Definition of Interface between CMO and SAP Pharma Network for Serial Number Management

Message Specification
## Document History

<table>
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<tr>
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<th>Status</th>
<th>Date</th>
<th>Change</th>
</tr>
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<tr>
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• Version parameter added to files  
• Version added to attached file names |
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**Definition of Interface between CMO and SAP Pharma Network for Serial Number Management**

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1 About this Document

1.1 Purpose and Scope

This document describes the standard structure of serial number exchange files used by Contract Manufacturer Organizations (CMOs) interacting with a Market Authorization Holder (MAH) on the SAP Pharma Network. This document describes standard features and message exchange functionality relevant for all MAHs connecting to the SAP Pharma Network. Information specific to a given MAH is available in a supplement document for that MAH.

Where information is available in an MAH specific supplement, this is flagged by the book icon.

1.2 Target Audience

This document is for:
- Integration experts
- Implementation teams

Related Documentation

- Introduction to the SAP Pharma Network
- SAP Pharma Network Onboarding Guide
- SAP Pharma Network Configuration Guides
- SAP Pharma Network Message Specification Supplements

1.3 Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAH</td>
<td>Marketing Authorization Holder</td>
</tr>
<tr>
<td>CMO</td>
<td>Contract Manufacturing Organization</td>
</tr>
<tr>
<td>GS1</td>
<td>Global Standardization Body</td>
</tr>
<tr>
<td>EPCIS</td>
<td>Electronic Product Code Information Services · GS1 Standard, refer to <a href="http://www.gs1.org/epcis/epcis/1-1">http://www.gs1.org/epcis/epcis/1-1</a>. This specification is based on EPCIS 1.1</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>GTIN</td>
<td>Global Trade Identification Number (GS1 Standard)</td>
</tr>
<tr>
<td>GLN</td>
<td>Global Location Number (GS1 Standard)</td>
</tr>
<tr>
<td>GCP</td>
<td>Global Company Prefix (GS1 Standard)</td>
</tr>
<tr>
<td>EPC</td>
<td>Electronic Product Code, often used to summarize different formats of unique identifiers</td>
</tr>
<tr>
<td>SGTIN</td>
<td>Serialized GTIN, special case of EPC</td>
</tr>
<tr>
<td>EDMC</td>
<td>Electronic Drug Monitoring Code</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
</tr>
<tr>
<td>NDC</td>
<td>National Drug Code</td>
</tr>
<tr>
<td>NHRN_DRN</td>
<td>National Healthcare Reimbursement Number (NHRN, product identifier used in Brazil)</td>
</tr>
<tr>
<td>NTIN</td>
<td>National Trade Item Number, special version of a GTIN where the “company prefix” depicts a country. Used to bring country specific numbering schemes into the GTIN format.</td>
</tr>
<tr>
<td>PZN</td>
<td>Pharmazentralnummer (Central Pharma Number, product identifier used in Germany)</td>
</tr>
<tr>
<td>SCC</td>
<td>Serial Shipping Container Code</td>
</tr>
</tbody>
</table>

### 1.4 Typographic Conventions

<table>
<thead>
<tr>
<th>Type Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>This icon indicates that there is information in an MAH specific document. Certain processes or options vary and depend on the preference of the MAH.</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Emphasized words or expressions.</td>
</tr>
<tr>
<td><strong>EXAMPLE</strong></td>
<td>Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.</td>
</tr>
<tr>
<td><strong>&lt;Example&gt;</strong></td>
<td>Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.</td>
</tr>
<tr>
<td>Type Style</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>EXAMPLE</td>
<td>Keys on the keyboard, for example, F2 or ENTER</td>
</tr>
</tbody>
</table>
2 Introduction

2.1 SAP Pharma Network

The SAP Pharma Network is an innovative on-demand solution that connects pharmaceutical organizations and their supply chain partners on a secure network that is owned and managed by SAP. The SAP Pharma Network supports the transfer and transformation of data between members of the pharmaceutical supply chain connected to the SAP Pharma Network. Connected partners can exchange serialization messages across a secure and reliable network.

The SAP Pharma Network supports various integration capabilities such as content-based routing and mapping, as well as a number of connectivity options such as web services, SFTP servers or a Web App portal. The details of the connectivity options for a participant are discussed during the onboarding process.

2.2 SAP Pharma Network CMO Scenario

The SAP Pharma Network allows for the exchange of traceability data between a Market Authorization Holder (MAH) and a Contract Manufacturer Organization (CMO).

A CMO packages a finished product on behalf of the MAH. For this purpose, the MAH provides on request a list or range of serial numbers to the CMO to print on the finished product. After packaging the CMO sends a list of commissioned serial numbers to the MAH potentially including aggregation and shipping information. The CMO may also provide serial number status information for example, “lost” or “unused” serial numbers.

The SAP Pharma Network is designed to facilitate CMOs of all sizes. While some CMOs may run a track and trace solution such as SAP Advanced Track and Trace, others may execute processes manually. The SAP Pharma Network allows CMOs to connect to the network through a Web App portal or directly through their backend system.

