |
| C-05 | Support for changing WebSocketPingInterval (WebSocketPingInterval) | Configuration Variable related (B05, B06) |
| C-06 | Authorization status after cable disconnected on EV side (StopTxOnEVSideDisconnect) |  |
| C-06.1 | Support for maintaining authorization when cable disconnected on EV side | E10 |
| C-06.2 | Support for not maintaining authorization when cable disconnected on EV side | E09 |
| C-07 | Support for using a Master Pass for charging stations with UI (MasterPassGroupId) | C16 |
| C-08 | Support for using a Master Pass for charging stations without UI (MasterPassGroupId) | C16 |
| C-09 | Supported Transaction Start points (TxStartPoint) | E01 |
| C-09.1 | Start transaction options - EVConnected | E01-S2 |
| C-09.2 | Start transaction options - Authorized | E01-S3 |
| C-09.3 | Start transaction options - DataSigned | E01-S4 |
| C-09.4 | Start transaction options - PowerPathClosed | E01-S5 |
| C-09.5 | Start transaction options - EnergyTransfer | E01-S6 |
| C-09.6 | Start transaction options - ParkingBayOccupancy | E01-S1 |
| C-10 | Supported Transaction Stop points (TxStopPoint) | E06 |
| C-10.1 | Stop transaction options - EVConnected | E06-S2 |
| C-10.2 | Stop transaction options - Authorized | E06-S3 |
| C-10.3 | Stop transaction options - PowerPathClosed | E06-S5 |
| C-10.4 | Stop transaction options - EnergyTransfer | E06-S6 |
| C-10.5 | Stop transaction options - ParkingBayOccupancy | E06-S1 |
| C-12 | Unlocking of connector when cable disconnected on EV side (UnlockOnEVSideDisconnect) | E09, E10 |
| C-12.1 | Support for unlocking connector when cable disconnected on EV side | E09, E10 |
| C-12.2 | Support for not unlocking when cable disconnected on EV side | E09, E10 |
| C-13 | Support for Reset per EVSE (AllowReset) | B11, B12 |
| C-14 | Support for retrieving / deleting CustomerInformation - CustomerIdentifier | N09, N10 |
| C-20 | Allowing New Sessions Pending a FirmwareUpdate (AllowNewSessionsPendingFirmwareUpdate) | Configuration Variable for L01 |
| C-21 | Support for queuing all or only Transaction related messages until they are delivered to the CSMS (QueueAllMessages) | Optional |
| *Time related settings* | | |
| C-23 | Supported time sources (TimeSource) |  |
| C-25 | Support for setting a TimeOffset (TimeOffset) | Configuration Variable (B05, B06) |
| C-26 | Support for setting the TimeZone (TimeZone) | Configuration Variable (B05, B06) |
| C-28 | Toggle sending clock aligned meter values when a transaction is ongoing / Idle (AlignedDataSendDuringIdle) | Configuration Variable for J01 |
| C-29 | TriggerMessage | F06 |

|  |  |  |
| --- | --- | --- |
| **Id** | **Feature** | **Related use cases** |
| C-29.1 | Trigger message - MeterValues | F06 |
| C-29.2 | Trigger message - TransactionEvent | F06 |
| C-29.3 | Trigger message - LogStatusNotification | F06 |
| C-29.4 | Trigger message - FirmwareStatusNotification | F06 |
| C-29.5 | Trigger message - StatusNotification | F06 |
| C-29.6 | Trigger message - BootNotification | F06 |
| *Authorization options for local start* | | |
| C-30 | Authorization - using RFID ISO14443 | C01 |
| C-31 | Authorization - using RFID ISO15693 | C01 |
| C-32 | Authorization - using KeyCode | C04 |
| C-33 | Authorization - using locally generated id | C06 |
| C-34 | Authorization - MacAddress | C06 |
| C-35 | Authorization - NoAuthorization | C02 |
| *Authorization options for remote start (mandatory to support at least one)* | | |
| C-36 | Authorization - using RFID ISO14443 | C01 |
| C-37 | Authorization - using RFID ISO15693 | C01 |
| C-38 | Authorization - using centrally, in the CSMS (or other server) generated id | C05 |
| C-39 | Authorization - NoAuthorization | C02 |
|  | | |
| C-40 | Supported MeterValue Measurands  (SampledDataTx{Started,Updated,Ended}Measurands, AlignedDataMeasurands) | J01, J02 |
| C-41 | Supported Cipher Suites | See requirement A00.FR.318, A00.FR.319, A00.FR.421, A00.FR.422 |
| C-42 | Signed Metervalues (SampledDataSignReadings) | J01, J02 |
| C-43 | Install Firmware with ongoing transaction(s) (AllowNewSessionsPendingFirmwareUpdate) | Configuration Variable for L01 |
| C-47 | Support for falling back to default OCPP reconnection mechanism when NetworkConnection profile connection has failed | B10 (FR.07) |
| C-48 | Authorization of remote start (AuthorizeRemoteStart) | F01, F02 |
| C-48.1 | Option for authorization in case of a remote start | F01, F02 |
| C-48.2 | Option for no authorization in case of a remote start | F01, F02 |
| C-58 | Option for disabling remote authorization (DisableRemoteAuthorization) | Configuration Variable (B05, B06) |
| C-49 | Authorization Cache (AuthCacheEnabled) | C10, C11, C12 |
| C-59 | Option for disabling remote authorization for cached invalid idTokens (AuthCacheDisablePostAuthorize) | Configuration Variable for C10, C12 |
| C-51 | Configurable TxStartPoint | Configuration Variable for E01 |
| C-52 | Configurable TxStopPoint | Configuration Variable for E06 |
| C-53 | Support for lifetime cached token (AuthCacheLifeTime) | Configuration Variable for C10 |
| C-54 | Supported policies for replacing cached entries (AuthCachePolicy) | Configuration Variable for C10, C11, C12 |
| C-56 | Support for providing the SummaryInventory | B07 |
| C-57 | Support for cancelling ongoing log file upload | N01 (AcceptedCanceled) |
| C-60 | Support for cancelling ongoing firmware update | L01, L02 (AcceptedCanceled) |
| **Advanced Security** | | |
| AS-2 | Additional root certificate check mechanism implemented (AdditionalRootCertificateCheck) | Configuration Variable for M05 |
| AS-3 | Update Charging Station Certificate - CertificateSignedRequest Timeout (CertSigningWaitMinimum,CertSigningRepeatTimes) | Configuration Variable for A02, A03 |