Messages, Datatypes & Enumerations

# Messages

## Authorize

### AuthorizeRequest

This contains the field definition of the AuthorizeRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificate** | string[0..5500] | 0..1 | Optional. The X.509 certificated presented by EV and encoded in PEM format. |
| **idToken** | IdTokenType | 1..1 | Required. This contains the identifier that needs to be authorized. |
| **iso15118CertificateHashDa ta** | OCSPRequestDataType | 0..4 | Optional. Contains the information needed to verify the EV Contract Certificate via OCSP. |

### AuthorizeResponse

This contains the field definition of the AuthorizeResponse PDU sent by the CSMS to the Charging Station in response to an AuthorizeRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateStatus** | AuthorizeCertificateStatusEnumTy pe | 0..1 | Optional. Certificate status information. - if all certificates are valid: return 'Accepted'. - if one of the certificates was revoked, return 'CertificateRevoked'. |
| **idTokenInfo** | IdTokenInfoType | 1..1 | Required. This contains information about authorization status, expiry and group id. |

## BootNotification

### BootNotificationRequest

This contains the field definition of the BootNotificationRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **reason** | BootReasonEnumType | 1..1 | Required. This contains the reason for sending this message to the CSMS. |
| **chargingStation** | ChargingStationType | 1..1 | Required. Identifies the Charging Station |

### BootNotificationResponse

This contains the field definition of the BootNotificationResponse PDU sent by the CSMS to the Charging Station in response to a BootNotificationRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **currentTime** | dateTime | 1..1 | Required. This contains the CSMS’s current time. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **interval** | integer | 1..1 | Required. When Status is Accepted, this contains the heartbeat interval in seconds. If the CSMS returns something other than Accepted, the value of the interval field indicates the minimum wait time before sending a next BootNotification request. |
| **status** | RegistrationStatusEnumType | 1..1 | Required. This contains whether the Charging Station has been registered within the CSMS. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## CancelReservation

### CancelReservationRequest

This contains the field definition of the CancelReservationRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **reservationId** | integer | 1..1 | Required. Id of the reservation to cancel. |

### CancelReservationResponse

This contains the field definition of the CancelReservationResponse PDU sent by the Charging Station to the CSMS in response to a CancelReservationRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | CancelReservationStatusEnumTyp e | 1..1 | Required. This indicates the success or failure of the canceling of a reservation by CSMS. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## CertificateSigned

### CertificateSignedRequest

This contains the field definition of the CertificateSignedRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateChain** | string[0..10000] | 1..1 | Required. The signed PEM encoded X.509 certificate. This can also contain the necessary sub CA certificates. In that case, the order of the bundle should follow the  certificate chain, starting from the leaf certificate.  The Configuration Variable MaxCertificateChainSize can be used to limit the maximum size of this field. |
| **certificateType** | CertificateSigningUseEnumType | 0..1 | Optional. Indicates the type of the signed certificate that is returned. When omitted the certificate is used for both the 15118 connection (if implemented) and the Charging Station to CSMS connection. This field is required when a typeOfCertificate was included in the SignCertificateRequest that requested this certificate to be signed AND both the 15118 connection and the Charging Station connection are implemented. |

### CertificateSignedResponse

This contains the field definition of the CertificateSignedResponse PDU sent by the Charging Station to the CSMS in response to a CertificateSignedRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | CertificateSignedStatusEnumType | 1..1 | Required. Returns whether certificate signing has been accepted, otherwise rejected. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ChangeAvailability

### ChangeAvailabilityRequest

This contains the field definition of the ChangeAvailabilityRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **operationalStatus** | OperationalStatusEnumType | 1..1 | Required. This contains the type of availability change that the Charging Station should perform. |
| **evse** | EVSEType | 0..1 | Optional. Contains Id’s to designate a specific EVSE/connector by index numbers. When omitted, the message refers to the Charging Station as a whole. |

### ChangeAvailabilityResponse

This contains the field definition of the ChangeAvailabilityResponse PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ChangeAvailabilityStatusEnumType | 1..1 | Required. This indicates whether the Charging Station is able to perform the availability change. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ClearCache

### ClearCacheRequest

This contains the field definition of the ClearCacheRequest PDU sent by the CSMS to the Charging Station. No fields are defined.

### ClearCacheResponse

This contains the field definition of the ClearCacheResponse PDU sent by the Charging Station to the CSMS in response to a ClearCacheRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ClearCacheStatusEnumType | 1..1 | Required. Accepted if the Charging Station has executed the request, otherwise rejected. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ClearChargingProfile

### ClearChargingProfileRequest

This contains the field definition of the ClearChargingProfileRequest PDU sent by the CSMS to the Charging Station. The CSMS can use this message to clear (remove) either a specific charging profile (denoted by id) or a selection of charging profiles that match with the values of the optional evse, stackLevel and ChargingProfilePurpose fields.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **chargingProfileId** | integer | 0..1 | Optional. The Id of the charging profile to clear. |
| **chargingProfileCriteria** | ClearChargingProfileType | 0..1 | Optional. Specifies the charging profile. |

### ClearChargingProfileResponse

This contains the field definition of the ClearChargingProfileResponse PDU sent by the Charging Station to the CSMS in response to a ClearChargingProfileRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ClearChargingProfileStatusEnumTy pe | 1..1 | Required. Indicates if the Charging Station was able to execute the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ClearDisplayMessage

### ClearDisplayMessageRequest

This contains the field definition of the ClearDisplayMessageRequest PDU sent by the CSMS to the Charging Station. The CSMS asks the Charging Station to clear a display message that has been configured in the Charging Station to be cleared/removed. See also O05 - Clear a Display Message.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Id of the message that SHALL be removed from the Charging Station. |

### ClearDisplayMessageResponse

This contains the field definition of the ClearDisplayMessageResponse PDU sent by the Charging Station to the CSMS in a response to a ClearDisplayMessageRequest. See also O05 - Clear a Display Message.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ClearMessageStatusEnumType | 1..1 | Required. Returns whether the Charging Station has been able to remove the message. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ClearedChargingLimit

### ClearedChargingLimitRequest

This contains the field definition of the ClearedChargingLimitRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **chargingLimitSource** | ChargingLimitSourceEnumType | 1..1 | Required. Source of the charging limit. |
| **evseId** | integer | 0..1 | Optional. EVSE Identifier. |

### ClearedChargingLimitResponse

This contains the field definition of the ClearedChargingLimitResponse PDU sent by the CSMS to the Charging Station. No fields are defined.

## ClearVariableMonitoring

### ClearVariableMonitoringRequest

This contains the field definition of the ClearVariableMonitoringRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..\* | Required. List of the monitors to be cleared, identified by there Id. |

### ClearVariableMonitoringResponse

This contains the field definition of the ClearVariableMonitoringResponse PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **clearMonitoringResult** | ClearMonitoringResultType | 1..\* | Required. List of result statuses per monitor. |

## CostUpdated

### CostUpdatedRequest

This contains the field definition of the CostUpdatedRequest PDU sent by the CSMS to the Charging Station. With this request the CSMS can send the current cost of a transaction to a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **totalCost** | decimal | 1..1 | Required. Current total cost, based on the information known by the CSMS, of the transaction including taxes. In the currency configured with the configuration Variable: [Currency] |
| **transactionId** | identifierString[0..36] | 1..1 | Required. Transaction Id of the transaction the current cost are asked for. |

### CostUpdatedResponse

This contains the field definition of the CostUpdatedResponse PDU sent by the Charging Station to the CSMS in response to CostUpdatedRequest. No fields are defined.

## CustomerInformation

This contains the field definition of the CustomerInformationRequest PDU sent by the CSMS to the Charging Station.

### CustomerInformationRequest

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The Id of the request. |
| **report** | boolean | 1..1 | Required. Flag indicating whether the Charging Station should return NotifyCustomerInformationRequest messages containing information about the customer referred to. |
| **clear** | boolean | 1..1 | Required. Flag indicating whether the Charging Station should clear all information about the customer referred to. |
| **customerIdentifier** | string[0..64] | 0..1 | Optional. A (e.g. vendor specific) identifier of the customer this request refers to. This field contains a custom identifier other than IdToken and Certificate. One of the possible identifiers (customerIdentifier, customerIdToken or customerCertificate) should be in the request message. |
| **idToken** | IdTokenType | 0..1 | Optional. The IdToken of the customer this request refers to. One of the possible identifiers (customerIdentifier, customerIdToken or customerCertificate) should be in the request message. |
| **customerCertificate** | CertificateHashDataType | 0..1 | Optional. The Certificate of the customer this request refers to. One of the possible identifiers (customerIdentifier, customerIdToken or customerCertificate) should be in the request message. |

### CustomerInformationResponse

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | CustomerInformationStatusEnumT ype | 1..1 | Required. Indicates whether the request was accepted. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## DataTransfer

### DataTransferRequest

This contains the field definition of the DataTransferRequest PDU sent either by the CSMS to the Charging Station or vice versa.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **messageId** | string[0..50] | 0..1 | Optional. May be used to indicate a specific message or implementation. |
| **data** | anyType | 0..1 | Optional. Data without specified length or format. This needs to be decided by both parties (Open to implementation). |
| **vendorId** | string[0..255] | 1..1 | Required. This identifies the Vendor specific implementation |

### DataTransferResponse

This contains the field definition of the DataTransferResponse PDU sent by the Charging Station to the CSMS or vice versa in response to a DataTransferRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | DataTransferStatusEnumType | 1..1 | Required. This indicates the success or failure of the data transfer. |
| **data** | anyType | 0..1 | Optional. Data without specified length or format, in response to request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## DeleteCertificate

### DeleteCertificateRequest

Used by the CSMS to request deletion of an installed certificate on a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateHashData** | CertificateHashDataType | 1..1 | Required. Indicates the certificate of which deletion is requested. |

### DeleteCertificateResponse

Response to a DeleteCertificateRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | DeleteCertificateStatusEnumType | 1..1 | Required. Charging Station indicates if it can process the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## FirmwareStatusNotification

### FirmwareStatusNotificationRequest

This contains the field definition of the FirmwareStatusNotifitacionRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | FirmwareStatusEnumType | 1..1 | Required. This contains the progress status of the firmware installation. |
| **requestId** | integer | 0..1 | Optional. The request id that was provided in the UpdateFirmwareRequest that started this firmware update. This field is mandatory, unless the message was triggered by a TriggerMessageRequest AND there is no firmware update ongoing. |

### FirmwareStatusNotificationResponse

This contains the field definition of the FirmwareStatusNotificationResponse PDU sent by the CSMS to the Charging Station in response to a FirmwareStatusNotificationRequest. No fields are defined.

## Get15118EVCertificate

### Get15118EVCertificateRequest

This message is sent by the Charging Station to the CSMS if an ISO 15118 vehicle selects the service Certificate installation. NOTE: This message is based on CertificateInstallationReq Res from ISO 15118 2.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **iso15118SchemaVersion** | string[0..50] | 1..1 | Required. Schema version currently used for the 15118 session between EV and Charging Station. Needed for parsing of the EXI stream by the CSMS. |
| **action** | CertificateActionEnumType | 1..1 | Required. Defines whether certificate needs to be installed or updated. |
| **exiRequest** | string[0..5600] | 1..1 | Required. Raw CertificateInstallationReq request from EV, Base64 encoded. |

### Get15118EVCertificateResponse

Response message from CSMS to Charging Station containing the status and optionally new certificate. NOTE: This message is based on CertificateInstallationReq Res from ISO 15118-2.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | Iso15118EVCertificateStatusEnum Type | 1..1 | Required. Indicates whether the message was processed properly. |
| **exiResponse** | string[0..5600] | 1..1 | Required. Raw CertificateInstallationRes response for the EV, Base64 encoded. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetBaseReport

### GetBaseReportRequest

This contains the field definition of the GetBaseReportRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The Id of the request. |
| **reportBase** | ReportBaseEnumType | 1..1 | Required. This field specifies the report base. |

### GetBaseReportResponse

This contains the field definition of the GetBaseReportResponse PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericDeviceModelStatusEnumTy pe | 1..1 | Required. This indicates whether the Charging Station is able to accept this request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetCertificateStatus

### GetCertificateStatusRequest

This contains the field definition of the GetCertificateStatusRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **ocspRequestData** | OCSPRequestDataType | 1..1 | Required. Indicates the certificate of which the status is requested. |

### GetCertificateStatusResponse

This contains the field definition of the GetCertificateStatusResponse PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GetCertificateStatusEnumType | 1..1 | Required. This indicates whether the charging station was able to retrieve the OCSP certificate status. |
| **ocspResult** | string[0..5500] | 0..1 | Optional. OCSPResponse class as defined in IETF RFC 6960. DER encoded (as defined in IETF RFC 6960), and then base64 encoded. MAY only be omitted when status is not Accepted. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetChargingProfiles

### GetChargingProfilesRequest

The message GetChargingProfilesRequest can be used by the CSMS to request installed charging profiles from the Charging Station. The charging profiles will then be reported by the Charging Station via ReportChargingProfilesRequest messages.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. Reference identification that is to be used by the Charging Station in the ReportChargingProfilesRequest when provided. |
| **evseId** | integer | 0..1 | Optional. For which EVSE installed charging profiles SHALL be reported. If 0, only charging profiles installed on the Charging Station itself (the grid connection) SHALL be reported. If omitted, all installed charging profiles SHALL be reported. |
| **chargingProfile** | ChargingProfileCriterionType | 1..1 | Required. Specifies the charging profile. |

### GetChargingProfilesResponse

This contains the field definition of the GetChargingProfilesResponse PDU sent by the Charging Station to the CSMS in response to a GetChargingProfilesRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GetChargingProfileStatusEnumTyp e | 1..1 | Required. This indicates whether the Charging Station is able to process this request and will send ReportChargingProfilesRequest messages. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetCompositeSchedule

### GetCompositeScheduleRequest

This contains the field definition of the GetCompositeScheduleRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **duration** | integer | 1..1 | Required. Length of the requested schedule in seconds. |
| **chargingRateUnit** | ChargingRateUnitEnumType | 0..1 | Optional. Can be used to force a power or current profile. |
| **evseId** | integer | 1..1 | Required. The ID of the EVSE for which the schedule is requested. When evseid=0, the Charging Station will calculate the expected consumption for the grid connection. |

### GetCompositeScheduleResponse

This contains the field definition of the GetCompositeScheduleResponse PDU sent by the Charging Station to the CSMS in response to a GetCompositeScheduleRequest .

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericStatusEnumType | 1..1 | Required. The Charging Station will indicate if it was able to process the request |
| **schedule** | CompositeScheduleType | 0..1 | Optional. This field contains the calculated composite schedule. It may only be omitted when this message contains status Rejected. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetDisplayMessages

### GetDisplayMessagesRequest

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 0..\* | Optional. If provided the Charging Station shall return Display Messages of the given ids. This field SHALL NOT contain more ids than set in NumberOfDisplayMessages.maxLimit |
| **requestId** | integer | 1..1 | Required. The Id of this request. |
| **priority** | MessagePriorityEnumType | 0..1 | Optional. If provided the Charging Station shall return Display Messages with the given priority only. |
| **state** | MessageStateEnumType | 0..1 | Optional. If provided the Charging Station shall return Display Messages with the given state only. |

### GetDisplayMessagesResponse

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GetDisplayMessagesStatusEnumTy pe | 1..1 | Required. Indicates if the Charging Station has Display Messages that match the request criteria in the GetDisplayMessagesRequest |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetInstalledCertificateIds

### GetInstalledCertificateIdsRequest

Used by the CSMS to request an overview of the installed certificates on a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateType** | GetCertificateIdUseEnumType | 0..\* | Optional. Indicates the type of certificates requested. When omitted, all certificate types are requested. |

### GetInstalledCertificateIdsResponse

Response to a GetInstalledCertificateIDsRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GetInstalledCertificateStatusEnum Type | 1..1 | Required. Charging Station indicates if it can process the request. |
| **certificateHashDataChain** | CertificateHashDataChainType | 0..\* | Optional. The Charging Station includes the Certificate information for each available certificate. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetLocalListVersion

### GetLocalListVersionRequest

This contains the field definition of the GetLocalListVersionRequest PDU sent by the CSMS to the Charging Station. No fields are defined.

### GetLocalListVersionResponse

This contains the field definition of the GetLocalListVersionResponse PDU sent by the Charging Station to CSMS in response to a GetLocalListVersionRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **versionNumber** | integer | 1..1 | Required. This contains the current version number of the local authorization list in the Charging Station. |

## GetLog

### GetLogRequest

This contains the field definition of the GetLogRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **logType** | LogEnumType | 1..1 | Required. This contains the type of log file that the Charging Station should send. |
| **requestId** | integer | 1..1 | Required. The Id of this request |
| **retries** | integer | 0..1 | Optional. This specifies how many times the Charging Station must try to upload the log before giving up. If this field is not present, it is left to Charging Station to decide how many times it wants to retry. |
| **retryInterval** | integer | 0..1 | Optional. The interval in seconds after which a retry may be attempted. If this field is not present, it is left to Charging Station to decide how long to wait between attempts. |
| **log** | LogParametersType | 1..1 | Required. This field specifies the requested log and the location to which the log should be sent. |

### GetLogResponse

This contains the field definition of the GetLogResponse PDU sent by the Charging Station to the CSMS in response to a GetLogRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | LogStatusEnumType | 1..1 | Required. This field indicates whether the Charging Station was able to accept the request. |
| **filename** | string[0..255] | 0..1 | Optional. This contains the name of the log file that will be uploaded. This field is not present when no logging information is available. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetMonitoringReport

### GetMonitoringReportRequest

This contains the field definition of the GetMonitoringReportRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The Id of the request. |
| **monitoringCriteria** | MonitoringCriterionEnumType | 0..3 | Optional. This field contains criteria for components for which a monitoring report is requested |
| **componentVariable** | ComponentVariableType | 0..\* | Optional. This field specifies the components and variables for which a monitoring report is requested. |

### GetMonitoringReportResponse

This contains the field definition of the GetMonitoringReportResponse PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericDeviceModelStatusEnumTy pe | 1..1 | Required. This field indicates whether the Charging Station was able to accept the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetReport

### GetReportRequest

This contains the field definition of the GetReportRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The Id of the request. |
| **componentCriteria** | ComponentCriterionEnumType | 0..4 | Optional. This field contains criteria for components for which a report is requested |
| **componentVariable** | ComponentVariableType | 0..\* | Optional. This field specifies the components and variables for which a report is requested. |

### GetReportResponse

The response to a GetReportRequest, sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericDeviceModelStatusEnumTy pe | 1..1 | Required. This field indicates whether the Charging Station was able to accept the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## GetTransactionStatus

### GetTransactionStatusRequest

With this message, the CSMS can ask the Charging Station whether it has transaction-related messages waiting to be delivered to the CSMS. When a transactionId is provided, only messages for a specific transaction are asked for.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **transactionId** | identifierString[0..36] | 0..1 | Optional. The Id of the transaction for which the status is requested. |

### GetTransactionStatusResponse

The response to a GetTransactionStatusRequest, sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **ongoingIndicator** | boolean | 0..1 | Optional. Whether the transaction is still ongoing. |
| **messagesInQueue** | boolean | 1..1 | Required. Whether there are still message to be delivered. |

## GetVariables

### GetVariablesRequest

This contains the field definition of the GetVariablesRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **getVariableData** | GetVariableDataType | 1..\* | Required. List of requested variables. |

### GetVariablesResponse

This contains the field definition of the GetVariablesResponse PDU sent by the CSMS to the Charging Station in response to GetVariablesRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **getVariableResult** | GetVariableResultType | 1..\* | Required. List of requested variables and their values. |

## Heartbeat

### HeartbeatRequest

This contains the field definition of the HeartbeatRequest PDU sent by the Charging Station to the CSMS. No fields are defined.