In summary, the SAP Pharma Network supports the following processes:

- Serial Number Request and Response
- Serialized Data Transmission
- Transmission of Serial Number Usage Information (not in scope of this specification)
Figure 1 - Data Flow

The document outlines:

- The processes in some more detail
- Structure of the serial number request and response messages exchanged between CMO and the SAP Pharma Network
- Structure of the EPCIS file exchanged between a CMO and the SAP Pharma Network containing the commissioned data
3 Serial Number Request and Response

3.1 Introduction

In order to manufacture a serialized product for an MAH, a CMO needs to know which numbers to print on the packages. This can be achieved in several ways:

- A fixed number range is assigned to the CMO for a dedicated product. This number range, for example a 14-digit alpha-numeric string with the prefix A1, is used for all batches of this product. In this case the Serial Number Request and Response process is not required.
- The CMO requests a set amount of numbers to cover a given timeframe. There is no requirement for a direct connection to the MAH, and this avoids repeatedly requesting numbers. For example, if the CMO typically produces one batch per week for the MAH with a typical lot size of 10,000 units, the CMO can request enough numbers to last for three months. Therefore, to cover the three-month period, the CMO requests 120,000 serial numbers (10,000 items per week \(\times\) 4 weeks/month \(\times\) 3 months).
- The CMO requests numbers for every batch produced. For example, the CMO receives an order to produce 10,000 items. In this case the CMO requests 10,500 numbers to cover the lot size and wastage.

The preferred method for requesting serial numbers depends on the MAH. See the supplement for each MAH.

The serial number request is issued by the CMO through a machine-to-machine integration (an IT backend integration to the SAP Pharma Network) or through a manual request in the Web App portal. Within the request, the CMO defines the amount of serial numbers required for a given product. When a CMO requests serial numbers through the Web App portal, the SAP Pharma Network Portal creates a Serial Number Request message in the relevant format. The specification of the Serial Number Request is not applicable in this case. However, the Serial Number Response Message specification is relevant because a CMO must download the response message and transmit the file to the respective packaging line.
**Definition of Interface between CMO and SAP Pharma Network for Serial Number Management**

**Serial Number Request via Portal UI**

In the case of a machine-to-machine connection serial number request and response apply.

**Serial Number Request via machine-to-machine connection**

As a response to a serial number request an MAH can:
- Deny the request
- Send a serial number list
- Serial number range from which the CMO creates a serial number list
The preferred method of response, that is, a list or a range or a mix of both, depends on the MAH. See the supplement for each MAH.

3.1.1 Boundary Conditions

Boundary Conditions may depend on the preference of the MAH. See the supplement for each MAH.

3.1.2 Message Structure

This section outlines the message structure.

In the examples, variable fields are shown in the following colors:

- **Light blue** represents static data that are the same for all serial number requests and responses sent or received by a CMO.
- **Yellow** represents data specific to an MAH.
- **Green** represents variable data that is different for each request, for example, requested amount of serial numbers.

Section 5 includes sample files.

3.1.3 Message Header

There is no specific message header. In the case of a SOAP interface, standard SOAP envelopes apply. In other cases, the Serial Number Request must be sent according to the requirements of that technical channel.

3.2 Synchronous and Asynchronous Mode

The sections which follow describe Serial Number requests and responses for synchronous mode and asynchronous mode.
3.2.1 Asynchronous Serial Number Request

A CMO sends a message to the Pharma Network using an AS2 service in Asynchronous Mode, and Pharma Network pushes the response back to the CMO using AS2 service Asynchronously with a delay of five minutes maximum.

