D. LocalAuthorizationList Management

# Introduction

As explained in C1.4 - Local Authorization List, the Local Authorization List is a list of identifiers that can be synchronized with the CSMS. It allows authorization of a user when offline and when online it can be used to reduce authorization response time. This Functional Block is for enabling the CSMS to synchronize the list by either sending a complete list of identifiers to replace the Local Authorization List or by sending a list of changes (add, update, delete) to apply to the Local Authorization List. The operations to

support this are GetLocalListVersion and SendLocalList.

The list contains the authorization status of all (or a selection of) identifiers and the corresponding expiration date. These values may be used to provide more fine grained information to users (e.g. by display message) during local authorization.

# Use cases & Requirements

## D01 - Send Local Authorization List

*Table 91. D01 - Send Local Authorization List*

|  |  |  |
| --- | --- | --- |
| **No.** | **Type** | **Description** |
| **1** | **Name** | Send Local Authorization List |
| **2** | **ID** | D01 |
|  | *Functional block* | D. Local Authorization List |
| **3** | **Objective(s)** | To enable the CSMS to send a Local Authorization List which a Charging Station can use for the authorization of idTokens. |
| **4** | **Description** | The CSMS sends a Local Authorization List which a Charging Station can use for the authorization of idTokens. The list MAY be either a full list to replace the current list in the Charging Station or it MAY be a differential list with updates to be applied to the current list in the Charging Station. |
|  | *Actors* | Charging Station, CSMS |
|  | *Scenario description* | 1. The CSMS sends a SendLocalListRequest to install or update the Local Authorization List. 2. Upon receipt of the SendLocalListRequest the Charging Station responds with a   SendLocalListResponse with its status. |
| **5** | **Prerequisite(s)** | Local Authorization List is enabled with Configuration Variable LocalAuthListEnabled. |
| **6** | **Postcondition(s)** | **Successful postcondition:**   * A new Local Authorization List is installed on the Charging Station.   **Failure postcondition:**   * The Local Authorization List on the Charging Station stays as it was. * If the status is *Failed* or *VersionMismatch*. |

CSMS

Charging Station



SendLocalListRequest(versionNumber, updateType,...) SendLocalListResponse(Accepted)

*Figure 38. Sequence Diagram: Send Local Authorization List*

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| **7** | **Error handling** | If the status is *Failed* or *VersionMismatch* and the updateType was Differential, the CSMS will transmit the full Local Authorization List. When this list is too large for one message, it will start by sending an initial list with updateType *Full* and adding identifiers using updateType *Differential* until the list is completely sent (the amount of identifiers that can be sent in a single SendLocalListRequest is limited as described in requirement D01.FR.11). |
| **8** | **Remark(s)** | n/a |

### D01 - Send Local Authorization List - Requirements

*Table 92. D01 - Requirements*

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| **ID** | **Precondition** | **Requirement definition** | **Note** |
| D01.FR.01 |  | SendLocalListRequest SHALL contain the type of update (*updateType*) and a version number (*versionNumber*) that the Charging Station MUST associate with the Local Authorization List after it has been updated. |  |
| D01.FR.02 |  | SendLocalListResponse SHALL indicate whether the Charging Station has accepted the update of the Local Authorization List |  |

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| --- | --- | --- | --- |
| **ID** | **Precondition** | **Requirement definition** | **Note** |
| D01.FR.03 | If the *status* in SendLocalListResponse is Failed or VersionMismatch and the *updateType* was Differential | It is RECOMMENDED that the CSMS sends the full Local Authorization List. | When this list is too large for one message (see D01.FR.11), it shall start by sending an initial list with *updateType* Full and adding identifiers using *updateType* Differential until the list is completely sent. |
| D01.FR.04 | If no *localAuthorizationList* (or an empty one) is given and the *updateType* is Full. | The Charging Station SHALL remove all IdTokens from the list. | Note, that the version number of the list is still updated to value of *versionNumber* in the request. |
| D01.FR.05 |  | Requesting a Differential update without or with empty *localAuthorizationList* SHALL have no effect on the list. | Note, that the version number of the list is still updated to value of *versionNumber* in the request. |
| D01.FR.06 |  | All IdTokens in the Local Authorization List SHALL be unique. | No duplicate values are allowed. |
| D01.FR.09 |  | The Charging Station SHALL NOT modify the contents of the Authorization List by any other means than upon a the receipt of a SendLocalList message from the CSMS. |  |
| D01.FR.10 |  | The Local Authorization List SHOULD be maintained by the Charging Station in non-volatile memory, and SHOULD be persisted across reboots and power outages. |  |
| D01.FR.11 |  | The size of a single SendLocalListRequest is limited by the Configuration Variables ItemsPerMessageSendLocalList and BytesPerMessageSendLocalList. |  |
| D01.FR.12 |  | A Charging Station that supports Local Authorization List SHALL implement the Configuration Variable: LocalAuthListEntries. | This gives the CSMS a way to known the current amount and maximum possible number of Local Authorization List elements in a Charging Station. |
| D01.FR.13 |  | The Charging Station indicates whether the Local Authorization List is enabled. This is reported and controlled by the LocalAuthListEnabled Configuration Variable. |  |
| D01.FR.15 | If the Charging Station receives a SendLocalListRequest with  *updateType* is Full AND  *localAuthorizationList* is non-empty | The Charging Station SHALL replace its current Local Authorization List with the one in the SendLocalListRequest and set the version number to the value specified in the message | Otherwise, there is no way to sync the initial Charging Station and CSMS lists. When this list is too large for one message (see D01.FR.11), it shall start by sending an initial list with\_updateType\_ Full and adding identifiers using *updateType* Differential until the list is completely sent. |
| D01.FR.16 | If the Charging Station receives a SendLocalListRequest with  *updateType* is Differential AND *localAuthorizationList* contains AuthorizationData elements with idTokenInfo | The Charging Station SHALL update its Local Authorization List with these elements and set the version number to the value specified in the message. | Add them if not yet present, update with new information when already present in the Local Authorization List. |