### HeartbeatResponse

This contains the field definition of the HeartbeatResponse PDU sent by the CSMS to the Charging Station in response to a HeartbeatRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **currentTime** | dateTime | 1..1 | Required. Contains the current time of the CSMS. |

## InstallCertificate

### InstallCertificateRequest

Used by the CSMS to request installation of a certificate on a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateType** | InstallCertificateUseEnumType | 1..1 | Required. Indicates the certificate type that is sent. |
| **certificate** | string[0..5500] | 1..1 | Required. A PEM encoded X.509 certificate. |

### InstallCertificateResponse

The response to a InstallCertificateRequest, sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | InstallCertificateStatusEnumType | 1..1 | Required. Charging Station indicates if installation was successful. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## LogStatusNotification

### LogStatusNotificationRequest

This contains the field definition of the LogStatusNotificationRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | UploadLogStatusEnumType | 1..1 | Required. This contains the status of the log upload. |
| **requestId** | integer | 0..1 | Optional. The request id that was provided in GetLogRequest that started this log upload. This field is mandatory, unless the message was triggered by a TriggerMessageRequest AND there is no log upload ongoing. |

### LogStatusNotificationResponse

This contains the field definition of the LogStatusNotificationResponse PDU sent by the CSMS to the Charging Station in response to LogStatusNotificationRequest. No fields are defined.

## MeterValues

### MeterValuesRequest

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 1..1 | Required. This contains a number (>0) designating an EVSE of the Charging Station. ‘0’ (zero) is used to designate the main power meter. |
| **meterValue** | MeterValueType | 1..\* | Required. The sampled meter values with timestamps. |

### MeterValuesResponse

This contains the field definition of the MeterValuesResponse PDU sent by the CSMS to the Charging Station in response to a MeterValuesRequest PDU. This message is deprecated. This message might be removed in a future version of OCPP. It will be replaced by Device Management Monitoring events.

No fields are defined.

## NotifyChargingLimit

### NotifyChargingLimitRequest

The message NotifyChargingLimitRequest can be used to communicate a charging limit, set by an external system on the Charging Station (Not installed by the CSO via SetChargingProfileRequest), to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 0..1 | Optional. The charging schedule contained in this notification applies to an EVSE. evseId must be > 0. |
| **chargingLimit** | ChargingLimitType | 1..1 | Required. This contains the source of the charging limit and whether it is grid critical. |
| **chargingSchedule** | ChargingScheduleType | 0..\* | Optional. Contains limits for the available power or current over time, as set by the external source. |

### NotifyChargingLimitResponse

The NotifyChargingLimitResponse message is sent by the CSMS to the Charging Station in response to a NotifyChargingLimitsRequest. No fields are defined.

## NotifyCustomerInformation

This contains the field definition of the NotifyCustomerInformationRequest PDU sent by the Charging Station to the CSMS.

### NotifyCustomerInformationRequest

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **data** | string[0..512] | 1..1 | Required. (Part of) the requested data. No format specified in which the data is returned. Should be human readable. |
| **tbc** | boolean | 0..1 | Optional. “to be continued” indicator. Indicates whether another part of the monitoringData follows in an upcoming notifyMonitoringReportRequest message.  Default value when omitted is false. |
| **seqNo** | integer | 1..1 | Required. Sequence number of this message. First message starts at 0. |
| **generatedAt** | dateTime | 1..1 | Required. Timestamp of the moment this message was generated at the Charging Station. |
| **requestId** | integer | 1..1 | Required. The Id of the request. |

* + 1. **NotifyCustomerInformationResponse**

## NotifyDisplayMessages

### NotifyDisplayMessagesRequest

This contains the field definition of the NotifyDisplayMessagesRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The id of the GetDisplayMessagesRequest that requested this message. |
| **tbc** | boolean | 0..1 | Optional. "to be continued" indicator. Indicates whether another part of the report follows in an upcoming NotifyDisplayMessagesRequest message. Default value when omitted is false. |
| **messageInfo** | MessageInfoType | 0..\* | Optional. The requested display message as configured in the Charging Station. |

### NotifyDisplayMessagesResponse

The NotifyDisplayMessagesResponse message is sent by the CSMS to the Charging Station in response to a NotifyDisplayMessagesRequest. No fields are defined.

## NotifyEVChargingNeeds

### NotifyEVChargingNeedsRequest

The Charging Station uses this message to communicate the charging needs as calculated by the EV to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **maxScheduleTuples** | integer | 0..1 | Optional. Contains the maximum schedule tuples the car supports per schedule. |
| **evseId** | integer | 1..1 | Required. Defines the EVSE and connector to which the EV is connected. EvseId may not be 0. |
| **chargingNeeds** | ChargingNeedsType | 1..1 | Required. The characteristics of the energy delivery required. |

### NotifyEVChargingNeedsResponse

Response to a NotifyEVChargingNeedsRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | NotifyEVChargingNeedsStatusEnu mType | 1..1 | Required. Returns whether the CSMS has been able to process the message successfully. It does not imply that the evChargingNeeds can be met with the current charging profile. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## NotifyEVChargingSchedule

### NotifyEVChargingScheduleRequest

The Charging Station uses this message to communicate the charging schedule as calculated by the EV to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **timeBase** | dateTime | 1..1 | Required. Periods contained in the charging profile are relative to this point in time. |
| **evseId** | integer | 1..1 | Required. The charging schedule contained in this notification applies to an EVSE. EvseId must be > 0. |
| **chargingSchedule** | ChargingScheduleType | 1..1 | Required. Planned energy consumption of the EV over time. Always relative to timeBase. |

### NotifyEVChargingScheduleResponse

Response to a NotifyEVChargingScheduleRequest message.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericStatusEnumType | 1..1 | Required. Returns whether the CSMS has been able to process the message successfully. It does not imply any approval of the charging schedule. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## NotifyEvent

### NotifyEventRequest

This contains the field definition of the NotifyEventRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **generatedAt** | dateTime | 1..1 | Required. Timestamp of the moment this message was generated at the Charging Station. |
| **tbc** | boolean | 0..1 | Optional. “to be continued” indicator. Indicates whether another part of the report follows in an upcoming notifyEventRequest message. Default value when omitted is false. |
| **seqNo** | integer | 1..1 | Required. Sequence number of this message. First message starts at 0. |
| **eventData** | EventDataType | 1..\* | Required. List of EventData. An EventData element contains only the Component, Variable and VariableMonitoring data that caused the event. The list of EventData will usally contain one eventData element, but the Charging Station may decide to group multiple events in one notification. For example, when multiple events triggered at the same time. |

### NotifyEventResponse

Response to NotifyEventRequest. No fields are defined.

## NotifyMonitoringReport

### NotifyMonitoringReportRequest

This contains the field definition of the NotifyMonitoringRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The id of the GetMonitoringRequest that requested this report. |
| **tbc** | boolean | 0..1 | Optional. “to be continued” indicator. Indicates whether another part of the monitoringData follows in an upcoming notifyMonitoringReportRequest message.  Default value when omitted is false. |
| **seqNo** | integer | 1..1 | Required. Sequence number of this message. First message starts at 0. |
| **generatedAt** | dateTime | 1..1 | Required. Timestamp of the moment this message was generated at the Charging Station. |
| **monitor** | MonitoringDataType | 0..\* | Optional. List of MonitoringData containing monitoring settings. |

### NotifyMonitoringReportResponse

Response to a NotifyMonitoringRequest message. No fields are defined.

## NotifyReport

### NotifyReportRequest

This contains the field definition of the NotifyReportRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. The id of the GetReportRequest or GetBaseReportRequest that requested this report |
| **generatedAt** | dateTime | 1..1 | Required. Timestamp of the moment this message was generated at the Charging Station. |
| **tbc** | boolean | 0..1 | Optional. “to be continued” indicator. Indicates whether another part of the report follows in an upcoming notifyReportRequest message. Default value when omitted is false. |
| **seqNo** | integer | 1..1 | Required. Sequence number of this message. First message starts at 0. |
| **reportData** | ReportDataType | 0..\* | Optional. List of ReportData. |

### NotifyReportResponse

Response to a NotifyReportRequest message. No fields are defined.

## PublishFirmware

### PublishFirmwareRequest

This contains the field definition of the PublishFirmwareRequest PDU sent by the CSMS to the Local Controller.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **location** | string[0..512] | 1..1 | Required. This contains a string containing a URI pointing to a location from which to retrieve the firmware. |
| **retries** | integer | 0..1 | Optional. This specifies how many times Charging Station must try to download the firmware before giving up. If this field is not present, it is left to Charging Station to decide how many times it wants to retry. |
| **checksum** | identifierString[0..32] | 1..1 | Required. The MD5 checksum over the entire firmware file as a hexadecimal string of length 32. |
| **requestId** | integer | 1..1 | Required. The Id of the request. |
| **retryInterval** | integer | 0..1 | Optional. The interval in seconds after which a retry may be attempted. If this field is not present, it is left to Charging Station to decide how long to wait between attempts. |

### PublishFirmwareResponse

This contains the field definition of the PublishFirmwareResponse PDU sent by the Local Controller to the CSMS in response to a PublishFirmwareRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericStatusEnumType | 1..1 | Required. Indicates whether the request was accepted. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## PublishFirmwareStatusNotification

### PublishFirmwareStatusNotificationRequest

This contains the field definition of the PublishFirmwareStatusNotificationRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | PublishFirmwareStatusEnumType | 1..1 | Required. This contains the progress status of the publishfirmware installation. |
| **location** | string[0..512] | 0..\* | Optional. Required if status is Published. Can be multiple URI’s, if the Local Controller supports e.g. HTTP, HTTPS, and FTP. |
| **requestId** | integer | 0..1 | Optional. The request id that was provided in the PublishFirmwareRequest which triggered this action. |

### PublishFirmwareStatusNotificationResponse

This contains the field definition of the PublishFirmwareStatusNotificationResponse PDU sent by the CSMS to the Charging station in response to a PublishFirmwareStatusNotificationRequest.

## ReportChargingProfiles

### ReportChargingProfilesRequest

Reports charging profiles installed in the Charging Station, as requested via a GetChargingProfilesRequest message. The charging profile report can be split over multiple ReportChargingProfilesRequest messages, this can be because charging profiles for different charging sources need to be reported, or because there is just to much data for one message.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestId** | integer | 1..1 | Required. Id used to match the GetChargingProfilesRequest message with the resulting ReportChargingProfilesRequest messages. When the CSMS provided a requestId in the GetChargingProfilesRequest, this field SHALL contain the same value. |
| **chargingLimitSource** | ChargingLimitSourceEnumType | 1..1 | Required. Source that has installed this charging profile. |
| **tbc** | boolean | 0..1 | Optional. To Be Continued. Default value when omitted: false. false indicates that there are no further messages as part of this report. |
| **evseId** | integer | 1..1 | Required. The evse to which the charging profile applies. If evseId = 0, the message contains an overall limit for the Charging Station. |
| **chargingProfile** | ChargingProfileType | 1..\* | Required. The charging profile as configured in the Charging Station. |

### ReportChargingProfilesResponse

The ReportChargingProfilesResponse message is sent by the CSMS to the Charging Station in response to a ReportChargingProfilesRequest. No fields are defined.

## RequestStartTransaction

### RequestStartTransactionRequest

This contains the field definitions of the RequestStartTransactionRequest PDU sent to Charging Station by CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 0..1 | Optional. Number of the EVSE on which to start the transaction. EvseId SHALL be > 0 |
| **remoteStartId** | integer | 1..1 | Required. Id given by the server to this start request. The Charging Station might return this in the TransactionEventRequest, letting the server know which transaction was started for this request. Use to start a transaction. |
| **idToken** | IdTokenType | 1..1 | Required. The identifier that the Charging Station must use to start a transaction. |
| **chargingProfile** | ChargingProfileType | 0..1 | Optional. Charging Profile to be used by the Charging Station for the requested transaction.  ChargingProfilePurpose MUST be set to TxProfile |
| **groupIdToken** | IdTokenType | 0..1 | Optional. The group identifier that the Charging Station must use to start a transaction. |

### RequestStartTransactionResponse

This contains the field definitions of the RequestStartTransactionResponse PDU sent from Charging Station to CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | RequestStartStopStatusEnumType | 1..1 | Required. Status indicating whether the Charging Station accepts the request to start a transaction. |
| **transactionId** | identifierString[0..36] | 0..1 | Optional. When the transaction was already started by the Charging Station before the RequestStartTransactionRequest was received, for example: cable plugged in first. This contains the transactionId of the already started transaction. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## RequestStopTransaction

### RequestStopTransactionRequest

This contains the field definitions of the RequestStopTransactionRequest PDU sent to Charging Station by CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **transactionId** | identifierString[0..36] | 1..1 | Required. The identifier of the transaction which the Charging Station is requested to stop. |

### RequestStopTransactionResponse

This contains the field definitions of the RequestStopTransactionResponse PDU sent from Charging Station to CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | RequestStartStopStatusEnumType | 1..1 | Required. Status indicating whether Charging Station accepts the request to stop a transaction. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ReservationStatusUpdate

### ReservationStatusUpdateRequest

This contains the field definition of the ReservationStatusUpdateRequest PDU sent by the Charging Station to the CSMS.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **reservationId** | integer | 1..1 | Required. The ID of the reservation. |
| **reservationUpdateStatus** | ReservationUpdateStatusEnumTyp e | 1..1 | Required. The updated reservation status. |

### ReservationStatusUpdateResponse

This contains the field definition of the ReservationStatusUpdateResponse PDU sent by the CSMS to the Charging Station in response to a ReservationStatusUpdateRequest. No fields are defined.

## ReserveNow

### ReserveNowRequest

This contains the field definition of the ReserveNowRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Id of reservation. |
| **expiryDateTime** | dateTime | 1..1 | Required. Date and time at which the reservation expires. |
| **connectorType** | ConnectorEnumType | 0..1 | Optional. This field specifies the connector type. |
| **evseId** | integer | 0..1 | Optional. This contains ID of the evse to be reserved. |
| **idToken** | IdTokenType | 1..1 | Required. The identifier for which the reservation is made. |
| **groupIdToken** | IdTokenType | 0..1 | Optional. The group identifier for which the reservation is made. |

### ReserveNowResponse

This contains the field definition of the ReserveNowResponse PDU sent by the Charging Station to the CSMS in response to ReserveNowRequest PDU.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ReserveNowStatusEnumType | 1..1 | Required. This indicates the success or failure of the reservation. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## Reset

### ResetRequest

This contains the field definition of the ResetRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **type** | ResetEnumType | 1..1 | Required. This contains the type of reset that the Charging Station or EVSE should perform. |
| **evseId** | integer | 0..1 | Optional. This contains the ID of a specific EVSE that needs to be reset, instead of the entire Charging Station. |

### ResetResponse

This contains the field definition of the ResetResponse PDU sent by the Charging Station to the CSMS in response to ResetRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ResetStatusEnumType | 1..1 | Required. This indicates whether the Charging Station is able to perform the reset. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SecurityEventNotification

### SecurityEventNotificationRequest

Sent by the Charging Station to the CSMS in case of a security event.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **type** | string[0..50] | 1..1 | Required. Type of the security event. This value should be taken from the Security events list. |
| **timestamp** | dateTime | 1..1 | Required. Date and time at which the event occurred. |
| **techInfo** | string[0..255] | 0..1 | Optional. Additional information about the occurred security event. |

### SecurityEventNotificationResponse

Sent by the CSMS to the Charging Station to confirm the receipt of a SecurityEventNotificationRequest message. No fields are defined.