<table>
<thead>
<tr>
<th>Content from example below</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;ns0:MessageBulk</code></td>
<td>Root_Element</td>
<td>M</td>
</tr>
<tr>
<td><code>xmlns:ns0=&quot;http://sap.com/xi/SAPICH&quot;&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Message&gt; &lt;/Message&gt;</code></td>
<td>Root_Element</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;SenderId&gt;CMO_GLN&lt;/SenderId&gt;</code></td>
<td>CMO to send the Sender_GLN in the SenderId as part of serial number request</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ReceiverId&gt;MAH_GLN&lt;/ReceiverId&gt;</code></td>
<td>CMO to send the Receiver_GLN in the ReceiverId as part of serial number request</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;MessageType&gt;SNR&lt;/MessageType&gt;</code></td>
<td>CMO to send the 'SNR' value in the MessageType as part of serial number request</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;Encryption&gt;</code></td>
<td>CMO to send type 'Encryption Type' in the Encryption as part of serial number request</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;Compression&gt;</code></td>
<td>CMO to send type 'Compression Type' in the Compression as part of serial number request</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;Signature&gt;</code></td>
<td>CMO to send type 'Signature Type' in the Signature as part of serial number request</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;MessageId&gt;GUID&lt;/MessageId&gt;</code></td>
<td>CMO to Send Unique Identifier value in the MessageId as part of serial number request</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;RelatedMessageId&gt;</code></td>
<td>CMO to send Correlation Message Identifier value in the RelatedMessageId</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;FileName&gt;FileName&lt;/FileName&gt;</code></td>
<td>CMO to send ‘FileName’ value in the FileName</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;ExtendedHeader&gt;</code></td>
<td>Segment_Element</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Parameter type=&quot;string&quot; name=&quot;GLN&quot;/&gt;</code></td>
<td>CMO to Send Parameter ‘Type’ and ‘Name’ value in the Parameter as part of serial number request</td>
<td>O</td>
</tr>
<tr>
<td><strong>Content from example below</strong></td>
<td><strong>Explanation</strong></td>
<td><strong>Mandatory/Optional</strong></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><code>&lt;Parameter name=&quot;version&quot; type=&quot;string&quot;&gt;3.2&lt;/Parameter&gt;</code></td>
<td>This describes the version of Serial Number Request</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;MessageContent&gt;&lt;/MessageContent&gt;</code></td>
<td>Root_Element encloses the CMO Serial Number Request Message</td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumberRequestMessage&gt;</code></td>
<td>SerialNumberRequestMessage is a static entry for a serial number request message</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;SendingSystem&gt;Line_1&lt;/SendingSystem&gt;</code></td>
<td>Line_1 is the name of the line or site server or the backend track and trace system of the CMO. This ID must be known by the customer as it is used to check authorization for the request.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;IDType&gt;</code>&lt;br&gt;GTIN&lt;/IDType&gt;</td>
<td>ID type defines for which type of product ID serial numbers are requested. Allowed values: GTIN, SSCC, CN_HUMAN, CN_VET</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Size&gt;</code>50000&lt;/Size&gt;</td>
<td>Size is the quantity of the codes requested by the packaging line solution</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code>&lt;br&gt;</td>
<td>Provide the GTIN for the requested product</td>
<td>M (one of the options)</td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code>GTIN&lt;/Name&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code>67612791391608&lt;/Value&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/Value&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/ObjectKey&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code>&lt;br&gt;</td>
<td>This is the node for serial number requests for China human medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code>CN_HUMAN&lt;/Name&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code>15305&lt;/Value&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/Value&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/ObjectKey&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code>&lt;br&gt;</td>
<td>This is the node for serial number requests for China veterinary medication products where the GTIN cannot be used. The Product Code is a 5 digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code>CN_VET&lt;/Name&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code>15305&lt;/Value&gt;`&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/Value&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;/ObjectKey&gt;</code>&lt;br&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content from example below</td>
<td>Explanation</td>
<td>Mandatory/Optional</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>&lt;ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;Name&gt;COMPANY_PREFIX&lt;/Name&gt;</td>
<td>The property COMPANY_PREFIX must be provided in case of number range requests for SSCC</td>
<td></td>
</tr>
<tr>
<td>&lt;Value&gt;7612791&lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;Name&gt;LIST_RANGE&lt;/Name&gt;</td>
<td>LIST_RANGE allows you to specify the type of result of the serial number request depending on your requirements. So, you can request to receive a range or a list. Requestor can choose type of the request: 'L' for list and 'R' for range. If it doesn’t matter for you than this parameter can be empty, in this case the customer track &amp; trace system will automatically decide what to return depending on available data. Also, depending on MAH policy, you may receive a list even though you requested a range or vice versa.</td>
<td>O</td>
</tr>
<tr>
<td>&lt;Value&gt;L&lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;Name&gt;SENDER_GLN&lt;/Name&gt;</td>
<td>CMOs to send the Sender_GLN (CMO_GLN) in the object key as part of serial number requests.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;Value&gt;XXXXXXXXXXXXXXX&lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;Name&gt;RECEIVER_GLN&lt;/Name&gt;</td>
<td>CMOs to send the Receiver_GLN (MAH_GLN) in the object key as part of serial number requests. See below for valid Receiver GLNs</td>
<td>M</td>
</tr>
<tr>
<td>&lt;Value&gt;XXXXXXXXXXXXXXX&lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2.1.1 Asynchronous Sample Serial Number Request

```xml
<?xml version="1.0" encoding="UTF-8"?>
<ns0:MessageBulk xmlns:ns0="http://sap.com/xi/SAPICH">
  <Message>
    <SenderId>xxxxxxxxxxxxx</SenderId>
    <ReceiverId>xxxxxxxxxxxxx</ReceiverId>
    <MessageType>SNR</MessageType>
    <Encryption>Eny</Encryption>
    <Compression>Com</Compression>
    <Signature>Sig</Signature>
    <MessageId>25DE2493-F4C6-412B-A5F9-45C9B4E9E972</MessageId>
    <RelatedMessageId>ReltMid</RelatedMessageId>
    <FileName>FileName</FileName>
    <ExtendedHeader>
      <Parameter name="GLN" type="string">XXXXXXXXXXXXX</Parameter>
      <Parameter name="version" type="string">3.2</Parameter>
    </ExtendedHeader>
    <MessageContent>
      <SerialNumberRequestMessage>
        <SendingSystem>CMO_System</SendingSystem>
        <IDType>GTIN</IDType>
        <Size>10</Size>
        <ObjectKey>
          <Name>GTIN</Name>
          <Value>XXXXXXXXXXXXX</Value>
        </ObjectKey>
        <ObjectKey>
          <Name>LIST_RANGE</Name>
          <Value>R</Value>
        </ObjectKey>
        <ObjectKey>
          <Name>SENDER_GLN</Name>
          <Value>xxxxxxxxxxxxx</Value>
        </ObjectKey>
        <ObjectKey>
          <Name>RECEIVER_GLN</Name>
          <Value>xxxxxxxxxxxxx</Value>
        </ObjectKey>
      </SerialNumberRequestMessage>
    </MessageContent>
  </Message>
</ns0:MessageBulk>
```
## 3.2.2 Asynchronous Serial Number Response

<table>
<thead>
<tr>
<th>Content from example which follows</th>
<th>Explanation</th>
<th>Mandatory/Optional/Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;ns0:MessageBulk xmlns:ns0=&quot;<a href="http://sap.com/xi/SAPICH%22%3E">http://sap.com/xi/SAPICH&quot;&gt;</a></td>
<td>Root_Element</td>
<td>M</td>
</tr>
<tr>
<td>&lt;Message&gt; &lt;/Message&gt;</td>
<td>Root_Element</td>
<td>M</td>
</tr>
<tr>
<td>&lt;SenderId&gt;MAH_GLN&lt;/SenderId&gt;</td>
<td>CMO will receive MAH_GLN number in the SenderId as part of serial number Response</td>
<td>M</td>
</tr>
<tr>
<td>&lt;ReceiverId&gt;CMO_GLN&lt;/ReceiverId&gt;</td>
<td>CMO will receive CMO_GLN number in the ReceiverId as part of serial number Response</td>
<td>M</td>
</tr>
<tr>
<td>&lt;MessageType&gt;SNR&lt;/MessageType&gt;</td>
<td>CMO will receive the ‘SNR’ value in the MessageType as part of serial number response</td>
<td>O</td>
</tr>
<tr>
<td>&lt;Encryption&gt; &lt;/Encryption&gt;</td>
<td>CMO will receive type ‘Encryption Type’ in the Encryption as part of serial number response</td>
<td>O</td>
</tr>
<tr>
<td>• &lt;Compression&gt;Com&lt;/Compression&gt;</td>
<td>CMO to send type ‘Compression Type’ in the Compression as part of serial number Response</td>
<td>O</td>
</tr>
<tr>
<td>• &lt;Signature&gt;Sig&lt;/Signature&gt;</td>
<td>CMO to send type ‘Signature Type’ in the Signature as part</td>
<td>O</td>
</tr>
</tbody>
</table>
### Content from example which follows