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| --- | --- | --- | --- |
| **ID** | **Precondition** | **Requirement definition** | **Note** |
| D01.FR.17 | If the Charging Station receives a SendLocalListRequest with  *updateType* is Differential AND *localAuthorizationList* contains AuthorizationData elements without idTokenInfo | The Charging Station SHALL remove these elements from its Local Authorization List and set the version number to the value specified in the message. |  |
| D01.FR.18 |  | *versionNumber* in a SendLocalListRequest SHALL be greater than 0. | In GetLocalListVersionResp onse the *versionNumber*  = 0 has a special meaning: No Local List installed. So the value 0 should never be used. |
| D01.FR.19 | If the Charging Station receives a SendLocalListRequest with  *updateType* = Differential AND *versionNumber* is less or equal to the version number of its Local Authorization List | The Charging Station SHALL refuse to update its Local Authorization List and SHALL return a SendLocalListResponse with *status* set to VersionMismatch. |  |

## D02 - Get Local List Version

*Table 93. D02 - Get Local List Version*

|  |  |  |
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| **No.** | **Type** | **Description** |
| **1** | **Name** | Get Local List Version |
| **2** | **ID** | D02 |
|  | *Functional block* | D. Local Authorization List |
|  | *Parent use case* | D01 - Send Local Authorization List |
| **3** | **Objective(s)** | To support synchronization of Local Authorization List. |
| **4** | **Description** | The CSMS can request a Charging Station for the version number of the Local Authorization List by sending a GetLocalListVersionRequest. |
|  | *Actors* | Charging Station, CSMS |
|  | *Scenario description* | 1. The CSMS sends a GetLocalListVersionRequest to request this value. 2. Upon receipt of the GetLocalListVersionRequest Charging Station responds with a GetLocalListVersionResponse containing the version number of its Local Authorization List. |
| **5** | **Prerequisite(s)** |  |
| **6** | **Postcondition(s)** | The CSMS received the GetLocalListVersionResponse with the Local Authorization List version. |

Charging Station

CSMS



GetLocalListVersionRequest()

GetLocalListVersionResponse(versionNumber)

*Figure 39. Sequence Diagram: Get Local List Version*

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| **7** | **Error handling** | n/a |
| **8** | **Remark(s)** | A *versionNumber* of 0 (zero) is reserved to indicate that no local authorization list exists, either because it is not enabled or because it has not yet received any update from CSMS and thus does  not have a version number to return.  In contrast, a local authorization list that was emptied, because CSMS sent a SendLocalListRequest with an empty *localAuthorizationList*, does have a *versionNumber* > 0. |

### D02 - Get Local List Version - Requirements

*Table 94. D02 - Requirements*

|  |  |  |
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| **ID** | **Precondition** | **Requirement definition** |
| D02.FR.01 | LocalAuthListEnabled is *true* | When Charging Station receives GetLocalListVersionRequest then Charging Station SHALL respond with a GetLocalListVersionResponse containing the version number of its Local Authorization List. |
| D02.FR.02 | LocalAuthListEnabled is *true* AND  the CSMS has not yet sent any update to the Charging Station for Local Authorization List (via SendLocalListRequest) | When Charging Station receives GetLocalListVersionRequest then Charging Station SHALL respond with a GetLocalListVersionResponse with *versionNumber* is 0 (zero) to indicate that there is no Local Authorization List. |
| D02.FR.03 | LocalAuthListEnabled is not *true* | When Charging Station receives GetLocalListVersionRequest then Charging Station SHALL respond with a GetLocalListVersionResponse with *versionNumber* is 0 (zero) to indicate that there is no Local Authorization List. |