## SendLocalList

### SendLocalListRequest

This contains the field definition of the SendLocalListRequest PDU sent by the CSMS to the Charging Station. If no (empty) localAuthorizationList is given and the updateType is Full, all IdTokens are removed from the list. Requesting a Differential update without or with empty localAuthorizationList will have no effect on the list. All IdTokens in the localAuthorizationList MUST be unique, no duplicate values are allowed.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **versionNumber** | integer | 1..1 | Required. In case of a full update this is the version number of the full list. In case of a differential update it is the version number of the list after the update has been applied. |
| **updateType** | UpdateEnumType | 1..1 | Required. This contains the type of update (full or differential) of this request. |
| **localAuthorizationList** | AuthorizationData | 0..\* | Optional. This contains the Local Authorization List entries. |

### SendLocalListResponse

This contains the field definition of the SendLocalListResponse PDU sent by the Charging Station to the CSMS in response to SendLocalListRequest PDU.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | SendLocalListStatusEnumType | 1..1 | Required. This indicates whether the Charging Station has successfully received and applied the update of the Local Authorization List. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetChargingProfile

### SetChargingProfileRequest

This contains the field definition of the SetChargingProfileRequest PDU sent by the CSMS to the Charging Station. The CSMS uses this message to send charging profiles to a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 1..1 | Required. For TxDefaultProfile an evseId=0 applies the profile to each individual evse. For ChargingStationMaxProfile and ChargingStationExternalConstraints an evseId=0 contains an overal limit for the whole Charging Station. |
| **chargingProfile** | ChargingProfileType | 1..1 | Required. The charging profile to be set at the Charging Station. |

### SetChargingProfileResponse

This contains the field definition of the SetChargingProfileResponse PDU sent by the Charging Station to the CSMS in response to SetChargingProfileRequest PDU.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ChargingProfileStatusEnumType | 1..1 | Required. Returns whether the Charging Station has been able to process the message successfully. This does not guarantee the schedule will be followed to the letter.  There might be other constraints the Charging Station may need to take into account. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetDisplayMessage

### SetDisplayMessageRequest

This contains the field definition of the SetDisplayMessageRequest PDU sent by the CSMS to the Charging Station. The CSMS asks the Charging Station to configure a new display message that the Charging Station will display (in the future). See also O01 - Set Display Message, O02 - Set Display Message for Transaction and O06 - Replace Display Message

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **message** | MessageInfoType | 1..1 | Required. Message to be configured in the Charging Station, to be displayed. |

### SetDisplayMessageResponse

This contains the field definition of the SetDisplayMessageResponse PDU sent by the Charging Station to the CSMS in a response to a SetDisplayMessageRequest. See also O01 - Set Display Message, O02 - Set Display Message for Transaction and O06 - Replace Display Message

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | DisplayMessageStatusEnumType | 1..1 | Required. This indicates whether the Charging Station is able to display the message. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetMonitoringBase

### SetMonitoringBaseRequest

This contains the field definition of the SetMonitoringBaseRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **monitoringBase** | MonitoringBaseEnumType | 1..1 | Required. Specify which monitoring base will be set |

### SetMonitoringBaseResponse

This contains the field definition of the SetMonitoringBaseResponse PDU sent by the Charging Station to the CSMS in response to a SetMonitoringBaseRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericDeviceModelStatusEnumTy pe | 1..1 | Required. Indicates whether the Charging Station was able to accept the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetMonitoringLevel

### SetMonitoringLevelRequest

This contains the field definition of the SetMonitoringLevelRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **severity** | integer | 1..1 | Required. The Charging Station SHALL only report events with a severity number lower than or equal to this severity. The severity range is 0-9, with 0 as the highest  and 9 as the lowest severity level.  The severity levels have the following meaning:  **0-Danger**  Indicates lives are potentially in danger. Urgent attention is needed and action should be taken immediately.   1. **Hardware Failure**   Indicates that the Charging Station is unable to continue regular operations due to Hardware issues. Action is  required.   1. **System Failure**   Indicates that the Charging Station is unable to continue regular operations due to software or minor hardware  issues. Action is required.  **3-Critical**  Indicates a critical error. Action is required.  **4-Error**  Indicates a non-urgent error. Action is required.  **5-Alert**  Indicates an alert event. Default severity for any type of monitoring event.  **6-Warning**  Indicates a warning event. Action may be required.  **7-Notice**  Indicates an unusual event. No immediate action is required.  **8-Informational**  Indicates a regular operational event. May be used for reporting, measuring throughput, etc. No action is  required.  **9-Debug**  Indicates information useful to developers for debugging, not useful during operations. |

### SetMonitoringLevelResponse

This contains the field definition of the SetMonitoringLevelResponse PDU sent by the Charging Station to the CSMS in response to a SetMonitoringLevelRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericStatusEnumType | 1..1 | Required. Indicates whether the Charging Station was able to accept the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetNetworkProfile

### SetNetworkProfileRequest

With this message the CSMS gains the ability to configure the connection data (e.g. CSMS URL, OCPP version, APN, etc) on a Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **configurationSlot** | integer | 1..1 | Required. Slot in which the configuration should be stored. |
| **connectionData** | NetworkConnectionProfileType | 1..1 | Required. Connection details. |

### SetNetworkProfileResponse

This contains the field definition of the SetNetworkProfileResponse PDU sent by the Charging Station to the CSMS in response to a SetNetworkProfileRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | SetNetworkProfileStatusEnumType | 1..1 | Required. Result of operation. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetVariableMonitoring

### SetVariableMonitoringRequest

This contains the field definition of the SetVariableMonitoringRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **setMonitoringData** | SetMonitoringDataType | 1..\* | Required. List of MonitoringData containing monitoring settings. |

### SetVariableMonitoringResponse

This contains the field definition of the SetVariableMonitoringResponse PDU sent by the Charging Station to the CSMS in response to a SetVariableMonitoringRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **setMonitoringResult** | SetMonitoringResultType | 1..\* | Required. List of result statuses per monitor. |

## SetVariables

### SetVariablesRequest

This contains the field definition of the SetVariablesRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **setVariableData** | SetVariableDataType | 1..\* | Required. List of Component-Variable pairs and attribute values to set. |

### SetVariablesResponse

This contains the field definition of the SetVariablesResponse PDU sent by the Charging Station to the CSMS in response to a SetVariablesRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **setVariableResult** | SetVariableResultType | 1..\* | Required. List of result statuses per Component-Variable. |

## SignCertificate

### SignCertificateRequest

Sent by the Charging Station to the CSMS to request that the Certificate Authority signs the public key into a certificate.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **csr** | string[0..5500] | 1..1 | Required. The Charging Station SHALL send the public key in form of a Certificate Signing Request (CSR) as described in RFC 2986 [22] and then PEM encoded, using the SignCertificateRequest message. |
| **certificateType** | CertificateSigningUseEnumType | 0..1 | Optional. Indicates the type of certificate that is to be signed. When omitted the certificate is to be used for both the 15118 connection (if implemented) and the Charging Station to CSMS connection. |

### SignCertificateResponse

Sent by the CSMS to the Charging Station in response to the SignCertificateRequest message.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | GenericStatusEnumType | 1..1 | Required. Specifies whether the CSMS can process the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## StatusNotification

### StatusNotificationRequest

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **timestamp** | dateTime | 1..1 | Required. The time for which the status is reported. If absent time of receipt of the message will be assumed. |
| **connectorStatus** | ConnectorStatusEnumType | 1..1 | Required. This contains the current status of the Connector. |
| **evseId** | integer | 1..1 | Required. The id of the EVSE to which the connector belongs for which the the status is reported. |
| **connectorId** | integer | 1..1 | Required. The id of the connector within the EVSE for which the status is reported. |

### StatusNotificationResponse

This contains the field definition of StatusNotificationResponse sent by the CSMS to the Charging Station in response to a StatusNotificationRequest. This message is deprecated. This message might be removed in a future version of OCPP. It will be replaced by Device Management Monitoring events.

No fields are defined.

## TransactionEvent

### TransactionEventRequest

This section contains the field definition of the TransactionEventRequest PDU sent by the Charging Station to the CSMS. For each of the eventTypes; Started, Updated and Ended, the corresponding cardinality is specified.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **eventType** | TransactionEventEnumType | 1..1 | Required. This contains the type of this event. The first TransactionEvent of a transaction SHALL contain: "Started" The last TransactionEvent of a transaction SHALL contain: "Ended" All others SHALL contain: "Updated" |
| **timestamp** | dateTime | 1..1 | Required. The date and time at which this transaction event occurred. |
| **triggerReason** | TriggerReasonEnumType | 1..1 | Required. Reason the Charging Station sends this message to the CSMS |
| **seqNo** | integer | 1..1 | Required. Incremental sequence number, helps with determining if all messages of a transaction have been received. |
| **offline** | boolean | 0..1 | Optional. Indication that this transaction event happened when the Charging Station was offline. Default = false, meaning: the event occurred when the Charging Station was online. |
| **numberOfPhasesUsed** | integer | 0..1 | Optional. If the Charging Station is able to report the number of phases used, then it SHALL provide it. When omitted the CSMS may be able to determine the number of phases used via device management. |
| **cableMaxCurrent** | integer | 0..1 | Optional. The maximum current of the connected cable in Ampere (A). |
| **reservationId** | integer | 0..1 | Optional. This contains the Id of the reservation that terminates as a result of this transaction. |
| **transactionInfo** | TransactionType | 1..1 | Required. Contains transaction specific information. |
| **idToken** | IdTokenType | 0..1 | Optional. This contains the identifier for which a transaction has to be/was started. Is required when the EV Driver becomes authorized for this transaction. The IdToken should only be send once in a TransactionEventRequest for every authorization done for this transaction. |
| **evse** | EVSEType | 0..1 | Optional. This identifies which evse (and connector) of the Charging Station is used. |
| **meterValue** | MeterValueType | 0..\* | Optional. This contains the relevant meter values. Depending on the EventType of this TransactionEvent the following Configuration Variable is used to configure the  content:  Started: SampledDataTxStartedMeasurands  Updated: SampledDataTxUpdatedMeasurands Ended: SampledDataTxEndedMeasurands & AlignedDataTxEndedMeasurands |

### TransactionEventResponse

This contains the field definition of the TransactionEventResponse PDU sent by the CSMS to the Charging Station in response to a TransactionEventRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **totalCost** | decimal | 0..1 | Optional. SHALL only be sent when charging has ended. Final total cost of this transaction, including taxes. In the currency configured with the Configuration Variable: Currency. When omitted, the transaction was NOT free. To indicate a free transaction, the CSMS SHALL send 0.00. |
| **chargingPriority** | integer | 0..1 | Optional. Priority from a business point of view. Default priority is 0, The range is from -9 to 9. Higher values indicate a higher priority. The chargingPriority in TransactionEventResponse is temporarily, so it may not be set in the IdTokenInfoType afterwards. Also the chargingPriority in TransactionEventResponse overrules the one in IdTokenInfoType. |
| **idTokenInfo** | IdTokenInfoType | 0..1 | Optional. This contains information about authorization status, expiry and group id. Is required when the transactionEventRequest contained an idToken. |
| **updatedPersonalMessage** | MessageContentType | 0..1 | Optional. This can contain updated personal message that can be shown to the EV Driver. This can be used to provide updated tariff information . |

## TriggerMessage

### TriggerMessageRequest

This contains the field definition of the TriggerMessageRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestedMessage** | MessageTriggerEnumType | 1..1 | Required. Type of message to be triggered. |
| **evse** | EVSEType | 0..1 | Optional. Can be used to specifiy the EVSE and Connector if required for the message which needs to be sent. |

### TriggerMessageResponse

This contains the field definition of the TriggerMessageResponse PDU sent by the Charging Station to the CSMS in response to TriggerMessageResponse.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | TriggerMessageStatusEnumType | 1..1 | Required. Indicates whether the Charging Station will send the requested notification or not. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## UnlockConnector

### UnlockConnectorRequest

This contains the field definition of the UnlockConnectorRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 1..1 | Required. This contains the identifier of the EVSE for which a connector needs to be unlocked. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **connectorId** | integer | 1..1 | Required. This contains the identifier of the connector that needs to be unlocked. |

### UnlockConnectorResponse

This contains the field definition of the UnlockConnectorResponse PDU sent by the Charging Station to the CSMS in response to an UnlockConnectorRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | UnlockStatusEnumType | 1..1 | Required. This indicates whether the Charging Station has unlocked the connector. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## UnpublishFirmware

### UnpublishFirmwareRequest

This contains the field definition of the UnpublishFirmwareRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **checksum** | identifierString[0..32] | 1..1 | Required. The MD5 checksum over the entire firmware file as a hexadecimal string of length 32. |

### UnpublishFirmwareResponse

This contains the field definition of the UnpublishFirmwareResponse PDU sent by the Charging Station to the CSMS in response to a UnpublishFirmwareRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | UnpublishFirmwareStatusEnumTyp e | 1..1 | Required. Indicates whether the Local Controller succeeded in unpublishing the firmware. |

## UpdateFirmware

### UpdateFirmwareRequest

This contains the field definition of the UpdateFirmwareRequest PDU sent by the CSMS to the Charging Station.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **retries** | integer | 0..1 | Optional. This specifies how many times Charging Station must try to download the firmware before giving up. If this field is not present, it is left to Charging Station to decide how many times it wants to retry. |
| **retryInterval** | integer | 0..1 | Optional. The interval in seconds after which a retry may be attempted. If this field is not present, it is left to Charging Station to decide how long to wait between attempts. |
| **requestId** | integer | 1..1 | Required. The Id of this request |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **firmware** | FirmwareType | 1..1 | Required. Specifies the firmware to be updated on the Charging Station. |

### UpdateFirmwareResponse

This contains the field definition of the UpdateFirmwareResponse PDU sent by the Charging Station to the CSMS in response to an UpdateFirmwareRequest.

*Class*

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | UpdateFirmwareStatusEnumType | 1..1 | Required. This field indicates whether the Charging Station was able to accept the request. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

# Datatypes

## ACChargingParametersType

*Class*

EV AC charging parameters.

ACChargingParametersType is used by: Common:ChargingNeedsType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **energyAmount** | integer | 1..1 | Required. Amount of energy requested (in Wh). This includes energy required for preconditioning. |
| **evMinCurrent** | integer | 1..1 | Required. Minimum current (amps) supported by the electric vehicle (per phase). |
| **evMaxCurrent** | integer | 1..1 | Required. Maximum current (amps) supported by the electric vehicle (per phase). Includes cable capacity. |
| **evMaxVoltage** | integer | 1..1 | Required. Maximum voltage supported by the electric vehicle |

## AdditionalInfoType

*Class*

Contains a case insensitive identifier to use for the authorization and the type of authorization to support multiple forms of identifiers.

AdditionalInfoType is used by: Common:IdTokenType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **additionalIdToken** | identifierString[0..36] | 1..1 | Required. This field specifies the additional IdToken. |
| **type** | string[0..50] | 1..1 | Required. This defines the type of the additionalIdToken. This is a custom type, so the implementation needs to be agreed upon by all involved parties. |

## APNType

*Class*

Collection of configuration data needed to make a data-connection over a cellular network.

#### NOTE

When asking a GSM modem to dial in, it is possible to specify which mobile operator should be used. This can be done with the mobile country code (MCC) in combination with a mobile network code (MNC). Example: If your preferred network is Vodafone Netherlands, the MCC=204 and the MNC=04 which means the key PreferredNetwork = 20404 Some modems allows to specify a preferred network, which means, if this network is not available, a different network is used. If you specify UseOnlyPreferredNetwork and this network is not available, the modem will not dial in.

APNType is used by: SetNetworkProfileRequest.NetworkConnectionProfileType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **apn** | string[0..512] | 1..1 | Required. The Access Point Name as an URL. |
| **apnUserName** | string[0..20] | 0..1 | Optional. APN username. |
| **apnPassword** | string[0..20] | 0..1 | Optional. APN Password. |
| **simPin** | integer | 0..1 | Optional. SIM card pin code. |
| **preferredNetwork** | identifierString[0..6] | 0..1 | Optional. Preferred network, written as MCC and MNC concatenated. See note. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **useOnlyPreferredNetwork** | boolean | 0..1 | Optional. Default: false. Use only the preferred Network, do not dial in when not available. See Note. |
| **apnAuthentication** | APNAuthenticationEnumType | 1..1 | Required. Authentication method. |

## AuthorizationData

*Class*

Contains the identifier to use for authorization. AuthorizationData is used by: SendLocalListRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **idTokenInfo** | IdTokenInfoType | 0..1 | Optional. Required when UpdateType is Full. This contains information about authorization status, expiry and group id. For a Differential update the following applies: If this element is present, then this entry SHALL be added or updated in the Local Authorization List. If this element is absent, the entry for this IdToken in the Local Authorization List SHALL be deleted. |
| **idToken** | IdTokenType | 1..1 | Required. This contains the identifier which needs to be stored for authorization. |

## CertificateHashDataChainType

*Class*

CertificateHashDataChainType is used by: GetInstalledCertificateIdsResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **certificateType** | GetCertificateIdUseEnumType | 1..1 | Required. Indicates the type of the requested certificate(s). |
| **certificateHashData** | CertificateHashDataType | 1..1 | Required. Information to identify a certificate. |
| **childCertificateHashData** | CertificateHashDataType | 0..4 | Optional. Information to identify the child certificate(s). |

## CertificateHashDataType

*Class*

CertificateHashDataType is used by: Common:CertificateHashDataChainType , DeleteCertificateRequest , CustomerInformationRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **hashAlgorithm** | HashAlgorithmEnumType | 1..1 | Required. Used algorithms for the hashes provided. |
| **issuerNameHash** | identifierString[0..128] | 1..1 | Required. Hashed value of the Issuer DN (Distinguished Name). |
| **issuerKeyHash** | string[0..128] | 1..1 | Required. Hashed value of the issuers public key |
| **serialNumber** | identifierString[0..40] | 1..1 | Required. The serial number of the certificate. |

## ChargingLimitType

*Class*

ChargingLimitType is used by: NotifyChargingLimitRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **chargingLimitSource** | ChargingLimitSourceEnumType | 1..1 | Required. Represents the source of the charging limit. |
| **isGridCritical** | boolean | 0..1 | Optional. Indicates whether the charging limit is critical for the grid. |

## ChargingNeedsType

*Class*

ChargingNeedsType is used by: NotifyEVChargingNeedsRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **requestedEnergyTransfer** | EnergyTransferModeEnumType | 1..1 | Required. Mode of energy transfer requested by the EV. |
| **departureTime** | dateTime | 0..1 | Optional. Estimated departure time of the EV. |
| **acChargingParameters** | ACChargingParametersType | 0..1 | Optional. EV AC charging parameters. |
| **dcChargingParameters** | DCChargingParametersType | 0..1 | Optional. EV DC charging parameters |

## ChargingProfileCriterionType

*Class*

A ChargingProfile consists of ChargingSchedule, describing the amount of power or current that can be delivered per time interval. ChargingProfileCriterionType is used by: GetChargingProfilesRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **chargingProfilePurpose** | ChargingProfilePurposeEnumType | 0..1 | Optional. Defines the purpose of the schedule transferred by this profile |
| **stackLevel** | integer | 0..1 | Optional. Value determining level in hierarchy stack of profiles. Higher values have precedence over lower values. Lowest level is 0. |
| **chargingProfileId** | integer | 0..\* | Optional. List of all the chargingProfileIds requested. Any ChargingProfile that matches one of these profiles will be reported. If omitted, the Charging Station SHALL not filter on chargingProfileId. This field SHALL NOT contain more ids than set in ChargingProfileEntries.maxLimit |
| **chargingLimitSource** | ChargingLimitSourceEnumType | 0..4 | Optional. For which charging limit sources, charging profiles SHALL be reported. If omitted, the Charging Station SHALL not filter on chargingLimitSource. |

## ChargingProfileType

*Class*

A ChargingProfile consists of ChargingSchedule, describing the amount of power or current that can be delivered per time interval. ChargingProfileType is used by: RequestStartTransactionRequest , SetChargingProfileRequest , ReportChargingProfilesRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Id of ChargingProfile. |
| **stackLevel** | integer | 1..1 | Required. Value determining level in hierarchy stack of profiles. Higher values have precedence over lower values. Lowest level is 0. |
| **chargingProfilePurpose** | ChargingProfilePurposeEnumType | 1..1 | Required. Defines the purpose of the schedule transferred by this profile |
| **chargingProfileKind** | ChargingProfileKindEnumType | 1..1 | Required. Indicates the kind of schedule. |
| **recurrencyKind** | RecurrencyKindEnumType | 0..1 | Optional. Indicates the start point of a recurrence. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **validFrom** | dateTime | 0..1 | Optional. Point in time at which the profile starts to be valid. If absent, the profile is valid as soon as it is received by the Charging Station. |
| **validTo** | dateTime | 0..1 | Optional. Point in time at which the profile stops to be valid. If absent, the profile is valid until it is replaced by another profile. |
| **transactionId** | identifierString[0..36] | 0..1 | Optional. SHALL only be included if ChargingProfilePurpose is set to TxProfile. The transactionId is used to match the profile to a specific transaction. |
| **chargingSchedule** | ChargingScheduleType | 1..3 | Required. Schedule that contains limits for the available power or current over time. In order to support ISO 15118 schedule negotiation, it supports at most three schedules with associated tariff to choose from. |

## ChargingSchedulePeriodType

*Class*

Charging schedule period structure defines a time period in a charging schedule.