<table>
<thead>
<tr>
<th>Content</th>
<th>Explanation</th>
<th>Mandatory/Optional/Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;MessageId&gt;UID&lt;/MessageId&gt;</td>
<td>CMO will receive Unique Identifier value in the MessageId as part of serial number response</td>
<td>M</td>
</tr>
<tr>
<td>&lt;RelatedMessageId&gt;</td>
<td>CMO will receive Correlation Message Identifier value in the RelatedMessageId as part of serial number response</td>
<td>O</td>
</tr>
<tr>
<td>&lt;FileName&gt;FileName&lt;/FileName&gt;</td>
<td>CMO to Receive ‘FileName’ value in the FileName as part of serial number response</td>
<td>O</td>
</tr>
<tr>
<td>&lt;ExtendedHeader&gt; &lt;/ExtendedHeader&gt;</td>
<td>Segment_Element</td>
<td></td>
</tr>
<tr>
<td>&lt;Parameter type=&quot;string&quot; name=&quot;GLN&quot;&gt;</td>
<td>CMO to Send Parameter ‘Type’ and ‘Name’ value in the Parameter as part of serial number Response</td>
<td>O</td>
</tr>
<tr>
<td>&lt;Parameter name=&quot;version&quot; type=&quot;string&quot;&gt;3.2&lt;/Parameter&gt;</td>
<td>This describes the version of Serial Number Response</td>
<td>O</td>
</tr>
<tr>
<td>&lt;MessageContent&gt;&lt;/MessageContent&gt;</td>
<td>Root_Element encloses the MAH Serial Number Response Message.</td>
<td></td>
</tr>
<tr>
<td>&lt;SerialNumberConfirmationMessage&gt;</td>
<td>SerialNumberConfirmationMessage is a static entry to be used for a serial number request message</td>
<td>M</td>
</tr>
<tr>
<td>&lt;ReceivingSystem&gt;Line_1&lt;/ReceivingSystem&gt;</td>
<td>Line_1 is the name of the line or site server</td>
<td>M</td>
</tr>
<tr>
<td>Content from example which follows</td>
<td>Explanation</td>
<td>Mandatory/Optional/Recommended</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><em>&lt;ACTIONCODE&gt;</em>&lt;br&gt;<code>C</code>&lt;br&gt;<em>&lt;/ACTIONCODE &gt;</em></td>
<td>Status of the request processing. Can take values: 'R' - rejected, 'P' - Partial, 'C' - Completed. Completed means that all requested serial numbers were provided without any restrictions. Partial means that request was restricted and provided amount of serial numbers is less than requested. Rejected means that some restrictions or errors were occurred and no one serial number was provided.</td>
<td>R</td>
</tr>
<tr>
<td><em>&lt;IDType&gt;</em>&lt;br&gt;<code>GTIN</code>&lt;br&gt;*&lt;/IDType&gt;</td>
<td>(ID type defines for which type of product ID serial numbers are requested. Allowed values: GTIN, SSCC, CN_HUMAN, CN_VET</td>
<td>M</td>
</tr>
<tr>
<td><em>&lt;Name&gt;</em>&lt;br&gt;<code>GTIN</code>&lt;br&gt;*&lt;/Name&gt;</td>
<td>The property GTIN must be provided in case of number range requests for SUPERVISIO, SGTIN</td>
<td>M (one of the four options, depending on Request)</td>
</tr>
<tr>
<td><em>&lt;Value&gt;</em>&lt;br&gt;67612791391608&lt;br&gt;*&lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>&lt;ObjectKey&gt;</em></td>
<td>This is the node to be used for serial</td>
<td></td>
</tr>
<tr>
<td>Content from example which follows</td>
<td>Explanation</td>
<td>Mandatory/Optional/Recommended</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code>CN_HUMAN<code>&lt;/Name&gt;</code> &lt;Value&gt;15305&lt;/Value&gt;<code> &lt;/ObjectKey&gt;</code></td>
<td>number requests for China human medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code>&lt;Name&gt;CN_VET&lt;/Name&gt;<code> &lt;Value&gt;15305</code> &lt;/Value&gt;<code> &lt;/ObjectKey&gt;</code></td>
<td>This is the node to be used for serial number requests for China veterinary medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code>&lt;Name&gt;COMPANY_PREFIX&lt;/Name&gt;<code> &lt;Value&gt;7612791</code> &lt;/Value&gt;<code> &lt;/ObjectKey&gt;</code></td>
<td>The property COMPANY_PREFIX must be provided in case of number range requests for SSCCs.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Size&gt;</code>50000<code>&lt;/Size&gt;</code></td>
<td>Size is the quantity of the codes received by the packaging line solution.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Interval&gt;</code>&lt;NumberFrom&gt;100000000001<code>&lt;/NumberFrom&gt;</code> &lt;NumberTo&gt;100000500000<code>&lt;/NumberTo&gt;</code> <code>&lt;/Interval&gt;</code></td>
<td>When the customer is returning a serial number range, this interval will be identified by a <code>&lt;NumberFrom&gt;</code> and a <code>&lt;NumberTo&gt;</code>.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumber&gt;</code>86153050000031896084<code> &lt;/SerialNumber&gt;</code> &lt;SerialNumber&gt;86153050000031901281<code> &lt;/SerialNumber&gt;</code></td>
<td>In case the customer is returning a serial</td>
<td></td>
</tr>
</tbody>
</table>
### Content from example which follows

