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# D. LocalAuthorizationList Management

# 1. 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.

## 2. 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 <a href="#">Local Authorization List</a> which a Charging Station can use for the authorization of idTokens.
4	Description	The CSMS sends a <a href="#">Local Authorization List</a> 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	<ol style="list-style-type: none"> <li>1. The CSMS sends a <a href="#">SendLocalListRequest</a> to install or update the <a href="#">Local Authorization List</a>.</li> <li>2. Upon receipt of the <a href="#">SendLocalListRequest</a> the Charging Station responds with a <a href="#">SendLocalListResponse</a> with its status.</li> </ol>
5	Prerequisite(s)	Local Authorization List is enabled with Configuration Variable <a href="#">LocalAuthListEnabled</a> .
6	Postcondition(s)	<b>Successful postcondition:</b> <ul style="list-style-type: none"> <li>- A new <a href="#">Local Authorization List</a> is installed on the Charging Station.</li> </ul> <b>Failure postcondition:</b> <ul style="list-style-type: none"> <li>- The <a href="#">Local Authorization List</a> on the Charging Station stays as it was.</li> <li>- If the status is <i>Failed</i> or <i>VersionMismatch</i>.</li> </ul>

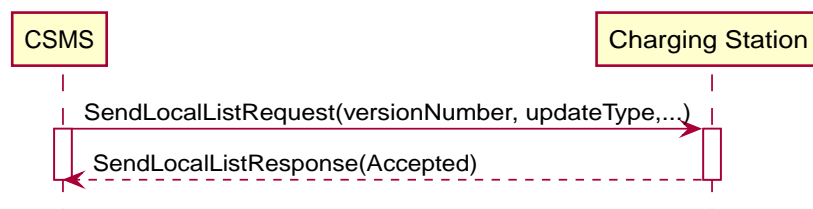


Figure 38. Sequence Diagram: Send Local Authorization List

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

### D01 - Send Local Authorization List - Requirements

Table 92. D01 - Requirements

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

ID	Precondition	Requirement definition	Note
D01.FR.03	If the <i>status</i> in <a href="#">SendLocalListResponse</a> is <i>Failed</i> or <i>VersionMismatch</i> and the <i>updateType</i> was <i>Differential</i>	It is RECOMMENDED that the CSMS sends the full <a href="#">Local Authorization List</a> .	When this list is too large for one message (see D01.FR.11), it shall start by sending an initial list with <i>updateType</i> <i>Full</i> and adding identifiers using <i>updateType</i> <i>Differential</i> until the list is completely sent.
D01.FR.04	If no <i>localAuthorizationList</i> (or an empty one) is given and the <i>updateType</i> is <i>Full</i> .	The Charging Station SHALL remove all <i>IdTokens</i> from the list.	Note, that the version number of the list is still updated to value of <i>versionNumber</i> in the request.
D01.FR.05		Requesting a <i>Differential</i> update without or with empty <i>localAuthorizationList</i> SHALL have no effect on the list.	Note, that the version number of the list is still updated to value of <i>versionNumber</i> in the request.
D01.FR.06		All <i>IdTokens</i> in the <a href="#">Local Authorization List</a> 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 <a href="#">SendLocalList</a> 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 <a href="#">SendLocalListRequest</a> is limited by the Configuration Variables <a href="#">ItemsPerMessageSendLocalList</a> and <a href="#">BytesPerMessageSendLocalList</a> .	
D01.FR.12		A Charging Station that supports <a href="#">Local Authorization List</a> SHALL implement the Configuration Variable: <a href="#">LocalAuthListEntries</a> .	This gives the CSMS a way to know the current amount and maximum possible number of <a href="#">Local Authorization List</a> elements in a Charging Station.
D01.FR.13		The Charging Station indicates whether the <a href="#">Local Authorization List</a> is enabled. This is reported and controlled by the <a href="#">LocalAuthListEnabled</a> Configuration Variable.	
D01.FR.15	If the Charging Station receives a <a href="#">SendLocalListRequest</a> with <i>updateType</i> is <i>Full</i> AND <i>localAuthorizationList</i> is non-empty	The Charging Station SHALL replace its current Local Authorization List with the one in the <a href="#">SendLocalListRequest</a> 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 <i>updateType</i> <i>Full</i> and adding identifiers using <i>updateType</i> <i>Differential</i> until the list is completely sent.
D01.FR.16	If the Charging Station receives a <a href="#">SendLocalListRequest</a> with <i>updateType</i> is <i>Differential</i> AND <i>localAuthorizationList</i> contains <i>AuthorizationData</i> elements with <i>idTokenInfo</i>	The Charging Station SHALL update its <a href="#">Local Authorization List</a> 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 <a href="#">Local Authorization List</a> .