ChargingSchedulePeriodType is used by: Common:ChargingScheduleType , Common:CompositeScheduleType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **startPeriod** | integer | 1..1 | Required. Start of the period, in seconds from the start of schedule. The value of StartPeriod also defines the stop time of the previous period. |
| **limit** | decimal | 1..1 | Required. Charging rate limit during the schedule period, in the applicable chargingRateUnit, for example in Amperes (A) or Watts (W). Accepts at most one digit fraction (e.g. 8.1). |
| **numberPhases** | integer | 0..1 | Optional. The number of phases that can be used for charging. If a number of phases is needed, numberPhases=3 will be assumed unless another number is given. |
| **phaseToUse** | integer | 0..1 | Optional. Values: 1..3, Used if numberPhases=1 and if the EVSE is capable of switching the phase connected to the EV, i.e. ACPhaseSwitchingSupported is defined and true. It’s not allowed unless both conditions above are true. If both conditions are true, and phaseToUse is omitted, the Charging Station / EVSE will make the selection on its own. |

## ChargingScheduleType

*Class*

Charging schedule structure defines a list of charging periods, as used in: GetCompositeSchedule.conf and ChargingProfile.

ChargingScheduleType is used by: Common:ChargingProfileType , NotifyChargingLimitRequest , NotifyEVChargingScheduleRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Identifies the ChargingSchedule. |
| **startSchedule** | dateTime | 0..1 | Optional. Starting point of an absolute schedule. If absent the schedule will be relative to start of charging. |
| **duration** | integer | 0..1 | Optional. Duration of the charging schedule in seconds. If the duration is left empty, the last period will continue indefinitely or until end of the transaction if chargingProfilePurpose = TxProfile. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **chargingRateUnit** | ChargingRateUnitEnumType | 1..1 | Required. The unit of measure Limit is expressed in. |
| **minChargingRate** | decimal | 0..1 | Optional. Minimum charging rate supported by the EV. The unit of measure is defined by the chargingRateUnit. This parameter is intended to be used by a local smart charging algorithm to optimize the power allocation for in the case a charging process is inefficient at lower charging rates. Accepts at most one digit fraction (e.g.  8.1) |
| **chargingSchedulePeriod** | ChargingSchedulePeriodType | 1..102  4 | Required. List of ChargingSchedulePeriod elements defining maximum power or current usage over time. The maximum number of periods, that is supported by the Charging Station, if less than 1024, is set by device model variable SmartChargingCtrlr.PeriodsPerSchedule. |
| **salesTariff** | SalesTariffType | 0..1 | Optional. Sales tariff associated with this charging schedule. |

## ChargingStationType

*Class*

The physical system where an Electrical Vehicle (EV) can be charged. ChargingStationType is used by: BootNotificationRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **serialNumber** | string[0..25] | 0..1 | Optional. Vendor-specific device identifier. |
| **model** | string[0..20] | 1..1 | Required. Defines the model of the device. |
| **vendorName** | string[0..50] | 1..1 | Required. Identifies the vendor (not necessarily in a unique manner). |
| **firmwareVersion** | string[0..50] | 0..1 | Optional. This contains the firmware version of the Charging Station. |
| **modem** | ModemType | 0..1 | Optional. Defines the functional parameters of a communication link. |

## ClearChargingProfileType

*Class*

A ChargingProfile consists of a ChargingSchedule, describing the amount of power or current that can be delivered per time interval.

ClearChargingProfileType is used by: ClearChargingProfileRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 0..1 | Optional. Specifies the id of the EVSE for which to clear charging profiles. An evseId of zero (0) specifies the charging profile for the overall Charging Station. Absence of this parameter means the clearing applies to all charging profiles that match the other criteria in the request. |
| **chargingProfilePurpose** | ChargingProfilePurposeEnumType | 0..1 | Optional. Specifies to purpose of the charging profiles that will be cleared, if they meet the other criteria in the request. |
| **stackLevel** | integer | 0..1 | Optional. Specifies the stackLevel for which charging profiles will be cleared, if they meet the other criteria in the request. |

## ClearMonitoringResultType

*Class*

ClearMonitoringResultType is used by: ClearVariableMonitoringResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | ClearMonitoringStatusEnumType | 1..1 | Required. Result of the clear request for this monitor, identified by its Id. |
| **id** | integer | 1..1 | Required. Id of the monitor of which a clear was requested. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## ComponentType

*Class*

A physical or logical component

ComponentType is used by: Common:ComponentVariableType , Common:MessageInfoType , GetVariablesRequest.GetVariableDataType , GetVariablesResponse.GetVariableResultType , NotifyMonitoringReportRequest.MonitoringDataType , NotifyReportRequest.ReportDataType , SetVariableMonitoringRequest.SetMonitoringDataType , SetVariableMonitoringResponse.SetMonitoringResultType , SetVariablesRequest.SetVariableDataType , SetVariablesResponse.SetVariableResultType , NotifyEventRequest.EventDataType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **name** | identifierString[0..50] | 1..1 | Required. Name of the component. Name should be taken from the list of standardized component names whenever possible. Case Insensitive. strongly advised to use Camel Case. |
| **instance** | identifierString[0..50] | 0..1 | Optional. Name of instance in case the component exists as multiple instances. Case Insensitive. strongly advised to use Camel Case. |
| **evse** | EVSEType | 0..1 | Optional. Specifies the EVSE when component is located at EVSE level, also specifies the connector when component is located at Connector level. |

## ComponentVariableType

*Class*

Class to report components, variables and variable attributes and characteristics. ComponentVariableType is used by: GetMonitoringReportRequest , GetReportRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **component** | ComponentType | 1..1 | Required. Component for which a report of Variable is requested. |
| **variable** | VariableType | 0..1 | Optional. Variable(s) for which the report is requested. |

## CompositeScheduleType

*Class*

CompositeScheduleType is used by: GetCompositeScheduleResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evseId** | integer | 1..1 | Required. The ID of the EVSE for which the schedule is requested. When evseid=0, the Charging Station calculated the expected consumption for the grid connection. |
| **duration** | integer | 1..1 | Required. Duration of the schedule in seconds. |
| **scheduleStart** | dateTime | 1..1 | Required. Date and time at which the schedule becomes active. All time measurements within the schedule are relative to this timestamp. |
| **chargingRateUnit** | ChargingRateUnitEnumType | 1..1 | Required. The unit of measure Limit is expressed in. |
| **chargingSchedulePeriod** | ChargingSchedulePeriodType | 1..\* | Required. List of ChargingSchedulePeriod elements defining maximum power or current usage over time. |

## ConsumptionCostType

*Class*

ConsumptionCostType is used by: Common:SalesTariffEntryType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **startValue** | decimal | 1..1 | Required. The lowest level of consumption that defines the starting point of this consumption block. The block interval extends to the start of the next interval. |
| **cost** | CostType | 1..3 | Required. This field contains the cost details. |

## CostType

*Class*

CostType is used by: Common:ConsumptionCostType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **costKind** | CostKindEnumType | 1..1 | Required. The kind of cost referred to in the message element amount |
| **amount** | integer | 1..1 | Required. The estimated or actual cost per kWh |
| **amountMultiplier** | integer | 0..1 | Optional. Values: -3..3, The amountMultiplier defines the exponent to base 10 (dec). The final value is determined by: amount \* 10 ^ amountMultiplier |

## DCChargingParametersType

*Class*

EV DC charging parameters

DCChargingParametersType is used by: Common:ChargingNeedsType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evMaxCurrent** | integer | 1..1 | Required. Maximum current (amps) supported by the electric vehicle. Includes cable capacity. |
| **evMaxVoltage** | integer | 1..1 | Required. Maximum voltage supported by the electric vehicle |
| **energyAmount** | integer | 0..1 | Optional. Amount of energy requested (in Wh). This inludes energy required for preconditioning. |
| **evMaxPower** | integer | 0..1 | Optional. Maximum power (in W) supported by the electric vehicle. Required for DC charging. |
| **stateOfCharge** | integer, 0 < = val < = 100 | 0..1 | Optional. Energy available in the battery (in percent of the battery capacity) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **evEnergyCapacity** | integer | 0..1 | Optional. Capacity of the electric vehicle battery (in Wh) |
| **fullSoC** | integer, 0 < = val < = 100 | 0..1 | Optional. Percentage of SoC at which the EV considers the battery fully charged. (possible values: 0 - 100) |
| **bulkSoC** | integer, 0 < = val < = 100 | 0..1 | Optional. Percentage of SoC at which the EV considers a fast charging process to end. (possible values: 0 - 100) |

## EventDataType

*Class*

Class to report an event notification for a component-variable. EventDataType is used by: NotifyEventRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **eventId** | integer | 1..1 | Required. Identifies the event. This field can be referred to as a cause by other events. |
| **timestamp** | dateTime | 1..1 | Required. Timestamp of the moment the report was generated. |
| **trigger** | EventTriggerEnumType | 1..1 | Required. Type of monitor that triggered this event, e.g. exceeding a threshold value. |
| **cause** | integer | 0..1 | Optional. Refers to the Id of an event that is considered to be the cause for this event. |
| **actualValue** | string[0..2500] | 1..1 | Required. Actual value (*attributeType* Actual) of the variable.  The Configuration Variable ReportingValueSize can be used to limit GetVariableResult.attributeValue, VariableAttribute.value and EventData.actualValue. The max size of these values will always remain equal. |
| **techCode** | string[0..50] | 0..1 | Optional. Technical (error) code as reported by component. |
| **techInfo** | string[0..500] | 0..1 | Optional. Technical detail information as reported by component. |
| **cleared** | boolean | 0..1 | Optional. *Cleared* is set to true to report the clearing of a monitored situation, i.e. a 'return to normal'. |
| **transactionId** | identifierString[0..36] | 0..1 | Optional. If an event notification is linked to a specific transaction, this field can be used to specify its transactionId. |
| **variableMonitoringId** | integer | 0..1 | Optional. Identifies the VariableMonitoring which triggered the event. |
| **eventNotificationType** | EventNotificationEnumType | 1..1 | Required. Specifies the event notification type of the message. |
| **component** | ComponentType | 1..1 | Required. Component for which event is notified. |
| **variable** | VariableType | 1..1 | Required. Variable for which event is notified. |

## EVSEType

*Class*

Electric Vehicle Supply Equipment

EVSEType is used by: Common:ComponentType , TriggerMessageRequest , ChangeAvailabilityRequest , TransactionEventRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. EVSE Identifier. This contains a number (> 0) designating an EVSE of the Charging Station. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **connectorId** | integer | 0..1 | Optional. An id to designate a specific connector (on an EVSE) by connector index number. |

## FirmwareType

*Class*

Represents a copy of the firmware that can be loaded/updated on the Charging Station. FirmwareType is used by: UpdateFirmwareRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **location** | string[0..512] | 1..1 | Required. URI defining the origin of the firmware. |
| **retrieveDateTime** | dateTime | 1..1 | Required. Date and time at which the firmware shall be retrieved. |
| **installDateTime** | dateTime | 0..1 | Optional. Date and time at which the firmware shall be installed. |
| **signingCertificate** | string[0..5500] | 0..1 | Optional. Certificate with which the firmware was signed. PEM encoded X.509 certificate. |
| **signature** | string[0..800] | 0..1 | Optional. Base64 encoded firmware signature. |

## GetVariableDataType

*Class*

Class to hold parameters for GetVariables request. GetVariableDataType is used by: GetVariablesRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **attributeType** | AttributeEnumType | 0..1 | Optional. Attribute type for which value is requested. When absent, default Actual is assumed. |
| **component** | ComponentType | 1..1 | Required. Component for which the Variable is requested. |
| **variable** | VariableType | 1..1 | Required. Variable for which the attribute value is requested. |

## GetVariableResultType

*Class*

Class to hold results of GetVariables request. GetVariableResultType is used by: GetVariablesResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **attributeStatus** | GetVariableStatusEnumType | 1..1 | Required. Result status of getting the variable. |
| **attributeType** | AttributeEnumType | 0..1 | Optional. Attribute type for which value is requested. When absent, default Actual is assumed. |
| **attributeValue** | string[0..2500] | 0..1 | Optional. Value of requested attribute type of component- variable. This field can only be empty when the given  status is NOT accepted.  The Configuration Variable ReportingValueSize can be used to limit GetVariableResult.attributeValue, VariableAttribute.value and EventData.actualValue. The max size of these values will always remain equal. |
| **component** | ComponentType | 1..1 | Required. Component for which the Variable is requested. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **variable** | VariableType | 1..1 | Required. Variable for which the attribute value is requested. |
| **attributeStatusInfo** | StatusInfoType | 0..1 | Optional. Detailed attribute status information. |

## IdTokenInfoType

*Class*

Contains status information about an identifier. It is advised to not stop charging for a token that expires during charging, as ExpiryDate is only used for caching purposes. If ExpiryDate is not given, the status has no end date.

IdTokenInfoType is used by: Common:AuthorizationData , AuthorizeResponse , TransactionEventResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **status** | AuthorizationStatusEnumType | 1..1 | Required. Current status of the ID Token. |
| **cacheExpiryDateTime** | dateTime | 0..1 | Optional. Date and Time after which the token must be considered invalid. |
| **chargingPriority** | integer | 0..1 | Optional. Priority from a business point of view. Default priority is 0, The range is from -9 to 9. Higher values indicate a higher priority. The chargingPriority in TransactionEventResponse overrules this one. |
| **language1** | string[0..8] | 0..1 | Optional. Preferred user interface language of identifier user. Contains a language code as defined in [RFC5646]. |
| **evseId** | integer | 0..\* | Optional. Only used when the IdToken is only valid for one or more specific EVSEs, not for the entire Charging Station. |
| **language2** | string[0..8] | 0..1 | Optional. Second preferred user interface language of identifier user. Don’t use when language1 is omitted, has to be different from language1. Contains a language code as defined in [RFC5646]. |
| **groupIdToken** | IdTokenType | 0..1 | Optional. This contains the group identifier. |
| **personalMessage** | MessageContentType | 0..1 | Optional. Personal message that can be shown to the EV Driver and can be used for tariff information, user greetings etc. |

## IdTokenType

*Class*

Contains a case insensitive identifier to use for the authorization and the type of authorization to support multiple forms of identifiers.

IdTokenType is used by: Common:AuthorizationData , Common:IdTokenInfoType , RequestStartTransactionRequest , AuthorizeRequest , TransactionEventRequest , ReserveNowRequest , CustomerInformationRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **idToken** | identifierString[0..36] | 1..1 | Required. IdToken is case insensitive. Might hold the hidden id of an RFID tag, but can for example also contain a UUID. |
| **type** | IdTokenEnumType | 1..1 | Required. Enumeration of possible idToken types. |
| **additionalInfo** | AdditionalInfoType | 0..\* | Optional. AdditionalInfo can be used to send extra information which can be validated by the CSMS in addition to the regular authorization with *IdToken*. *AdditionalInfo* contains one or more custom types, which need to be agreed upon by all parties involved. When AdditionalInfo is NOT implemented or a not supported AdditionalInfo.type is used, the CSMS/Charging Station MAY ignore the AdditionalInfo. |

## LogParametersType

*Class*

Generic class for the configuration of logging entries. LogParametersType is used by: GetLogRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **remoteLocation** | string[0..512] | 1..1 | Required. The URL of the location at the remote system where the log should be stored. |
| **oldestTimestamp** | dateTime | 0..1 | Optional. This contains the date and time of the oldest logging information to include in the diagnostics. |
| **latestTimestamp** | dateTime | 0..1 | Optional. This contains the date and time of the latest logging information to include in the diagnostics. |

## MessageContentType

*Class*

Contains message details, for a message to be displayed on a Charging Station.

MessageContentType is used by: Common:IdTokenInfoType , Common:MessageInfoType , TransactionEventResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **format** | MessageFormatEnumType | 1..1 | Required. Format of the message. |
| **language** | string[0..8] | 0..1 | Optional. Message language identifier. Contains a language code as defined in [RFC5646]. |
| **content** | string[0..512] | 1..1 | Required. Message contents. |

## MessageInfoType

*Class*

Contains message details, for a message to be displayed on a Charging Station. MessageInfoType is used by: SetDisplayMessageRequest , NotifyDisplayMessagesRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Master resource identifier, unique within an exchange context. It is defined within the OCPP context as a positive Integer value (greater or equal to zero). |
| **priority** | MessagePriorityEnumType | 1..1 | Required. With what priority should this message be shown |
| **state** | MessageStateEnumType | 0..1 | Optional. During what state should this message be shown. When omitted this message should be shown in any state of the Charging Station. |
| **startDateTime** | dateTime | 0..1 | Optional. From what date-time should this message be shown. If omitted: directly. |
| **endDateTime** | dateTime | 0..1 | Optional. Until what date-time should this message be shown, after this date/time this message SHALL be removed. |
| **transactionId** | identifierString[0..36] | 0..1 | Optional. During which transaction shall this message be shown. Message SHALL be removed by the Charging Station after transaction has ended. |
| **message** | MessageContentType | 1..1 | Required. Contains message details for the message to be displayed on a Charging Station. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **display** | ComponentType | 0..1 | Optional. When a Charging Station has multiple Displays, this field can be used to define to which Display this message belongs. |

## MeterValueType

*Class*

Collection of one or more sampled values in MeterValuesRequest and TransactionEvent. All sampled values in a MeterValue are sampled at the same point in time.