<table>
<thead>
<tr>
<th>Serial Number Request and Response</th>
<th>Explanation</th>
<th>Mandatory/Optional/Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;SerialNumber&gt;</code></td>
<td>number list, each individual serial number will be provided in the <code>&lt;SerialNumber&gt;</code> tag.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>LIST_RANGE allows you to specify the type of result of the serial number request depending on your requirements. So, you can request to receive a range or a list. Requestor can choose type of the request: 'L' for list and 'R' for range. If it doesn't matter for you than this parameter can be empty, in this case the customer track &amp; trace system will automatically decide what to return depending on available data. Also, depending on MAH policy, you may receive a list even though you requested a range or vice versa.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>CMOs to Receive the MAH_GLN in the object key as part of serial number response.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>CMO to Receive the CMO_GLN in the response.</td>
<td>M</td>
</tr>
</tbody>
</table>
### 3.2.2.1 Asynchronous Sample Serial Number Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ns0:MessageBulk xmlns:ns0="http://sap.com/xi/SAPICH">
  <Message>
    <SenderId>xxxxxxxxxxxxx</SenderId>
    <ReceiverId>xxxxxxxxxxxxx</ReceiverId>
    <MessageType>SNR</MessageType>
    <Encryption>Eny</Encryption>
    <Compression>Com</Compression>
    <Signature>Sig</Signature>
    <MessageId>25DE2493-F4C6-412B-A5F9-45C9B4E9E972</MessageId>
    <RelatedMessageId>ReltMid</RelatedMessageId>
    <FileName>FilName</FileName>
    <ExtendedHeader>
      <Parameter name="GLN" type="string">XXXXXXXXXXXXX</Parameter>
      <Parameter name="version" type="string">3.2</Parameter>
    </ExtendedHeader>
    <MessageContent>
      <SerialNumberConfirmationMessage>
        <ReceivingSystem>MAH_System</ReceivingSystem>
        <ActionCode>C</ActionCode>
        <Size>10</Size>
        <IDType>GTIN</IDType>
        <Interval>
          <NumberFrom>0300780000000579</NumberFrom>
          <NumberTo>0300780000000588</NumberTo>
        </Interval>
        <ObjectKey>
          <Name>GTIN</Name>
          <Value>XXXXXXXXXXXXXXX</Value>
        </ObjectKey>
      </SerialNumberConfirmationMessage>
    </MessageContent>
  </Message>
</ns0:MessageBulk>
```
<ObjectKey>
  <Name>LIST_RANGE</Name>
  <Value>R</Value>
</ObjectKey>

<ObjectKey>
  <Name>SENDER_GLN</Name>
  <Value>xxxxxxxxxxxxx</Value>
</ObjectKey>

<ObjectKey>
  <Name>RECEIVER_GLN</Name>
  <Value>xxxxxxxxxxxxx</Value>
</ObjectKey>
</SerialNumberConfirmationMessage>
</MessageContent>
</Message>
</ns0:MessageBulk>
### 3.2.3 Synchronous Serial Number Request

A CMO sends a message to the Pharma Network using a SOAP service in synchronous mode, and the Pharma Network pushes the response back to the CMO using SOAP service synchronously.

<table>
<thead>
<tr>
<th>Content from examples below</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;n0:SerialNumberRequestMessage xmlns:n0=&quot;http://sap.com/xi/SAPICH&quot; &gt;</code></td>
<td>SerialNumberRequestMessage is a static entry to be used for a serial number request message</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;SendingSystem&gt;Line_1&lt;/SendingSystem&gt;</code></td>
<td>Line_1 is the name of the line or site server or the backend track and trace system of the CMO. This ID must be known by the customer as it is used to check authorization for the request.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;IDType&gt;GTIN&lt;/IDType&gt;</code></td>
<td>ID type defines for which type of product ID serial numbers are requested. Allowed values: GTIN, SSCC, CN_HUMAN, CN_VET</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Size&gt;5000&lt;/Size&gt;</code></td>
<td>Size is the quantity of the codes requested by the packaging line solution</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>The property GTIN must be provided in case of number range requests for SUPERVISIO, SGTIN</td>
<td>M (one of the options)</td>
</tr>
<tr>
<td><code>&lt;Name&gt;GTIN&lt;/Name&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;67612791391608&lt;/Value&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>This is the node used for serial number requests for China human medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;CN_HUMAN&lt;/Name&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;15305&lt;/Value&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>This is the node used for serial number requests for China veterinary medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;CN_VET&lt;/Name&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;15305&lt;/Value&gt;</code></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Definition of Interface between CMO and SAP Pharma Network for Serial Number Management

### Serial Number Request and Response

<table>
<thead>
<tr>
<th>Content from examples below</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> COMPANY_PREFIX &lt;/Name&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> 7612791 &lt;/Value&gt;</td>
<td>The property COMPANY_PREFIX must be provided in case of number range requests for SCC</td>
<td></td>
</tr>
<tr>
<td>&lt;/ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> LIST_RANGE &lt;/Name&gt;</td>
<td>LIST_RANGE allows you to specify the type of result of the serial number request depending on your requirements. So, you can request to receive a range or a list. Requestor can choose type of the request: 'L' for list and 'R' for range If it doesn't matter for you than this parameter can be empty, in this case the customer track &amp; trace system will automatically decide what to return depending on available data. Also, depending on MAH policy, you may receive a list even though you requested a range or vice versa.</td>
<td>O</td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> L &lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;/ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> SENDER_GLN &lt;/Name&gt;</td>
<td>CMOs to send the Sender_GLN (MAH_GLN) in the object key as part of serial number requests.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> XXXXXXXXXXXXXXXX &lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;/ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> RECEIVER_GLN &lt;/Name&gt;</td>
<td>CMOs to send the Receiver_GLN (CMO_GLN) in the object key as part of serial number requests.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> XXXXXXXXXXXXXXXX &lt;/Value&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;/ObjectKey&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2.3.1 Synchronous Sample Serial Number Request