ID	Precondition	Requirement definition	Note
D01.FR.17	If the Charging Station receives a <a href="#">SendLocalListRequest</a> with <i>updateType</i> is <code>Differential</code> AND <i>localAuthorizationList</i> contains <i>AuthorizationData</i> elements without <i>idTokenInfo</i>	The Charging Station SHALL remove these elements from its <a href="#">Local Authorization List</a> and set the version number to the value specified in the message.	
D01.FR.18		<i>versionNumber</i> in a <a href="#">SendLocalListRequest</a> SHALL be greater than 0.	In <a href="#">GetLocalListVersionResponse</a> the <i>versionNumber</i> = 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 <a href="#">SendLocalListRequest</a> with <i>updateType</i> = <code>Differential</code> AND <i>versionNumber</i> is less or equal to the version number of its <a href="#">Local Authorization List</a>	The Charging Station SHALL refuse to update its <a href="#">Local Authorization List</a> and SHALL return a <a href="#">SendLocalListResponse</a> with <i>status</i> set to <code>VersionMismatch</code> .	

## D02 - Get Local List Version

Table 93. D02 - Get Local List Version

No.	Type	Description
1	Name	Get Local List Version
2	ID	D02
	Functional block	D. Local Authorization List
	Parent use case	<a href="#">D01 - Send Local Authorization List</a>
3	Objective(s)	To support synchronization of <a href="#">Local Authorization List</a> .
4	Description	The CSMS can request a Charging Station for the version number of the <a href="#">Local Authorization List</a> by sending a <a href="#">GetLocalListVersionRequest</a> .
	Actors	Charging Station, CSMS
	Scenario description	<ol style="list-style-type: none"> <li>1. The CSMS sends a <a href="#">GetLocalListVersionRequest</a> to request this value.</li> <li>2. Upon receipt of the <a href="#">GetLocalListVersionRequest</a> Charging Station responds with a <a href="#">GetLocalListVersionResponse</a> containing the version number of its <a href="#">Local Authorization List</a>.</li> </ol>
5	Prerequisite(s)	
6	Postcondition(s)	The CSMS received the <a href="#">GetLocalListVersionResponse</a> with the <a href="#">Local Authorization List</a> version.

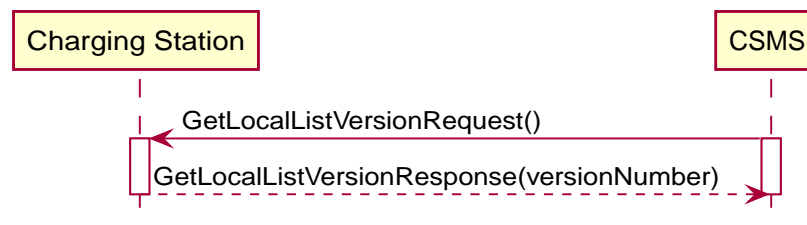


Figure 39. Sequence Diagram: Get Local List Version

7	Error handling	n/a
8	Remark(s)	<p>A <i>versionNumber</i> 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.</p> <p>In contrast, a local authorization list that was emptied, because CSMS sent a <a href="#">SendLocalListRequest</a> with an empty <i>localAuthorizationList</i>, does have a <i>versionNumber</i> &gt; 0.</p>

## D02 - Get Local List Version - Requirements

Table 94. D02 - Requirements

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