MeterValueType is used by: MeterValuesRequest , TransactionEventRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **timestamp** | dateTime | 1..1 | Required. Timestamp for measured value(s). |
| **sampledValue** | SampledValueType | 1..\* | Required. One or more measured values |

## ModemType

*Class*

Defines parameters required for initiating and maintaining wireless communication with other devices. ModemType is used by: BootNotificationRequest.ChargingStationType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **iccid** | identifierString[0..20] | 0..1 | Optional. This contains the ICCID of the modem’s SIM card. |
| **imsi** | identifierString[0..20] | 0..1 | Optional. This contains the IMSI of the modem’s SIM card. |

## MonitoringDataType

*Class*

Class to hold parameters of SetVariableMonitoring request. MonitoringDataType is used by: NotifyMonitoringReportRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **component** | ComponentType | 1..1 | Required. Component for which monitoring report was requested. |
| **variable** | VariableType | 1..1 | Required. Variable for which monitoring report was requested. |
| **variableMonitoring** | VariableMonitoringType | 1..\* | Required. List of monitors for this Component-Variable pair. |

## NetworkConnectionProfileType

*Class*

The NetworkConnectionProfile defines the functional and technical parameters of a communication link. NetworkConnectionProfileType is used by: SetNetworkProfileRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **ocppVersion** | OCPPVersionEnumType | 1..1 | Required. Defines the OCPP version used for this communication function. |
| **ocppTransport** | OCPPTransportEnumType | 1..1 | Required. Defines the transport protocol (e.g. SOAP or JSON). Note: SOAP is not supported in OCPP 2.0, but is supported by other versions of OCPP. |
| **ocppCsmsUrl** | string[0..512] | 1..1 | Required. URL of the CSMS(s) that this Charging Station communicates with. |
| **messageTimeout** | integer | 1..1 | Required. Duration in seconds before a message send by the Charging Station via this network connection times- out. The best setting depends on the underlying network and response times of the CSMS. If you are looking for a some guideline: use 30 seconds as a starting point. |
| **securityProfile** | integer | 1..1 | Required. This field specifies the security profile used when connecting to the CSMS with this NetworkConnectionProfile. |
| **ocppInterface** | OCPPInterfaceEnumType | 1..1 | Required. Applicable Network Interface. |
| **vpn** | VPNType | 0..1 | Optional. Settings to be used to set up the VPN connection |
| **apn** | APNType | 0..1 | Optional. Collection of configuration data needed to make a data-connection over a cellular network. |

## OCSPRequestDataType

*Class*

OCSPRequestDataType is used by: AuthorizeRequest , GetCertificateStatusRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **hashAlgorithm** | HashAlgorithmEnumType | 1..1 | Required. Used algorithms for the hashes provided. |
| **issuerNameHash** | identifierString[0..128] | 1..1 | Required. Hashed value of the Issuer DN (Distinguished Name). |
| **issuerKeyHash** | string[0..128] | 1..1 | Required. Hashed value of the issuers public key |
| **serialNumber** | identifierString[0..40] | 1..1 | Required. The serial number of the certificate. |
| **responderURL** | string[0..512] | 1..1 | Required. This contains the responder URL (Case insensitive). |

## RelativeTimeIntervalType

*Class*

RelativeTimeIntervalType is used by: Common:SalesTariffEntryType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **start** | integer | 1..1 | Required. Start of the interval, in seconds from NOW. |
| **duration** | integer | 0..1 | Optional. Duration of the interval, in seconds. |

## ReportDataType

*Class*

Class to report components, variables and variable attributes and characteristics. ReportDataType is used by: NotifyReportRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **component** | ComponentType | 1..1 | Required. Component for which a report of Variable is requested. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **variable** | VariableType | 1..1 | Required. Variable for which report is requested. |
| **variableAttribute** | VariableAttributeType | 1..4 | Required. Attribute data of a variable. |
| **variableCharacteristics** | VariableCharacteristicsType | 0..1 | Optional. Fixed read-only parameters of a variable. |

## SalesTariffEntryType

*Class*

SalesTariffEntryType is used by: Common:SalesTariffType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **ePriceLevel** | integer, 0 < = val | 0..1 | Optional. Defines the price level of this SalesTariffEntry (referring to NumEPriceLevels). Small values for the EPriceLevel represent a cheaper TariffEntry. Large values for the EPriceLevel represent a more expensive TariffEntry. |
| **relativeTimeInterval** | RelativeTimeIntervalType | 1..1 | Required. Defines the time interval the SalesTariffEntry is valid for, based upon relative times. |
| **consumptionCost** | ConsumptionCostType | 0..3 | Optional. Defines additional means for further relative price information and/or alternative costs. |

## SalesTariffType

*Class*

**NOTE** This dataType is based on dataTypes from ISO 15118-2.

SalesTariffType is used by: Common:ChargingScheduleType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. SalesTariff identifier used to identify one sales tariff. An SAID remains a unique identifier for one schedule throughout a charging session. |
| **salesTariffDescription** | string[0..32] | 0..1 | Optional. A human readable title/short description of the sales tariff e.g. for HMI display purposes. |
| **numEPriceLevels** | integer | 0..1 | Optional. Defines the overall number of distinct price levels used across all provided SalesTariff elements. |
| **salesTariffEntry** | SalesTariffEntryType | 1..102  4 | Required. Encapsulating element describing all relevant details for one time interval of the SalesTariff. The number of SalesTariffEntry elements is limited by the parameter maxScheduleTuples. |

## SampledValueType

*Class*

Single sampled value in MeterValues. Each value can be accompanied by optional fields.

To save on mobile data usage, default values of all of the optional fields are such that. The value without any additional fields will be interpreted, as a register reading of active import energy in Wh (Watt-hour) units.

SampledValueType is used by: Common:MeterValueType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **value** | decimal | 1..1 | Required. Indicates the measured value. |
| **context** | ReadingContextEnumType | 0..1 | Optional. Type of detail value: start, end or sample. Default = "Sample.Periodic" |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **measurand** | MeasurandEnumType | 0..1 | Optional. Type of measurement. Default = "Energy.Active.Import.Register" |
| **phase** | PhaseEnumType | 0..1 | Optional. Indicates how the measured value is to be interpreted. For instance between L1 and neutral (L1-N) Please note that not all values of phase are applicable to all Measurands. When phase is absent, the measured value is interpreted as an overall value. |
| **location** | LocationEnumType | 0..1 | Optional. Indicates where the measured value has been sampled. Default = "Outlet" |
| **signedMeterValue** | SignedMeterValueType | 0..1 | Optional. Contains the MeterValueSignature with sign/encoding method information. |
| **unitOfMeasure** | UnitOfMeasureType | 0..1 | Optional. Represents a UnitOfMeasure including a multiplier |

## SetMonitoringDataType

*Class*

Class to hold parameters of SetVariableMonitoring request. SetMonitoringDataType is used by: SetVariableMonitoringRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 0..1 | Optional. An id SHALL only be given to replace an existing monitor. The Charging Station handles the generation of id’s for new monitors. |
| **transaction** | boolean | 0..1 | Optional. Monitor only active when a transaction is ongoing on a component relevant to this transaction. Default = false. |
| **value** | decimal | 1..1 | Required. Value for threshold or delta monitoring. For Periodic or PeriodicClockAligned this is the interval in seconds. |
| **type** | MonitorEnumType | 1..1 | Required. The type of this monitor, e.g. a threshold, delta or periodic monitor. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **severity** | integer | 1..1 | Required. The severity that will be assigned to an event that is triggered by this monitor. The severity range is 0-9,  with 0 as the highest and 9 as the lowest severity level.  The severity levels have the following meaning:  **0-Danger**  Indicates lives are potentially in danger. Urgent attention is needed and action should be taken immediately.   1. **Hardware Failure**   Indicates that the Charging Station is unable to continue regular operations due to Hardware issues. Action is  required.   1. **System Failure**   Indicates that the Charging Station is unable to continue regular operations due to software or minor hardware  issues. Action is required.  **3-Critical**  Indicates a critical error. Action is required.  **4-Error**  Indicates a non-urgent error. Action is required.  **5-Alert**  Indicates an alert event. Default severity for any type of monitoring event.  **6-Warning**  Indicates a warning event. Action may be required.  **7-Notice**  Indicates an unusual event. No immediate action is required.  **8-Informational**  Indicates a regular operational event. May be used for reporting, measuring throughput, etc. No action is  required.  **9-Debug**  Indicates information useful to developers for debugging, not useful during operations. |
| **component** | ComponentType | 1..1 | Required. Component for which monitor is set. |
| **variable** | VariableType | 1..1 | Required. Variable for which monitor is set. |

## SetMonitoringResultType

*Class*

Class to hold result of SetVariableMonitoring request. SetMonitoringResultType is used by: SetVariableMonitoringResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 0..1 | Optional. Id given to the VariableMonitor by the Charging Station. The Id is only returned when status is accepted. Installed VariableMonitors should have unique id’s but the id’s of removed Installed monitors should have unique id’s but the id’s of removed monitors MAY be reused. |
| **status** | SetMonitoringStatusEnumType | 1..1 | Required. Status is OK if a value could be returned. Otherwise this will indicate the reason why a value could not be returned. |
| **type** | MonitorEnumType | 1..1 | Required. The type of this monitor, e.g. a threshold, delta or periodic monitor. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **severity** | integer | 1..1 | Required. The severity that will be assigned to an event that is triggered by this monitor. The severity range is 0-9,  with 0 as the highest and 9 as the lowest severity level.  The severity levels have the following meaning:  **0-Danger**  Indicates lives are potentially in danger. Urgent attention is needed and action should be taken immediately.   1. **Hardware Failure**   Indicates that the Charging Station is unable to continue regular operations due to Hardware issues. Action is  required.   1. **System Failure**   Indicates that the Charging Station is unable to continue regular operations due to software or minor hardware  issues. Action is required.  **3-Critical**  Indicates a critical error. Action is required.  **4-Error**  Indicates a non-urgent error. Action is required.  **5-Alert**  Indicates an alert event. Default severity for any type of monitoring event.  **6-Warning**  Indicates a warning event. Action may be required.  **7-Notice**  Indicates an unusual event. No immediate action is required.  **8-Informational**  Indicates a regular operational event. May be used for reporting, measuring throughput, etc. No action is  required.  **9-Debug**  Indicates information useful to developers for debugging, not useful during operations. |
| **component** | ComponentType | 1..1 | Required. Component for which status is returned. |
| **variable** | VariableType | 1..1 | Required. Variable for which status is returned. |
| **statusInfo** | StatusInfoType | 0..1 | Optional. Detailed status information. |

## SetVariableDataType

*Class*

SetVariableDataType is used by: SetVariablesRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **attributeType** | AttributeEnumType | 0..1 | Optional. Type of attribute: Actual, Target, MinSet, MaxSet. Default is Actual when omitted. |
| **attributeValue** | string[0..1000] | 1..1 | Required. Value to be assigned to attribute of variable.  The Configuration Variable ConfigurationValueSize can be used to limit SetVariableData.attributeValue and VariableCharacteristics.valueList. The max size of these values will always remain equal. |
| **component** | ComponentType | 1..1 | Required. The component for which the variable data is set. |
| **variable** | VariableType | 1..1 | Required. Specifies the that needs to be set. |

## SetVariableResultType

*Class*

SetVariableResultType is used by: SetVariablesResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **attributeType** | AttributeEnumType | 0..1 | Optional. Type of attribute: Actual, Target, MinSet, MaxSet. Default is Actual when omitted. |
| **attributeStatus** | SetVariableStatusEnumType | 1..1 | Required. Result status of setting the variable. |
| **component** | ComponentType | 1..1 | Required. The component for which result is returned. |
| **variable** | VariableType | 1..1 | Required. The variable for which the result is returned. |
| **attributeStatusInfo** | StatusInfoType | 0..1 | Optional. Detailed attribute status information. |

## SignedMeterValueType

*Class*

Represent a signed version of the meter value. SignedMeterValueType is used by: Common:SampledValueType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **signedMeterData** | string[0..2500] | 1..1 | Required. Base64 encoded, contains the signed data which might contain more then just the meter value. It can contain information like timestamps, reference to a customer etc. |
| **signingMethod** | string[0..50] | 1..1 | Required. Method used to create the digital signature. |
| **encodingMethod** | string[0..50] | 1..1 | Required. Method used to encode the meter values before applying the digital signature algorithm. |
| **publicKey** | string[0..2500] | 1..1 | Required. Base64 encoded, sending depends on configuration variable *PublicKeyWithSignedMeterValue*. |

## StatusInfoType

*Class*

Element providing more information about the status.

StatusInfoType is used by: Common:ClearMonitoringResultType , BootNotificationResponse , CancelReservationResponse , TriggerMessageResponse , UnlockConnectorResponse , UpdateFirmwareResponse , ClearDisplayMessageResponse , Get15118EVCertificateResponse , GetCompositeScheduleResponse , ChangeAvailabilityResponse , GetLogResponse , ClearChargingProfileResponse , NotifyEVChargingNeedsResponse , ClearCacheResponse , NotifyEVChargingScheduleResponse , RequestStartTransactionResponse , RequestStopTransactionResponse , SetChargingProfileResponse , SetDisplayMessageResponse , SetNetworkProfileResponse , SignCertificateResponse , DataTransferResponse , CertificateSignedResponse , DeleteCertificateResponse , GetChargingProfilesResponse , GetInstalledCertificateIdsResponse , InstallCertificateResponse , GetBaseReportResponse , GetMonitoringReportResponse , GetReportResponse , GetVariablesResponse.GetVariableResultType , ReserveNowResponse , SetMonitoringBaseResponse , SetMonitoringLevelResponse , SetVariableMonitoringResponse.SetMonitoringResultType , SetVariablesResponse.SetVariableResultType , PublishFirmwareResponse , GetCertificateStatusResponse , ResetResponse , GetDisplayMessagesResponse , CustomerInformationResponse , SendLocalListResponse

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **reasonCode** | string[0..20] | 1..1 | Required. A predefined code for the reason why the status is returned in this response. The string is case- insensitive. |
| **additionalInfo** | string[0..512] | 0..1 | Optional. Additional text to provide detailed information. |

## TransactionType

*Class*

TransactionType is used by: TransactionEventRequest

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **transactionId** | identifierString[0..36] | 1..1 | Required. This contains the Id of the transaction. |
| **chargingState** | ChargingStateEnumType | 0..1 | Optional. Current charging state, is required when state has changed. |
| **timeSpentCharging** | integer | 0..1 | Optional. Contains the total time that energy flowed from EVSE to EV during the transaction (in seconds). Note that timeSpentCharging is smaller or equal to the duration of the transaction. |
| **stoppedReason** | ReasonEnumType | 0..1 | Optional. This contains the reason why the transaction was stopped. MAY only be omitted when Reason is "Local". |
| **remoteStartId** | integer | 0..1 | Optional. The ID given to remote start request (RequestStartTransactionRequest. This enables to CSMS to match the started transaction to the given start request. |

## UnitOfMeasureType

*Class*

Represents a UnitOfMeasure with a multiplier UnitOfMeasureType is used by: Common:SampledValueType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **unit** | string[0..20] | 0..1 | Optional. Unit of the value. Default = "Wh" if the (default) measurand is an "Energy" type. This field SHALL use a value from the list Standardized Units of Measurements in Part 2 Appendices. If an applicable unit is available in that list, otherwise a "custom" unit might be used. |
| **multiplier** | integer | 0..1 | Optional. Multiplier, this value represents the exponent to base 10. I.e. multiplier 3 means 10 raised to the 3rd power. Default is 0. |

## VariableAttributeType

*Class*

Attribute data of a variable.

VariableAttributeType is used by: NotifyReportRequest.ReportDataType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **type** | AttributeEnumType | 0..1 | Optional. Attribute: Actual, MinSet, MaxSet, etc. Defaults to Actual if absent. |
| **value** | string[0..2500] | 0..1 | Optional. Value of the attribute. May only be omitted when mutability is set to 'WriteOnly'.  The Configuration Variable ReportingValueSize can be used to limit GetVariableResult.attributeValue, VariableAttribute.value and EventData.actualValue. The max size of these values will always remain equal. |
| **mutability** | MutabilityEnumType | 0..1 | Optional. Defines the mutability of this attribute. Default is ReadWrite when omitted. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **persistent** | boolean | 0..1 | Optional. If true, value will be persistent across system reboots or power down. Default when omitted is false. |
| **constant** | boolean | 0..1 | Optional. If true, value that will never be changed by the Charging Station at runtime. Default when omitted is false. |

## VariableCharacteristicsType

*Class*

Fixed read-only parameters of a variable.

VariableCharacteristicsType is used by: NotifyReportRequest.ReportDataType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **unit** | string[0..16] | 0..1 | Optional. Unit of the variable. When the transmitted value has a unit, this field SHALL be included. |
| **dataType** | DataEnumType | 1..1 | Required. Data type of this variable. |
| **minLimit** | decimal | 0..1 | Optional. Minimum possible value of this variable. |
| **maxLimit** | decimal | 0..1 | Optional. Maximum possible value of this variable. When the datatype of this Variable is String, OptionList, SequenceList or MemberList, this field defines the maximum length of the (CSV) string. |
| **valuesList** | string[0..1000] | 0..1 | Optional. Allowed values when variable is Option/Member/SequenceList.   * OptionList: The (Actual) Variable value must be a single value from the reported (CSV) enumeration list. * MemberList: The (Actual) Variable value may be an (unordered) (sub-)set of the reported (CSV) valid values   list.   * SequenceList: The (Actual) Variable value may be an ordered (priority, etc) (sub-)set of the reported (CSV) valid   values.  This is a comma separated list.  The Configuration Variable ConfigurationValueSize can be used to limit SetVariableData.attributeValue and VariableCharacteristics.valueList. The max size of these values will always remain equal. |
| **supportsMonitoring** | boolean | 1..1 | Required. Flag indicating if this variable supports monitoring. |

## VariableMonitoringType

*Class*

A monitoring setting for a variable.

VariableMonitoringType is used by: NotifyMonitoringReportRequest.MonitoringDataType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **id** | integer | 1..1 | Required. Identifies the monitor. |
| **transaction** | boolean | 1..1 | Required. Monitor only active when a transaction is ongoing on a component relevant to this transaction. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **value** | decimal | 1..1 | Required. Value for threshold or delta monitoring. For Periodic or PeriodicClockAligned this is the interval in seconds. |
| **type** | MonitorEnumType | 1..1 | Required. The type of this monitor, e.g. a threshold, delta or periodic monitor. |
| **severity** | integer | 1..1 | Required. The severity that will be assigned to an event that is triggered by this monitor. The severity range is 0-9,  with 0 as the highest and 9 as the lowest severity level.  The severity levels have the following meaning:  **0-Danger**  Indicates lives are potentially in danger. Urgent attention is needed and action should be taken immediately.   1. **Hardware Failure**   Indicates that the Charging Station is unable to continue regular operations due to Hardware issues. Action is  required.   1. **System Failure**   Indicates that the Charging Station is unable to continue regular operations due to software or minor hardware  issues. Action is required.  **3-Critical**  Indicates a critical error. Action is required.  **4-Error**  Indicates a non-urgent error. Action is required.  **5-Alert**  Indicates an alert event. Default severity for any type of monitoring event.  **6-Warning**  Indicates a warning event. Action may be required.  **7-Notice**  Indicates an unusual event. No immediate action is required.  **8-Informational**  Indicates a regular operational event. May be used for reporting, measuring throughput, etc. No action is  required.  **9-Debug**  Indicates information useful to developers for debugging, not useful during operations. |

## VariableType

*Class*

Reference key to a component-variable.