```xml
<?xml version="1.0" encoding="UTF-8"?>
<ns0:SerialNumberRequestMessage xmlns:ns0="http://sap.com/xi/SAPICH">
    <SendingSystem>CMO/GLN</SendingSystem>
    <IDType>GTIN</IDType>
    <Size>100</Size>
    <ObjectKey>
        <Name>GTIN</Name>
        <Value>XXXXXXXXXXXXXX</Value>
    </ObjectKey>
    <ObjectKey>
        <Name>LIST_RANGE</Name>
        <Value>R</Value>
    </ObjectKey>
    <ObjectKey>
        <Name>SENDER/GLN</Name>
        <Value>XXXXXXXXXXXXXX</Value>
    </ObjectKey>
    <ObjectKey>
        <Name>RECEIVER/GLN</Name>
        <Value>XXXXXXXXXXXXXX</Value>
    </ObjectKey>
</ns0:SerialNumberRequestMessage>
```
### 3.2.4 Synchronous Serial Number Response

<table>
<thead>
<tr>
<th>Content from examples below</th>
<th>Explanation</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;n0:SerialNumberConfirmationMessage xmlns:n0=&quot;http://sap.com/xi/SAPICH&quot;&gt;</code></td>
<td>SerialNumberConfirmationMessage is a static entry to be used for a serial number request message</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ReceivingSystem&gt;Line_1&lt;/ReceivingSystem&gt;</code></td>
<td>Line_1 is the name of the line or site server or the backend track and trace system of the CMO. This ID will be the same as provided in the request message.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;ACTIONCODE&gt;</code></td>
<td>‘R’-rejected, ‘P’-Partial, ‘C’-Completed</td>
<td></td>
</tr>
<tr>
<td><code>&lt;IDType&gt;</code></td>
<td>ID type defines the type of product ID serial numbers are requested for. Allowed values: GTIN, SSCC, CN_HUMAN, CN_VET</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>The property GTIN must be provided in case of number range requests for SUPERVISIO, SGTIN</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code></td>
<td>GTIN</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code></td>
<td>67612791391608</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>This is the node used for serial number requests for China human medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code></td>
<td>CN_HUMAN</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code></td>
<td>15305</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>This is the node used for serial number requests for China veterinary medication products where the GTIN cannot be used. The Product Code is a 5-digit code provided by CFDA unique for every level of the product serialized for China.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code></td>
<td>CN_VET</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code></td>
<td>15305</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td>The property COMPANY_PREFIX must be provided in case of number range requests for SSCCs.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code></td>
<td>COMPANY_PREFIX</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code></td>
<td>7612791</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Size&gt;</code></td>
<td>50000</td>
<td></td>
</tr>
</tbody>
</table>
### Definition of Interface between CMO and SAP Pharma Network for Serial Number Management

**Serial Number Request and Response**

<table>
<thead>
<tr>
<th>Content from examples below</th>
<th>Explanation</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;Interval&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;NumberFrom&gt;</code></td>
<td>100000000001</td>
<td></td>
</tr>
<tr>
<td><code>&lt;NumberTo&gt;</code></td>
<td>100000500000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In case the customer is returning a serial number range, this interval is identified by a <code>&lt;NumberFrom&gt;</code> and a <code>&lt;NumberTo&gt;</code>.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumber&gt;</code> 86153050000031896084</td>
<td>In case the customer is returning a serial number list, each individual serial number will be provided in the <code>&lt;SerialNumber&gt;</code> tag.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumber&gt;</code> 86153050000031901281</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumber&gt;</code> 86153050000031918124</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;SerialNumber&gt;</code> 86153050000031927123</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> LIST_RANGE</td>
<td>LIST_RANGE allows you to specify the type of result of the serial number request depending on your requirements. So, you can request to receive a range or a list.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> L</td>
<td>Requestor can choose type of the request: ‘L’ for list and ‘R’ for range if it doesn’t matter for you than this parameter can be empty, in this case the customer track &amp; trace system will automatically decide what to return depending on available data. Also, depending on MAH policy, you may receive a list even though you requested a range or vice versa.</td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> SENDER_GLN</td>
<td>CMOs to send the Sender_GLN (CMO_GLN) in the object key as part of serial number requests.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> XXXXXXXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;ObjectKey&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;Name&gt;</code> RECEIVER_GLN</td>
<td>CMOs to send the Receiver_GLN (MAH_GLN) in the object key as part of serial number requests.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;Value&gt;</code> XXXXXXXXX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2.4.1 Synchronous Sample Serial Number Response