VariableType is used by: Common:ComponentVariableType , GetVariablesRequest.GetVariableDataType , GetVariablesResponse.GetVariableResultType , NotifyMonitoringReportRequest.MonitoringDataType , NotifyReportRequest.ReportDataType , SetVariableMonitoringRequest.SetMonitoringDataType , SetVariableMonitoringResponse.SetMonitoringResultType , SetVariablesRequest.SetVariableDataType , SetVariablesResponse.SetVariableResultType , NotifyEventRequest.EventDataType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **name** | identifierString[0..50] | 1..1 | Required. Name of the variable. Name should be taken from the list of standardized variable names whenever possible. Case Insensitive. strongly advised to use Camel Case. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **instance** | identifierString[0..50] | 0..1 | Optional. Name of instance in case the variable exists as multiple instances. Case Insensitive. strongly advised to use Camel Case. |

## VPNType

*Class*

VPN Configuration settings

VPNType is used by: SetNetworkProfileRequest.NetworkConnectionProfileType

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Card.** | **Description** |
| **server** | string[0..512] | 1..1 | Required. VPN Server Address |
| **user** | string[0..20] | 1..1 | Required. VPN User |
| **group** | string[0..20] | 0..1 | Optional. VPN group. |
| **password** | string[0..20] | 1..1 | Required. VPN Password. |
| **key** | string[0..255] | 1..1 | Required. VPN shared secret. |
| **type** | VPNEnumType | 1..1 | Required. Type of VPN |

# Enumerations

## APNAuthenticationEnumType

*Enumeration*

APNAuthenticationEnumType is used by: setNetworkProfile:SetNetworkProfileRequest.APNType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **CHAP** | Use CHAP authentication |
| **NONE** | Use no authentication |
| **PAP** | Use PAP authentication |
| **AUTO** | Sequentially try CHAP, PAP, NONE. |

## AttributeEnumType

*Enumeration*

AttributeEnumType is used by: Common:VariableAttributeType , getVariables:GetVariablesRequest.GetVariableDataType , getVariables:GetVariablesResponse.GetVariableResultType , setVariables:SetVariablesRequest.SetVariableDataType , setVariables:SetVariablesResponse.SetVariableResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Actual** | The actual value of the variable. |
| **Target** | The target value for this variable. |
| **MinSet** | The minimal allowed value for this variable |
| **MaxSet** | Thne maximum allowed value for this variable |

## AuthorizationStatusEnumType

*Enumeration*

Status of an authorization response.

AuthorizationStatusEnumType is used by: Common:IdTokenInfoType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Identifier is allowed for charging. |
| **Blocked** | Identifier has been blocked. Not allowed for charging. |
| **ConcurrentTx** | Identifier is already involved in another transaction and multiple transactions are not allowed. (Only relevant for the response to a transactionEventRequest(eventType=Started).) |
| **Expired** | Identifier has expired. Not allowed for charging. |
| **Invalid** | Identifier is invalid. Not allowed for charging. |
| **NoCredit** | Identifier is valid, but EV Driver doesn’t have enough credit to start charging. Not allowed for charging. |
| **NotAllowedTypeEVS E** | Identifier is valid, but not allowed to charge at this type of EVSE. |
| **NotAtThisLocation** | Identifier is valid, but not allowed to charge at this location. |
| **NotAtThisTime** | Identifier is valid, but not allowed to charge at this location at this time. |
| **Unknown** | Identifier is unknown. Not allowed for charging. |

## AuthorizeCertificateStatusEnumType

*Enumeration*

Status of the EV Contract certificate.

AuthorizeCertificateStatusEnumType is used by: authorize:AuthorizeResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Positive response |
| **SignatureError** | If the validation of the Security element in the message header failed. |
| **CertificateExpired** | If the OEMProvisioningCert in the CertificateInstallationReq, the Contract Certificate in the CertificateUpdateReq, or the ContractCertificate in the PaymentDetailsReq is expired. |
| **CertificateRevoked** | Used when the SECC or CSMS matches the ContractCertificate contained in a CertificateUpdateReq or PaymentDetailsReq with a CRL and the Contract Certificate is marked as revoked, OR when the SECC or CSMS matches the OEM Provisioning Certificate contained in a CertificateInstallationReq with a CRL and the  OEM Provisioning Certificate is marked as revoked.  The revocation status can alternatively be obtained through an OCSP responder. |
| **NoCertificateAvailab le** | If the new certificate cannot be retrieved from secondary actor within the specified timeout |
| **CertChainError** | If the ContractSignatureCertChain contained in the CertificateInstallationReq message is not valid. |
| **ContractCancelled** | If the EMAID provided by EVCC during CertificateUpdateReq is not accepted by secondary actor. |

## BootReasonEnumType

*Enumeration*

BootReasonEnumType is used by: bootNotification:BootNotificationRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ApplicationReset** | The Charging Station rebooted due to an application error. |
| **FirmwareUpdate** | The Charging Station rebooted due to a firmware update. |
| **LocalReset** | The Charging Station rebooted due to a local reset command. |
| **PowerUp** | The Charging Station powered up and registers itself with the CSMS. |
| **RemoteReset** | The Charging Station rebooted due to a remote reset command. |
| **ScheduledReset** | The Charging Station rebooted due to a scheduled reset command. |
| **Triggered** | Requested by the CSMS via a TriggerMessage |
| **Unknown** | The boot reason is unknown. |
| **Watchdog** | The Charging Station rebooted due to an elapsed watchdog timer. |

## CancelReservationStatusEnumType

*Enumeration*

Status in CancelReservationResponse.

CancelReservationStatusEnumType is used by: cancelReservation:CancelReservationResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Reservation for the identifier has been canceled. |
| **Rejected** | Reservation could not be canceled, because there is no reservation active for the identifier. |

## CertificateActionEnumType

*Enumeration*

CertificateActionEnumType is used by: get15118EVCertificate:Get15118EVCertificateRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Install** | Install the provided certificate. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Update** | Update the provided certificate. |

## CertificateSignedStatusEnumType

*Enumeration*

CertificateSignedStatusEnumType is used by: certificateSigned:CertificateSignedResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Signed certificate is valid. |
| **Rejected** | Signed certificate is invalid. |

## CertificateSigningUseEnumType

*Enumeration*

CertificateSigningUseEnumType is used by: signCertificate:SignCertificateRequest , certificateSigned:CertificateSignedRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ChargingStationCert ificate** | Client side certificate used by the Charging Station to connect the the CSMS. |
| **V2GCertificate** | Use for certificate for 15118 connections. This means that the certificate should be derived from the V2G root. |

## ChangeAvailabilityStatusEnumType

*Enumeration*

Status returned in response to ChangeAvailabilityRequest.

ChangeAvailabilityStatusEnumType is used by: changeAvailability:ChangeAvailabilityResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request has been accepted and will be executed. |
| **Rejected** | Request has not been accepted and will not be executed. |
| **Scheduled** | Request has been accepted and will be executed when transaction(s) in progress have finished. |

## ChargingLimitSourceEnumType

*Enumeration*

Enumeration for indicating from which source a charging limit originates.

ChargingLimitSourceEnumType is used by: notifyChargingLimit:NotifyChargingLimitRequest.ChargingLimitType , clearedChargingLimit:ClearedChargingLimitRequest , getChargingProfiles:GetChargingProfilesRequest.ChargingProfileCriterionType , reportChargingProfiles:ReportChargingProfilesRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **EMS** | Indicates that an Energy Management System has sent a charging limit. |
| **Other** | Indicates that an external source, not being an EMS or system operator, has sent a charging limit. |
| **SO** | Indicates that a System Operator (DSO or TSO) has sent a charging limit. |
| **CSO** | Indicates that the CSO has set this charging profile. |

## ChargingProfileKindEnumType

*Enumeration*

Kind of charging profile.

ChargingProfileKindEnumType is used by: Common:ChargingProfileType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Absolute** | Schedule periods are relative to a fixed point in time defined in the schedule. This requires that *startSchedule*  is set to a starting point in time. |
| **Recurring** | The schedule restarts periodically at the first schedule period. To be most useful, this requires that  *startSchedule* is set to a starting point in time. |
| **Relative** | Charging schedule periods start when ChargingProfile is activated. In most cases this will be at start of the power delivery. When a ChargingProfile is received for a transaction in progress, then it should activate immediately. No value for *startSchedule* should be supplied. |

## ChargingProfilePurposeEnumType

*Enumeration*

Purpose of the charging profile.

ChargingProfilePurposeEnumType is used by: Common:ChargingProfileType , clearChargingProfile:ClearChargingProfileRequest.ClearChargingProfileType , getChargingProfiles:GetChargingProfilesRequest.ChargingProfileCriterionType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ChargingStationExte rnalConstraints** | Additional constraints that will be incorporated into a local power schedule. Only valid for a Charging Station. Therefore evse.Id MUST be 0 in the SetChargingProfileRequest message. |
| **ChargingStationMax Profile** | Configuration for the maximum power or current available for an entire Charging Station. |
| **TxDefaultProfile** | Default profile that can be configured in the Charging Station. When a new transaction is started, this profile SHALL be used, unless it was a transaction that was started by a RequestStartTransactionRequest with a ChargingProfile that is accepted by the Charging Station. |
| **TxProfile** | Profile with constraints to be imposed by the Charging Station on the current transaction, or on a new transaction when this is started via a RequestStartTransactionRequest with a ChargingProfile. A profile with this purpose SHALL cease to be valid when the transaction terminates. |

## ChargingProfileStatusEnumType

*Enumeration*

Status returned in response to SetChargingProfileRequest.

ChargingProfileStatusEnumType is used by: setChargingProfile:SetChargingProfileResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request has been accepted and will be executed. |
| **Rejected** | Request has not been accepted and will not be executed. |

## ChargingRateUnitEnumType

*Enumeration*

Unit in which a charging schedule is defined.

ChargingRateUnitEnumType is used by: Common:ChargingScheduleType , Common:CompositeScheduleType , getCompositeSchedule:GetCompositeScheduleRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **W** | Watts (power). This is the TOTAL allowed charging power. If used for AC Charging, the phase current should be calculated via: Current per phase = Power / (Line Voltage \* Number of Phases). The "Line Voltage" used in the calculation is not the measured voltage, but the set voltage for the area (hence, 230 of 110 volt). The "Number of Phases" is the numberPhases from the ChargingSchedulePeriod. It is usually more convenient to use this for DC charging. Note that if numberPhases in a ChargingSchedulePeriod is absent, 3 SHALL be assumed. |
| **A** | Amperes (current). The amount of Ampere per phase, not the sum of all phases. It is usually more convenient to use this for AC charging. |

## ChargingStateEnumType

*Enumeration*

The state of the charging process.

ChargingStateEnumType is used by: transactionEvent:TransactionEventRequest.TransactionType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Charging** | The contactor of the Connector is closed and energy is flowing to between EVSE and EV. |
| **EVConnected** | There is a connection between EV and EVSE, in case the protocol used between EV and the Charging Station can detect a connection, the protocol needs to detect this for the state to become active. The connection can either be wired or wireless. |
| **SuspendedEV** | When the EV is connected to the EVSE and the EVSE is offering energy but the EV is not taking any energy. |
| **SuspendedEVSE** | When the EV is connected to the EVSE but the EVSE is not offering energy to the EV, e.g. due to a smart charging restriction, local supply power constraints, or when charging has stopped because of the authorization status in the response to a transactionEventRequest indicating that charging is not allowed etc. |
| **Idle** | There is no connection between EV and EVSE. |

## ClearCacheStatusEnumType

*Enumeration*

Status returned in response to ClearCacheRequest. ClearCacheStatusEnumType is used by: clearCache:ClearCacheResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Command has been executed. |
| **Rejected** | Command has not been executed. |

## ClearChargingProfileStatusEnumType

*Enumeration*

Status returned in response to ClearChargingProfileRequest.

ClearChargingProfileStatusEnumType is used by: clearChargingProfile:ClearChargingProfileResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request has been accepted and will be executed. |
| **Unknown** | No Charging Profile(s) were found matching the request. |

## ClearMessageStatusEnumType

*Enumeration*

Result for a ClearDisplayMessageRequest as used in a ClearDisplayMessageResponse. ClearMessageStatusEnumType is used by: clearDisplayMessage:ClearDisplayMessageResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request successfully executed: message cleared. |
| **Unknown** | Given message (based on the id) not known. |

## ClearMonitoringStatusEnumType

*Enumeration*

ClearMonitoringStatusEnumType is used by: Common:ClearMonitoringResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Monitor successfully cleared. |
| **Rejected** | Clearing of monitor rejected. |
| **NotFound** | Monitor Id is not found. |

## ComponentCriterionEnumType

*Enumeration*

ComponentCriterionEnumType is used by: getReport:GetReportRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Active** | Components that are active, i.e. having *Active* = 1 |
| **Available** | Components that are available, i.e. having *Available* = 1 |
| **Enabled** | Components that are enabled, i.e. having *Enabled* = 1 |
| **Problem** | Components that reported a problem, i.e. having *Problem* = 1 |

## ConnectorEnumType

*Enumeration*

Allowed values of ConnectorCode.

#### NOTE

This enumeration does not attempt to include every possible power connector type worldwide as an individual type, but to specifically define those that are known to be in use (or likely to be in use) in the Charging Stations using the OCPP protocol. In particular, many of the very large number of domestic electrical sockets designs in use in many countries are excluded, unless there is evidence that they are or are likely to be approved for use on Charging Stations in some jurisdictions (e.g. as secondary connectors for charging light EVs such as electric scooters). These light connector types can be represented with the enumeration value Other1PhMax16A. Similarly, any single phase connector not otherwise enumerated that is rated for 16A or over should be reported as Other1PhOver16A. All 3 phase connector types not explicitly enumerated should be represented as Other3Ph.

ConnectorEnumType is used by: reserveNow:ReserveNowRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **cCCS1** | Combined Charging System 1 (captive cabled) a.k.a. Combo 1 |
| **cCCS2** | Combined Charging System 2 (captive cabled) a.k.a. Combo 2 |
| **cG105** | JARI G105-1993 (captive cabled) a.k.a. CHAdeMO |
| **cTesla** | Tesla Connector (captive cabled) |
| **cType1** | IEC62196-2 Type 1 connector (captive cabled) a.k.a. J1772 |
| **cType2** | IEC62196-2 Type 2 connector (captive cabled) a.k.a. Mennekes connector |
| **s309-1P-16A** | 16A 1 phase IEC60309 socket |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **s309-1P-32A** | 32A 1 phase IEC60309 socket |
| **s309-3P-16A** | 16A 3 phase IEC60309 socket |
| **s309-3P-32A** | 32A 3 phase IEC60309 socket |
| **sBS1361** | UK domestic socket a.k.a. 13Amp |
| **sCEE-7-7** | CEE 7/7 16A socket. May represent 7/4 & 7/5 a.k.a Schuko |
| **sType2** | IEC62196-2 Type 2 socket a.k.a. Mennekes connector |
| **sType3** | IEC62196-2 Type 2 socket a.k.a. Scame |
| **Other1PhMax16A** | Other single phase (domestic) sockets not mentioned above, rated at no more than 16A. CEE7/17, AS3112, NEMA 5-15, NEMA 5-20, JISC8303, TIS166, SI 32, CPCS-CCC, SEV1011, etc. |
| **Other1PhOver16A** | Other single phase sockets not mentioned above (over 16A) |
| **Other3Ph** | Other 3 phase sockets not mentioned above. NEMA14-30, NEMA14-50. |
| **Pan** | Pantograph connector |
| **wInductive** | Wireless inductively coupled connection (generic) |
| **wResonant** | Wireless resonant coupled connection (generic) |
| **Undetermined** | Yet to be determined (e.g. before plugged in) |
| **Unknown** | Unknown; not determinable |

## ConnectorStatusEnumType

*Enumeration*

A status can be reported for the Connector of an EVSE of a Charging Station. States considered Operative are: Available, Reserved and Occupied. States considered Inoperative are: Unavailable, Faulted.

ConnectorStatusEnumType is used by: statusNotification:StatusNotificationRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Available** | When a Connector becomes available for a new User (Operative) |
| **Occupied** | When a Connector becomes occupied, so it is not available for a new EV driver. (Operative) |
| **Reserved** | When a Connector becomes reserved as a result of ReserveNow command (Operative) |
| **Unavailable** | When a Connector becomes unavailable as the result of a Change Availability command or an event upon which the Charging Station transitions to unavailable at its discretion. Upon receipt of ChangeAvailability message command, the status MAY change immediately or the change MAY be scheduled. When scheduled, StatusNotification SHALL be send when the availability change becomes effective (Inoperative) |
| **Faulted** | When a Connector (or the EVSE or the entire Charging Station it belongs to) has reported an error and is not available for energy delivery. (Inoperative). |

## CostKindEnumType

*Enumeration*

CostKindEnumType is used by: Common:CostType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **CarbonDioxideEmiss ion** | Absolute value. Carbon Dioxide emissions, in grams per kWh. |
| **RelativePricePercen tage** | Relative value. Price per kWh, as percentage relative to the maximum price stated in any of all tariffs indicated to the EV. |
| **RenewableGeneratio nPercentage** | Relative value. Percentage of renewable generation within total generation. |

## CustomerInformationStatusEnumType

*Enumeration*

Status in CancelReservationResponse.

CustomerInformationStatusEnumType is used by: customerInformation:CustomerInformationResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | The Charging Station accepted the message. |
| **Rejected** | When the Charging Station is in a state where it cannot process this request. |
| **Invalid** | In a request to the Charging Station no reference to a customer is included. |

## DataEnumType

*Enumeration*

DataEnumType is used by: Common:VariableCharacteristicsType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **string** | This variable is of the type string. |
| **decimal** | This variable is of the type decimal. |
| **integer** | This variable is of the type integer. |
| **dateTime** | DateTime following the [RFC3339] specification. |
| **boolean** | This variable is of the type boolean. |
| **OptionList** | Supported/allowed values for a single choice, enumerated, text variable. |
| **SequenceList** | Supported/allowed values for an ordered sequence variable. |
| **MemberList** | Supported/allowed values for a mathematical set variable. |

## DataTransferStatusEnumType

*Enumeration*

Status in DataTransferResponse.

DataTransferStatusEnumType is used by: dataTransfer:DataTransferResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Message has been accepted and the contained request is accepted. |
| **Rejected** | Message has been accepted but the contained request is rejected. |
| **UnknownMessageId** | Message could not be interpreted due to unknown messageId string. |
| **UnknownVendorId** | Message could not be interpreted due to unknown vendorId string. |

## DeleteCertificateStatusEnumType

*Enumeration*

DeleteCertificateStatusEnumType is used by: deleteCertificate:DeleteCertificateResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Normal successful completion (no errors). |
| **Failed** | Processing failure. |
| **NotFound** | Requested resource not found. |

## DisplayMessageStatusEnumType

*Enumeration*

Result for a SetDisplayMessageRequest as used in a SetDisplayMessageResponse.

DisplayMessageStatusEnumType is used by: setDisplayMessage:SetDisplayMessageResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request to display message accepted. |
| **NotSupportedMessa geFormat** | None of the formats in the given message are supported. |
| **Rejected** | Request cannot be handled. |
| **NotSupportedPriorit y** | The given MessagePriority not supported for displaying messages by Charging Station. |
| **NotSupportedState** | The given MessageState not supported for displaying messages by Charging Station. |
| **UnknownTransactio n** | Given Transaction not known/ongoing. |

## EnergyTransferModeEnumType

*Enumeration*

Enumeration of energy transfer modes.

EnergyTransferModeEnumType is used by: Common:ChargingNeedsType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **DC** | DC charging. |
| **AC\_single\_phase** | AC single phase charging according to IEC 62196. |
| **AC\_two\_phase** | AC two phase charging according to IEC 62196. |
| **AC\_three\_phase** | AC three phase charging according to IEC 62196. |

## EventNotificationEnumType

*Enumeration*

Specifies the event notification type of the message.

EventNotificationEnumType is used by: notifyEvent:NotifyEventRequest.EventDataType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **HardWiredNotificati on** | The software implemented by the manufacturer triggered a hardwired notification. |
| **HardWiredMonitor** | Triggered by a monitor, which is hardwired by the manufacturer. |
| **PreconfiguredMonit or** | Triggered by a monitor, which is preconfigured by the manufacturer. |
| **CustomMonitor** | Triggered by a monitor, which is set with the setvariablemonitoringrequest message by the Charging Station Operator. |

## EventTriggerEnumType

*Enumeration*

EventTriggerEnumType is used by: notifyEvent:NotifyEventRequest.EventDataType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Alerting** | Monitored variable has passed an Alert or Critical threshold |
| **Delta** | Delta Monitored Variable value has changed by more than specified amount |
| **Periodic** | Periodic Monitored Variable has been sampled for reporting at the specified interval |

## FirmwareStatusEnumType

*Enumeration*

Status of a firmware download.

A value with "Intermediate state" in the description, is an intermediate state, update process is not finished. A value with "Failure end state" in the description, is an end state, update process has stopped, update failed.

A value with "Successful end state" in the description, is an end state, update process has stopped, update successful. FirmwareStatusEnumType is used by: firmwareStatusNotification:FirmwareStatusNotificationRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Downloaded** | Intermediate state. New firmware has been downloaded by Charging Station. |
| **DownloadFailed** | Failure end state. Charging Station failed to download firmware. |
| **Downloading** | Intermediate state. Firmware is being downloaded. |
| **DownloadScheduled** | Intermediate state. Downloading of new firmware has been scheduled. |
| **DownloadPaused** | Intermediate state. Downloading has been paused. |
| **Idle** | Charging Station is not performing firmware update related tasks. Status Idle SHALL only be used as in a FirmwareStatusNotificationRequest that was triggered by TriggerMessageRequest. |
| **InstallationFailed** | Failure end state. Installation of new firmware has failed. |
| **Installing** | Intermediate state. Firmware is being installed. |
| **Installed** | Successful end state. New firmware has successfully been installed in Charging Station. |
| **InstallRebooting** | Intermediate state. Charging Station is about to reboot to activate new firmware. This status MAY be omitted if a reboot is an integral part of the installation and cannot be reported separately. |
| **InstallScheduled** | Intermediate state. Installation of the downloaded firmware is scheduled to take place on installDateTime given in UpdateFirmware request. |
| **InstallVerificationFai led** | Failure end state. Verification of the new firmware (e.g. using a checksum or some other means) has failed and installation will not proceed. (Final failure state) |
| **InvalidSignature** | Failure end state. The firmware signature is not valid. |
| **SignatureVerified** | Intermediate state. Provide signature successfully verified. |

## GenericDeviceModelStatusEnumType

*Enumeration*

GenericDeviceModelStatusEnumType is used by: getBaseReport:GetBaseReportResponse , getMonitoringReport:GetMonitoringReportResponse , getReport:GetReportResponse , setMonitoringBase:SetMonitoringBaseResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request has been accepted and will be executed. |
| **Rejected** | Request has not been accepted and will not be executed. |
| **NotSupported** | The content of the request message is not supported. |
| **EmptyResultSet** | If the combination of received criteria result in an empty result set. |

## GenericStatusEnumType

*Enumeration*

Generic message response status

GenericStatusEnumType is used by: getCompositeSchedule:GetCompositeScheduleResponse , notifyEVChargingSchedule:NotifyEVChargingScheduleResponse , signCertificate:SignCertificateResponse , setMonitoringLevel:SetMonitoringLevelResponse , publishFirmware:PublishFirmwareResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request has been accepted and will be executed. |
| **Rejected** | Request has not been accepted and will not be executed. |

## GetCertificateIdUseEnumType

*Enumeration*

GetCertificateIdUseEnumType is used by: Common:CertificateHashDataChainType , getInstalledCertificateIds:GetInstalledCertificateIdsRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **V2GRootCertificate** | Use for certificate of the V2G Root. |
| **MORootCertificate** | Use for certificate from an eMobility Service provider. To support PnC charging with contracts from service providers that not derived their certificates from the V2G root. |
| **CSMSRootCertificat e** | Root certificate for verification of the CSMS certificate. |
| **V2GCertificateChain** | ISO 15118 V2G certificate chain (excluding the V2GRootCertificate). |
| **ManufacturerRootC ertificate** | Root certificate for verification of the Manufacturer certificate. |

## GetCertificateStatusEnumType

*Enumeration*

GetCertificateStatusEnumType is used by: getCertificateStatus:GetCertificateStatusResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Successfully retrieved the OCSP certificate status. |
| **Failed** | Failed to retrieve the OCSP certificate status. |

## GetChargingProfileStatusEnumType

*Enumeration*

GetChargingProfileStatusEnumType is used by: getChargingProfiles:GetChargingProfilesResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Normal successful completion (no errors). |
| **NoProfiles** | No ChargingProfiles found that match the information in the GetChargingProfilesRequest. |

## GetDisplayMessagesStatusEnumType

*Enumeration*

GetDisplayMessagesStatusEnumType is used by: getDisplayMessages:GetDisplayMessagesResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Request accepted, there are Display Messages found that match all the requested criteria. The Charging Station will send NotifyDisplayMessagesRequest messages to report the requested Display Messages. |
| **Unknown** | No messages found that match the given criteria. |

## GetInstalledCertificateStatusEnumType

*Enumeration*

GetInstalledCertificateStatusEnumType is used by: getInstalledCertificateIds:GetInstalledCertificateIdsResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Normal successful completion (no errors). |
| **NotFound** | Requested resource not found. |

## GetVariableStatusEnumType

*Enumeration*

GetVariableStatusEnumType is used by: getVariables:GetVariablesResponse.GetVariableResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Variable successfully set. |
| **Rejected** | Request is rejected. |
| **UnknownComponen t** | Component is not known. |
| **UnknownVariable** | Variable is not known. |
| **NotSupportedAttrib uteType** | The AttributeType is not supported. |

## HashAlgorithmEnumType

*Enumeration*

HashAlgorithmEnumType is used by: Common:CertificateHashDataType , Common:OCSPRequestDataType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **SHA256** | SHA-256 hash algorithm. |
| **SHA384** | SHA-384 hash algorithm. |
| **SHA512** | SHA-512 hash algorithm. |

## IdTokenEnumType

*Enumeration*

Allowable values of the **IdTokenType** field. IdTokenEnumType is used by: Common:IdTokenType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Central** | A centrally, in the CSMS (or other server) generated id (for example used for a remotely started transaction that is activated by SMS). No format defined, might be a UUID. |
| **eMAID** | Electro-mobility account id as defined in ISO 15118 |
| **ISO14443** | ISO 14443 UID of RFID card. It is represented as an array of 4 or 7 bytes in hexadecimal representation. |
| **ISO15693** | ISO 15693 UID of RFID card. It is represented as an array of 8 bytes in hexadecimal representation. |
| **KeyCode** | User use a private key-code to authorize a charging transaction. For example: Pin-code. |
| **Local** | A locally generated id (e.g. internal id created by the Charging Station). No format defined, might be a UUID |
| **MacAddress** |  |
| **NoAuthorization** | Transaction is started and no authorization possible. Charging Station only has a start button or mechanical key etc. IdToken field SHALL be left empty. |

## InstallCertificateStatusEnumType

*Enumeration*

InstallCertificateStatusEnumType is used by: installCertificate:InstallCertificateResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | The installation of the certificate succeeded. |
| **Rejected** | The certificate is invalid and/or incorrect OR the CSO tries to install more certificates than allowed. |
| **Failed** | The certificate is valid and correct, but there is another reason the installation did not succeed. |

## InstallCertificateUseEnumType

*Enumeration*

InstallCertificateUseEnumType is used by: installCertificate:InstallCertificateRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **V2GRootCertificate** | Use for certificate of the V2G Root, a V2G Charging Station Certificate MUST be derived from one of the installed V2GRootCertificate certificates. |
| **MORootCertificate** | Use for certificate from an eMobility Service provider. To support PnC charging with contracts from service providers that not derived their certificates from the V2G root. |
| **CSMSRootCertificat e** | Root certificate, used by the CA to sign the CSMS and Charging Station certificate. |
| **ManufacturerRootC ertificate** | Root certificate for verification of the Manufacturer certificate. |

## Iso15118EVCertificateStatusEnumType

*Enumeration*

Iso15118EVCertificateStatusEnumType is used by: get15118EVCertificate:Get15118EVCertificateResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | exiResponse included. This is no indication whether the update was successful, just that the message was processed properly. |
| **Failed** | Processing of the message was not successful, no exiResponse included. |

## LocationEnumType

*Enumeration*

Allowable values of the optional "location" field of a value element. LocationEnumType is used by: Common:SampledValueType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Body** | Measurement inside body of Charging Station (e.g. Temperature). |
| **Cable** | Measurement taken from cable between EV and Charging Station. |
| **EV** | Measurement taken by EV. |
| **Inlet** | Measurement at network ("grid") inlet connection. |
| **Outlet** | Measurement at a Connector. Default value. |

## LogEnumType

*Enumeration*

LogEnumType is used by: getLog:GetLogRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **DiagnosticsLog** | This contains the field definition of a diagnostics log file |
| **SecurityLog** | Sent by the CSMS to the Charging Station to request that the Charging Station uploads the security log. |

## LogStatusEnumType

*Enumeration*

Generic message response status

LogStatusEnumType is used by: getLog:GetLogResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Accepted this log upload. This does not mean the log file is uploaded is successfully, the Charging Station will now start the log file upload. |
| **Rejected** | Log update request rejected. |
| **AcceptedCanceled** | Accepted this log upload, but in doing this has canceled an ongoing log file upload. |

## MeasurandEnumType

*Enumeration*

Allowable values of the optional "measurand" field of a Value element, as used in MeterValuesRequest and TransactionEventRequest with eventTypes *Started*, *Ended* and *Updated*. Default value of "measurand" is always "Energy.Active.Import.Register".

**Note 1**: Two measurands (Current.Offered and Power.Offered) are available that are strictly speaking no measured values. They indicate the maximum amount of current/power that is being offered to the EV and are intended for use in smart charging applications.

**Note 2:** Import is energy flow from the Grid to the Charging Station, EV or other load. Export is energy flow from the EV to the Charging Station and/or from the Charging Station to the Grid. Except in the case of a meter replacement, all "Register" values relating to a single charging transaction, or a non-transactional consumer (e.g. Charging Station internal power supply, overall supply) MUST be monotonically increasing in time.

**Note 3:** The actual quantity of energy corresponding to a reported ".Register" value is computed as the register value in question minus the register value recorded/reported at the start of the transaction or other relevant starting reference point in time. For improved auditability, ".Register" values SHOULD be reported exactly as they are directly read from a non-volatile register in the electrical metering hardware, and SHOULD NOT be re-based to zero at the start of transactions. This allows any "missing energy" between sequential transactions, due to hardware fault, meter replacement, mis-wiring, fraud, etc. to be identified, by allowing the CSMS to confirm that the starting register value of any transaction is identical to the finishing register value of the preceding transaction on the same connector.

MeasurandEnumType is used by: Common:SampledValueType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Current.Export** | Instantaneous current flow from EV |
| **Current.Import** | Instantaneous current flow to EV |
| **Current.Offered** | Maximum current offered to EV |
| **Energy.Active.Expor t.Register** | Numerical value read from the "active electrical energy" (Wh or kWh) register of the (most authoritative) electrical meter measuring energy exported (to the grid). |
| **Energy.Active.Impor t.Register** | Numerical value read from the "active electrical energy" (Wh or kWh) register of the (most authoritative) electrical meter measuring energy imported (from the grid supply). |
| **Energy.Reactive.Exp ort.Register** | Numerical value read from the "reactive electrical energy" (varh or kvarh) register of the (most authoritative) electrical meter measuring energy exported (to the grid). |
| **Energy.Reactive.Imp ort.Register** | Numerical value read from the "reactive electrical energy" (varh or kvarh) register of the (most authoritative) electrical meter measuring energy imported (from the grid supply). |
| **Energy.Active.Expor t.Interval** | Absolute amount of "active electrical energy" (Wh or kWh) exported (to the grid) during an associated time "interval", specified by a Metervalues ReadingContext, and applicable interval duration configuration values (in seconds) for ClockAlignedDataInterval and TxnMeterValueSampleInterval. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Energy.Active.Impor t.Interval** | Absolute amount of "active electrical energy" (Wh or kWh) imported (from the grid supply) during an associated time "interval", specified by a Metervalues ReadingContext, and applicable interval duration configuration values (in seconds) for ClockAlignedDataInterval and TxnMeterValueSampleInterval. |
| **Energy.Active.Net** | Numerical value read from the “net active electrical energy" (Wh or kWh) register. |
| **Energy.Reactive.Exp ort.Interval** | Absolute amount of "reactive electrical energy" (varh or kvarh) exported (to the grid) during an associated time "interval", specified by a Metervalues ReadingContext, and applicable interval duration configuration values (in seconds) for ClockAlignedDataInterval and TxnMeterValueSampleInterval. |
| **Energy.Reactive.Imp ort.Interval** | Absolute amount of "reactive electrical energy" (varh or kvarh) imported (from the grid supply) during an associated time "interval", specified by a Metervalues ReadingContext, and applicable interval duration configuration values (in seconds) for ClockAlignedDataInterval and TxnMeterValueSampleInterval. |
| **Energy.Reactive.Net** | Numerical value read from the “net reactive electrical energy" (varh or kvarh) register. |
| **Energy.Apparent.Ne t** | Numerical value read from the "apparent electrical energy" (VAh or kVAh) register. |
| **Energy.Apparent.Im port** | Numerical value read from the "apparent electrical import energy" (VAh or kVAh) register. |
| **Energy.Apparent.Ex port** | Numerical value read from the "apparent electrical export energy" (VAh or kVAh) register. |
| **Frequency** | Instantaneous reading of powerline frequency |
| **Power.Active.Export** | Instantaneous active power exported by EV. (W or kW) |
| **Power.Active.Import** | Instantaneous active power imported by EV. (W or kW) |
| **Power.Factor** | Instantaneous power factor of total energy flow |
| **Power.Offered** | Maximum power offered to EV |
| **Power.Reactive.Exp ort** | Instantaneous reactive power exported by EV. (var or kvar) |
| **Power.Reactive.Imp ort** | Instantaneous reactive power imported by EV. (var or kvar) |
| **SoC** | State of charge of charging vehicle in percentage |
| **Voltage** | Instantaneous DC or AC RMS supply voltage |

## MessageFormatEnumType

*Enumeration*

Format of a message to be displayed on the display of the Charging Station. MessageFormatEnumType is used by: Common:MessageContentType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ASCII** | Message content is ASCII formatted, only printable ASCII allowed. |
| **HTML** | Message content is HTML formatted. |
| **URI** | Message content is URI that Charging Station should download and use to display. for example a HTML page to be shown in a web-browser. |
| **UTF8** | Message content is UTF-8 formatted. |

## MessagePriorityEnumType

*Enumeration*

Priority with which a message should be displayed on a Charging Station.

MessagePriorityEnumType is used by: Common:MessageInfoType , getDisplayMessages:GetDisplayMessagesRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **AlwaysFront** | Show this message always in front. Highest priority, don’t cycle with other messages. When a newer message with this MessagePriority is received, this message is replaced. No Charging Station own message may override this message. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **InFront** | Show this message in front of the normal cycle of messages. When more messages with this priority are to be shown, they SHALL be cycled. |
| **NormalCycle** | Show this message in the cycle of messages. |

## MessageStateEnumType

*Enumeration*

State of the Charging Station during which a message SHALL be displayed.