```xml
<?xml version="1.0" encoding="UTF-8"?>
<ns0:SerialNumberConfirmationMessage xmlns:ns0="http://sap.com/xi/SAPICH"
  <ReceivingSystem>MAH_GLN</ReceivingSystem>
  <ActionCode>C</ActionCode>
  <Size>100</Size>
  <IDType>GTIN</IDType>
  <Interval>
    <NumberFrom>1234</NumberFrom>
    <NumberTo>5678</NumberTo>
  </Interval>
  <ObjectKey>
    <Name>GTIN</Name>
    <Value>XXXXXXXXXXXXXX</Value>
  </ObjectKey>
  <ObjectKey>
    <Name>LIST_RANGE</Name>
    <Value>R</Value>
  </ObjectKey>
  <ObjectKey>
    <Name>SENDER_GLN</Name>
    <Value>XXXXXXXXXXXXXX</Value>
  </ObjectKey>
  <ObjectKey>
    <Name>RECEIVER_GLN</Name>
    <Value>XXXXXXXXXXXXXX</Value>
  </ObjectKey>
  <SerialNumbers/>
</ns0:SerialNumberConfirmationMessage>
```
3.3 Message Elements Specification

This section outlines the elements of request and response messages. As the data elements of the request and response message depend on each other, they are discussed together.

3.3.1 “SendingSystem” in Request Message and “ReceivingSystem” in Response Message

The sending system is the line or site server that is requesting serial numbers. This must be one or several fixed values defined by the CMO and aligned with the MAH. On the MAH side, these identifiers determine authorization to request serial numbers.

Examples:
- A CMO has two lines and wants to request serial numbers separately. The CMO names these Line 1 and Line 2, and communicates these system names to the MAH. The CMO can then request serial numbers using <SendingSystem>Line1</SendingSystem> to request numbers for Line 1, and <SendingSystem>Line2</SendingSystem> to request numbers for Line 2.
- Responses have the appropriate identifier in the <ReceivingSystem> tag.
- A CMO may have two lines but does not want to differentiate between the two lines for serial number requests. The CMO therefore uses a generic name such as Site_A and communicates this system name to the MAH. The CMO can then request serial numbers using <SendingSystem>Site_A</SendingSystem>.

3.3.2 “IDType” Definition in Request and Response Message

The CMO must define the type of serial numbers requested. Only one entry is permitted in each message. Options include:

<table>
<thead>
<tr>
<th>ID Type</th>
<th>Required for</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTIN</td>
<td>SGTINs</td>
</tr>
<tr>
<td>SSCC</td>
<td>Serialized containers</td>
</tr>
<tr>
<td>CN_HUMAN</td>
<td>Human medication for China market</td>
</tr>
<tr>
<td>CN_VET</td>
<td>Veterinary medication for China market</td>
</tr>
</tbody>
</table>

The products a CMO produces for a given MAH determine which ID Types apply. See the MAH specific supplement.

3.3.3 “Size” in Request Message

Size is a mandatory object key. Size defines the total number of serial numbers requested.
3.3.4 Product or Company Prefix in Request and Response Message

To define the product or company, a CMO uses the prefixes below. Only one entry is permitted in each message and this depends on the ID Type.

<table>
<thead>
<tr>
<th>ID Type</th>
<th>Object Key</th>
<th>When Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTIN</td>
<td>GTIN</td>
<td>SGTINs</td>
</tr>
<tr>
<td>SCC</td>
<td>SCC</td>
<td>Serialized containers</td>
</tr>
<tr>
<td>CN_HUMAN</td>
<td>CN_HUMAN</td>
<td>Serial numbers for China market</td>
</tr>
<tr>
<td>CN_VET</td>
<td>CN_VET</td>
<td>Serial numbers for veterinary medication for China market</td>
</tr>
</tbody>
</table>

The products a CMO produces for a given MAH determine which ID Types, and therefore Object Keys apply. See the MAH specific supplement.

3.3.5 “LIST_RANGE” in Request Message

The object key LIST_RANGE defines how numbers should be delivered. The following entries are allowed:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST</td>
<td>CMO requests serial numbers as a list.</td>
</tr>
<tr>
<td>RANGE</td>
<td>CMO requests serial numbers as a range. This may be applicable for non-randomized products as well as for SCCs.</td>
</tr>
<tr>
<td>blank</td>
<td>CMO does not request a specific format but leaves the decision to the MAH.</td>
</tr>
</tbody>
</table>

The preferred method of response, that is, a list or a range or a mix of both, depends on the MAH. See the supplement for each MAH.

3.3.6 “RECEIVER_GLN” in Request and Response Message

A CMO must send receiver information in a request. The preferred receiver ID is the GLN number. A CMO needs to know and request the number from an MAH. The CMO can use the Object Key “RECEIVER_GLN” for this.

For a list of valid RECEIVER_GLNs for MAHs, see the MAH specific supplement.
3.3.7 “INTERVAL” and “SERIALNUMBER” in the Response Message

As a response to a request, an MAH can send a list or a range of serial numbers as defined in the request. The response format is shown in the examples below. It can be encoded or non-encoded.

Non-encoded format

<table>
<thead>
<tr>
<th>Response Type</th>
<th>Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Response</td>
<td><code>&lt;SerialNumber&gt;85088950006413772621&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;85088950006414772621&lt;/SerialNumber&gt;</code></td>
</tr>
<tr>
<td>Range Response</td>
<td><code>&lt;Interval&gt;</code>&lt;br&gt;<code>&lt;NumberFrom&gt;10000000000304&lt;/NumberFrom&gt;</code>&lt;br&gt;<code>&lt;NumberTo&gt;10000000001303&lt;/NumberTo&gt;</code>&lt;br&gt;<code>&lt;/Interval&gt;</code></td>
</tr>
</tbody>
</table>

Encoded format

<table>
<thead>
<tr>
<th>Response Type</th>
<th>Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Response</td>
<td><code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000981204&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000810304&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000612941&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000510243&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000010001&lt;/SerialNumber&gt;</code>&lt;br&gt;<code>&lt;SerialNumber&gt;(01)67612791391608(21)10000000991023&lt;/SerialNumber&gt;</code></td>
</tr>
</tbody>
</table>