MessageStateEnumType is used by: Common:MessageInfoType , getDisplayMessages:GetDisplayMessagesRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Charging** | Message only to be shown while the Charging Station is charging. |
| **Faulted** | Message only to be shown while the Charging Station is in faulted state. |
| **Idle** | Message only to be shown while the Charging Station is idle (not charging). |
| **Unavailable** | Message only to be shown while the Charging Station is in unavailable state. |

## MessageTriggerEnumType

*Enumeration*

Type of request to be triggered by trigger messages. MessageTriggerEnumType is used by: triggerMessage:TriggerMessageRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **BootNotification** | To trigger BootNotification. |
| **LogStatusNotificatio n** | To trigger LogStatusNotification. |
| **FirmwareStatusNotif ication** | To trigger FirmwareStatusNotification. |
| **Heartbeat** | To trigger Heartbeat. |
| **MeterValues** | To trigger MeterValues. |
| **SignChargingStation Certificate** | To trigger a SignCertificate with typeOfCertificate: ChargingStationCertificate. |
| **SignV2GCertificate** | To trigger a SignCertificate with typeOfCertificate: V2GCertificate |
| **StatusNotification** | To trigger StatusNotification. |
| **TransactionEvent** | To trigger TransactionEvent. |
| **SignCombinedCertif icate** | To trigger a SignCertificate with typeOfCertificate: ChargingStationCertificate AND V2GCertificate |
| **PublishFirmwareSta tusNotification** | To trigger PublishFirmwareStatusNotification. |

## MonitorEnumType

*Enumeration*

MonitorEnumType is used by: Common:VariableMonitoringType , setVariableMonitoring:SetVariableMonitoringRequest.SetMonitoringDataType , setVariableMonitoring:SetVariableMonitoringResponse.SetMonitoringResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **UpperThreshold** | Triggers an event notice when the actual value of the Variable rises above *monitorValue* |
| **LowerThreshold** | Triggers an event notice when the actual value of the Variable drops below *monitorValue*. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Delta** | Triggers an event notice when the actual value has changed more than plus or minus *monitorValue* since the time that this monitor was set or since the last time this event notice was sent, whichever was last. For variables that are not numeric, like boolean, string or enumerations, a monitor of type Delta will trigger an event notice whenever the variable changes, regardless of the value of *monitorValue*. |
| **Periodic** | Triggers an event notice every *monitorValue* seconds interval, starting from the time that this monitor was set. |
| **PeriodicClockAligne d** | Triggers an event notice every *monitorValue* seconds interval, starting from the nearest clock-aligned interval after this monitor was set. For example, a *monitorValue* of 900 will trigger event notices at 0, 15, 30 and 45 minutes after the hour, every hour. |

## MonitoringBaseEnumType

*Enumeration*

MonitoringBaseEnumType is used by: setMonitoringBase:SetMonitoringBaseRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **All** | Activate all pre-configured monitors. |
| **FactoryDefault** | Activate the default monitoring settings as recommended by the manufacturer. This is a subset of all pre- configured monitors. |
| **HardWiredOnly** | Clears all custom monitors and disables all pre-configured monitors. |

## MonitoringCriterionEnumType

*Enumeration*

MonitoringCriterionEnumType is used by: getMonitoringReport:GetMonitoringReportRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ThresholdMonitorin g** | Report variables and components with a monitor of type UpperThreshold or LowerThreshold. |
| **DeltaMonitoring** | Report variables and components with a monitor of type Delta. |
| **PeriodicMonitoring** | Report variables and components with a monitor of type Periodic or PeriodicClockAligned. |

## MutabilityEnumType

*Enumeration*

MutabilityEnumType is used by: Common:VariableAttributeType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ReadOnly** | This variable is read-only. |
| **WriteOnly** | This variable is write-only. |
| **ReadWrite** | This variable is read-write. |

## NotifyEVChargingNeedsStatusEnumType

*Enumeration*

NotifyEVChargingNeedsStatusEnumType is used by: notifyEVChargingNeeds:NotifyEVChargingNeedsResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | A schedule will be provided momentarily. |
| **Rejected** | Service not available. |
| **Processing** | The CSMS is gathering information to provide a schedule. |

## OCPPInterfaceEnumType

*Enumeration*

Enumeration of network interfaces.

OCPPInterfaceEnumType is used by: setNetworkProfile:SetNetworkProfileRequest.NetworkConnectionProfileType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Wired0** | Use wired connection 0 |
| **Wired1** | Use wired connection 1 |
| **Wired2** | Use wired connection 2 |
| **Wired3** | Use wired connection 3 |
| **Wireless0** | Use wireless connection 0 |
| **Wireless1** | Use wireless connection 1 |
| **Wireless2** | Use wireless connection 2 |
| **Wireless3** | Use wireless connection 3 |

## OCPPTransportEnumType

*Enumeration*

Enumeration of OCPP transport mechanisms. SOAP is currently not a valid value for OCPP 2.0. OCPPTransportEnumType is used by: setNetworkProfile:SetNetworkProfileRequest.NetworkConnectionProfileType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **JSON** | Use JSON over WebSockets for transport of OCPP PDU’s |
| **SOAP** | Use SOAP for transport of OCPP PDU’s |

## OCPPVersionEnumType

*Enumeration*

Enumeration of OCPP versions.

OCPPVersionEnumType is used by: setNetworkProfile:SetNetworkProfileRequest.NetworkConnectionProfileType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **OCPP12** | OCPP version 1.2 |
| **OCPP15** | OCPP version 1.5 |
| **OCPP16** | OCPP version 1.6 |
| **OCPP20** | OCPP version 2.0 |

## OperationalStatusEnumType

*Enumeration*

Requested availability change.

OperationalStatusEnumType is used by: changeAvailability:ChangeAvailabilityRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Inoperative** | Charging Station is not available for charging. |
| **Operative** | Charging Station is available for charging. |

## PhaseEnumType

*Enumeration*

Phase specifies how a measured value is to be interpreted. Please note that not all values of Phase are applicable to all Measurands.

PhaseEnumType is used by: Common:SampledValueType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **L1** | Measured on L1 |
| **L2** | Measured on L2 |
| **L3** | Measured on L3 |
| **N** | Measured on Neutral |
| **L1-N** | Measured on L1 with respect to Neutral conductor |
| **L2-N** | Measured on L2 with respect to Neutral conductor |
| **L3-N** | Measured on L3 with respect to Neutral conductor |
| **L1-L2** | Measured between L1 and L2 |
| **L2-L3** | Measured between L2 and L3 |
| **L3-L1** | Measured between L3 and L1 |

## PublishFirmwareStatusEnumType

*Enumeration*

Status for when publishing a Firmware.

PublishFirmwareStatusEnumType is used by: publishFirmwareStatusNotification:PublishFirmwareStatusNotificationRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Idle** |  |
| **DownloadScheduled** | Intermediate state. Downloading of new firmware has been scheduled. |
| **Downloading** | Intermediate state. Firmware is being downloaded. |
| **Downloaded** | Intermediate state. New firmware has been downloaded by Charging Station. |
| **Published** | The firmware has been successfully published. |
| **DownloadFailed** | Failure end state. Charging Station failed to download firmware. |
| **DownloadPaused** | Intermediate state. Downloading has been paused. |
| **InvalidChecksum** | Failure end state. The firmware checksum is not matching. |
| **ChecksumVerified** | Intermediate state. The Firmware checksum is successfully verified. |
| **PublishFailed** | Publishing the new firmware has failed. |

## ReadingContextEnumType

*Enumeration*

Values of the context field.

ReadingContextEnumType is used by: Common:SampledValueType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Interruption.Begin** | Value taken at start of interruption. |
| **Interruption.End** | Value taken when resuming after interruption. |
| **Other** | Value for any other situations. |
| **Sample.Clock** | Value taken at clock aligned interval. |
| **Sample.Periodic** | Value taken as periodic sample relative to start time of transaction. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Transaction.Begin** | Value taken at start of transaction. |
| **Transaction.End** | Value taken at end of transaction. |
| **Trigger** | Value taken in response to TriggerMessageRequest. |

## ReasonEnumType

*Enumeration*

Reason for stopping a transaction.

ReasonEnumType is used by: transactionEvent:TransactionEventRequest.TransactionType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **DeAuthorized** | The transaction was stopped because of the authorization status in the response to a transactionEventRequest. |
| **EmergencyStop** | Emergency stop button was used. |
| **EnergyLimitReached** | EV charging session reached a locally enforced maximum energy transfer limit |
| **EVDisconnected** | Disconnecting of cable, vehicle moved away from inductive charge unit. |
| **GroundFault** | A GroundFault has occurred |
| **ImmediateReset** | A Reset(Immediate) command was received. |
| **Local** | Stopped locally on request of the EV Driver at the Charging Station. This is a regular termination of a transaction. Examples: presenting an IdToken tag, pressing a button to stop. |
| **LocalOutOfCredit** | A local credit limit enforced through the Charging Station has been exceeded. |
| **MasterPass** | The transaction was stopped using a token with a MasterPassGroupId. |
| **Other** | Any other reason. |
| **OvercurrentFault** | A larger than intended electric current has occurred |
| **PowerLoss** | Complete loss of power. |
| **PowerQuality** | Quality of power too low, e.g. voltage too low/high, phase imbalance, etc. |
| **Reboot** | A locally initiated reset/reboot occurred. (for instance watchdog kicked in) |
| **Remote** | Stopped remotely on request of the CSMS. This is a regular termination of a transaction. Examples: termination using a smartphone app, exceeding a (non local) prepaid credit. |
| **SOCLimitReached** | Electric vehicle has reported reaching a locally enforced maximum battery State of Charge (SOC) |
| **StoppedByEV** | The transaction was stopped by the EV |
| **TimeLimitReached** | EV charging session reached a locally enforced time limit |
| **Timeout** | EV not connected within timeout |

## RecurrencyKindEnumType

*Enumeration*

RecurrencyKindEnumType is used by: Common:ChargingProfileType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Daily** | The schedule restarts at the beginning of the next day. |
| **Weekly** | The schedule restarts at the beginning of the next week (defined as Monday morning) |

## RegistrationStatusEnumType

*Enumeration*

Result of registration in response to BootNotificationRequest. RegistrationStatusEnumType is used by: bootNotification:BootNotificationResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Charging Station is accepted by the CSMS. |
| **Pending** | CSMS is not yet ready to accept the Charging Station. CSMS may send messages to retrieve information or prepare the Charging Station. |
| **Rejected** | Charging Station is not accepted by CSMS. This may happen when the Charging Station id is not known by CSMS. |

## ReportBaseEnumType

*Enumeration*

ReportBaseEnumType is used by: getBaseReport:GetBaseReportRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **ConfigurationInvent ory** | Required. A (configuration) report that lists all Components/Variables that can be set by the operator. |
| **FullInventory** | Required. A (full) report that lists everything except monitoring settings. |
| **SummaryInventory** | Optional. A (summary) report that lists Components/Variables relating to the Charging Station’s current charging availability, and to any existing problem conditions.  For the Charging Station Component:   * AvailabilityState.   For each EVSE Component:   * AvailabilityState.   For each Connector Component:   * AvailabilityState (if known and different from EVSE). For all Components in an abnormal State: * Active (Problem, Tripped, Overload, Fallback) variables. * Any other diagnostically relevant Variables of the Components. * Include TechCode and TechInfo where available.   All monitored Component.Variables in Critical or Alert state shall also be included.   * Charging Stations that do not have Monitoring implemented are NOT REQUIRED to include Connector Availability, monitoring alerts, and MAY limit problem reporting detail to just the active Problem boolean Variable. |

## RequestStartStopStatusEnumType

*Enumeration*

The result of a RequestStartTransactionRequest or RequestStopTransactionRequest.

RequestStartStopStatusEnumType is used by: requestStartTransaction:RequestStartTransactionResponse , requestStopTransaction:RequestStopTransactionResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Command will be executed. |
| **Rejected** | Command will not be executed. |

## ReservationUpdateStatusEnumType

*Enumeration*

ReservationUpdateStatusEnumType is used by: reservationStatusUpdate:ReservationStatusUpdateRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Expired** | The reservation is expired. |
| **Removed** | The reservation is removed. |

## ReserveNowStatusEnumType

*Enumeration*

Status in ReserveNowResponse.

ReserveNowStatusEnumType is used by: reserveNow:ReserveNowResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Reservation has been made. |
| **Faulted** | Reservation has not been made, because evse, connectors or specified connector are in a faulted state. |
| **Occupied** | Reservation has not been made. The evse or the specified connector is occupied. |
| **Rejected** | Reservation has not been made. Charging Station is not configured to accept reservations. |
| **Unavailable** | Reservation has not been made, because evse, connectors or specified connector are in an unavailable state. |

## ResetEnumType

*Enumeration*

Type of reset requested.

ResetEnumType is used by: reset:ResetRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Immediate** | Immediate reset of the Charging Station. |
| **OnIdle** | Delay reset until no more transactions are active. |

## ResetStatusEnumType

*Enumeration*

Result of ResetRequest.

ResetStatusEnumType is used by: reset:ResetResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Command will be executed. |
| **Rejected** | Command will not be executed. |
| **Scheduled** | Reset command is scheduled, Charging Station is busy with a process that cannot be interrupted at the moment. Reset will be executed when process is finished. |

## SendLocalListStatusEnumType

*Enumeration*

Type of update for SendLocalListRequest.

SendLocalListStatusEnumType is used by: sendLocalList:SendLocalListResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Local Authorization List successfully updated. |

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Failed** | Failed to update the Local Authorization List. |
| **VersionMismatch** | Version number in the request for a differential update is less or equal then version number of current list. |

## SetMonitoringStatusEnumType

*Enumeration*

SetMonitoringStatusEnumType is used by: setVariableMonitoring:SetVariableMonitoringResponse.SetMonitoringResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Monitor successfully set. |
| **UnknownComponen t** | Component is not known. |
| **UnknownVariable** | Variable is not known. |
| **UnsupportedMonitor Type** | Requested monitor type is not supported. |
| **Rejected** | Request is rejected. |
| **Duplicate** | A monitor already exists for the given type/severity combination. |

## SetNetworkProfileStatusEnumType

*Enumeration*

Possible values of SetNetworkProfileStatus as used in SetNetworkProfileResponse. SetNetworkProfileStatusEnumType is used by: setNetworkProfile:SetNetworkProfileResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Setting new data successful |
| **Rejected** | Setting new data rejected |
| **Failed** | Setting new data failed |

## SetVariableStatusEnumType

*Enumeration*

SetVariableStatusEnumType is used by: setVariables:SetVariablesResponse.SetVariableResultType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Variable successfully set. |
| **Rejected** | Request is rejected. |
| **UnknownComponen t** | Component is not known. |
| **UnknownVariable** | Variable is not known. |
| **NotSupportedAttrib uteType** | The AttributeType is not supported. |
| **RebootRequired** | A reboot is required. |

## TransactionEventEnumType

*Enumeration*

TransactionEventEnumType is used by: transactionEvent:TransactionEventRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Ended** | Last event of a transaction |
| **Started** | First event of a transaction. |
| **Updated** | Transaction event in between 'Started' and 'Ended'. |

## TriggerMessageStatusEnumType

*Enumeration*

Status in TriggerMessageResponse.

TriggerMessageStatusEnumType is used by: triggerMessage:TriggerMessageResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Requested message will be sent. |
| **Rejected** | Requested message will not be sent. |
| **NotImplemented** | Requested message cannot be sent because it is either not implemented or unknown. |

## TriggerReasonEnumType

*Enumeration*

Reason that triggered a transactionEventRequest.

TriggerReasonEnumType is used by: transactionEvent:TransactionEventRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Authorized** | Charging is authorized, by any means. Might be an RFID, or other authorization means. |
| **CablePluggedIn** | Cable is plugged in and EVDetected. |
| **ChargingRateChang ed** | Rate of charging changed by more than *LimitChangeSignificance*. |
| **ChargingStateChang ed** | Charging State changed. |
| **Deauthorized** | The transaction was stopped because of the authorization status in the response to a transactionEventRequest. |
| **EnergyLimitReached** | Maximum energy of charging reached. For example: in a pre-paid charging solution |
| **EVCommunicationL ost** | Communication with EV lost, for example: cable disconnected. |
| **EVConnectTimeout** | EV not connected before the connection is timed out. |
| **MeterValueClock** | Needed to send a clock aligned meter value |
| **MeterValuePeriodic** | Needed to send a periodic meter value |
| **TimeLimitReached** | Maximum time of charging reached. For example: in a pre-paid charging solution |
| **Trigger** | Requested by the CSMS via a TriggerMessageRequest. |
| **UnlockCommand** | CSMS sent an Unlock Connector command. |
| **StopAuthorized** | An EV Driver has been authorized to stop charging. For example: By swiping an RFID card. |
| **EVDeparted** | EV departed. For example: When a departing EV triggers a parking bay detector. |
| **EVDetected** | EV detected. For example: When an arriving EV triggers a parking bay detector. |
| **RemoteStop** | A RequestStopTransactionRequest has been sent. |
| **RemoteStart** | A RequestStartTransactionRequest has been sent. |
| **AbnormalCondition** | An Abnormal Error or Fault Condition has occurred. |
| **SignedDataReceived** | Signed data is received from the energy meter. |
| **ResetCommand** | CSMS sent a Reset Charging Station command. |

## UnlockStatusEnumType

*Enumeration*

Status in response to UnlockConnectorRequest.

UnlockStatusEnumType is used by: unlockConnector:UnlockConnectorResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Unlocked** | Connector has successfully been unlocked. |
| **UnlockFailed** | Failed to unlock the connector. |
| **OngoingAuthorizedT ransaction** | The connector is not unlocked, because there is still an authorized transaction ongoing. |
| **UnknownConnector** | The specified connector is not known by the Charging Station. |

## UnpublishFirmwareStatusEnumType

*Enumeration*

Status for when publishing a Firmware.

UnpublishFirmwareStatusEnumType is used by: unpublishFirmware:UnpublishFirmwareResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **DownloadOngoing** | Intermediate state. Firmware is being downloaded. |
| **NoFirmware** | There is no published file. |
| **Unpublished** | Successful end state. Firmware file no longer being published. |

## UpdateEnumType

*Enumeration*

UpdateEnumType is used by: sendLocalList:SendLocalListRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Differential** | Indicates that the current Local Authorization List must be updated with the values in this message. |
| **Full** | Indicates that the current Local Authorization List must be replaced by the values in this message. |

## UpdateFirmwareStatusEnumType

*Enumeration*

Generic message response status

UpdateFirmwareStatusEnumType is used by: updateFirmware:UpdateFirmwareResponse

|  |  |
| --- | --- |
| **Value** | **Description** |
| **Accepted** | Accepted this firmware update request. This does not mean the firmware update is successful, the Charging Station will now start the firmware update process. |
| **Rejected** | Firmware update request rejected. |
| **AcceptedCanceled** | Accepted this firmware update request, but in doing this has canceled an ongoing firmware update. |
| **InvalidCertificate** | The certificate is invalid. |
| **RevokedCertificate** | Failure end state. The Firmware Signing certificate has been revoked. |

## UploadLogStatusEnumType

*Enumeration*

UploadLogStatusEnumType is used by: logStatusNotification:LogStatusNotificationRequest

|  |  |
| --- | --- |
| **Value** | **Description** |
| **BadMessage** | A badly formatted packet or other protocol incompatibility was detected. |
| **Idle** | The Charging Station is not uploading a log file. Idle SHALL only be used when the message was triggered by a TriggerMessageRequest. |
| **NotSupportedOperat ion** | The server does not support the operation |
| **PermissionDenied** | Insufficient permissions to perform the operation. |
| **Uploaded** | File has been uploaded successfully. |
| **UploadFailure** | Failed to upload the requested file. |
| **Uploading** | File is being uploaded. |
| **AcceptedCanceled** | On-going log upload is canceled and new request to upload log has been accepted. |

## VPNEnumType

*Enumeration*

Enumeration of VPN Types.

VPNEnumType is used by: setNetworkProfile:SetNetworkProfileRequest.VPNType

|  |  |
| --- | --- |
| **Value** | **Description** |
| **IKEv2** | IKEv2 VPN |
| **IPSec** | IPSec VPN |
| **L2TP** | L2TP VPN |
| **PPTP** | PPTP VPN |