| Range Response      | `<Interval>`<br>`<NumberFrom>(01)67612791391608(21)10000000000304</NumberFrom>`<br>`<NumberTo>(01)67612791391608(21)10000000001303</NumberTo>`<br>`</Interval>"
4 EPCIS Based Serialized Data Transmission

EPCIS based serialized data is transmitted after all serial numbers are used. Typically, information about the related batch such as manufacturing and expiration date is included in the message. In addition, a message can include information about aggregation of commissioned items, that is, which unit is in which case, and which case is on which pallet as well as information about the actual shipment to the MAH.

EPCIS based serialized data transmission is triggered by the CMO at different points. The trigger point is generally decided by the Manufacturer requirements which changes from MAH to MAH.

The file or files containing the serial numbers (SGTINs or EPCs) may be generated by the line or site server that executed the production. The files can be transmitted to the SAP Pharma Network automatically through a machine-to-machine integration, or through a manual upload using the Web App portal. In both cases the file structure discussed below is relevant.

![Commissioned Data Transmission via Portal UI](image)

**Figure 4 - Commissioned Data Transmission through the Web App Portal**
4.1 Boundary Conditions

The message contains information about a homogeneous batch of one product. Information concerning different products or different batches of the same product must be split into separate messages.

Boundary Conditions depend on the preference of the MAH. See the MAH supplement.
4.2 Message Splitting

The SAP Pharma Network can split messages received from a CMO if required. This section outlines splitting options.

Option 1

Send three messages containing commissioning, aggregation and shipping information, and deliver three messages.

Option 2

The CMO sends all information in one message, and the SAP Pharma Network delivers the message to the recipient without splitting.
Option 3

The CMO sends all information in one message, and the SAP Pharma Network delivers separate messages to the recipient system.

Figure 8 - Message split prior to delivery

4.3 Message Structure

This section outlines the message structure.

In the examples, variable fields are shown in the following colors:

- **Light blue** represents static data that are always the same.
- **Yellow** represents data that is site specific and is the same for every batch.
- **Green** represents variable data that is different for each ID or batch. This is batch and serialization data, for example, serial number, batch number, expiration and manufacturing date.

The following table describes the variables. Subsequent sections provide further details.
## 4.3.1 EPCIS Header

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>Mandatory/ Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;</td>
<td>creation Date is the date of message creation</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EPCIS header details are extracted from ATTP backend system. Which are not in scope for Pharma Network</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>a list of events must be added here. See below for a description of the message body.</td>
<td>M</td>
</tr>
</tbody>
</table>
### 4.3.2 EPCIS Body for Object Events

Within the EPCIS body, an event list can be defined consisting of object events, aggregation events and transaction events. Multiple events with different event type can be listed within the EPCIS body of the same message.

This section outlines Object Events only. For details of aggregation events, see Section 4.3.2. Transaction events are not covered in this version of the specification.

#### 4.3.2.1 EPCIS Commission Event

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;ObjectEvent&gt;</code></td>
<td>ObjectEvent: represents an event on one or more physical or digital objects. For commissioning and decommissioning of serialization items (Item level) is always <strong>ObjectEvent</strong></td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;eventTime&gt;</code></td>
<td>EventTime: 2016-04-28T19:26:45Z is the time when the event was created. -06:00 is the time difference with UTC</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;epcList&gt;</code></td>
<td>Unique Identifier: URN format or GS1 element string format can be used GS1-format using application identifiers for GTIN (01) and serial number (21) can be used</td>
<td>M</td>
</tr>
</tbody>
</table>
| `<action>`            | Action type: says how an event relates to the lifecycle of the entity being described  
- For commissioning event: always **ADD** | M |
### Definition of Interface between CMO and SAP Pharma Network for Serial Number Management

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>Mandatory /Optional</th>
</tr>
</thead>
</table>
| `<disposition>urn:epcglobal:cbv:disp:<strong>active</strong></disposition>` | Disposition: identifies the business condition after the event of the physical or digital objects named.  
- For commissioning event, it disposition is always active  
- [http://www.gs1.org/sites/default/files/docs/epc/cbv_1_1-standard-20140520.pdf](http://www.gs1.org/sites/default/files/docs/epc/cbv_1_1-standard-20140520.pdf) See Page 26 from the above link for a list of dispositions. | M |
| `<readPoint>`  
| `<id>urn:epc:id:sgln:3553755.00000.0</id>` | The Read Point is the location where the event took place, for example, the CMO SGLN can be used. | M |
| `<bizLocation>`  
| `<id>urn:epc:id:sgln:3553755.00000.0</id>` | The Business Location is the location where the object(s) is now considered to reside until a subsequent event takes place, for example, a manufacturing site SGLN. | M |
| `<SAPExtension>`  
| `<objAttributes>`  
| `<DATMF>20170127</DATMF>`  
| `<LOTNO>DSAD</LOTNO>`  
| `<DATEX>20170421</DATEX>`  
| `<GTIN>10012345337007</GTIN>` | Each Object Event Should have only one SAPExtension Segment. One SAPExtension for Each File. Within the SAP Extension, the batch parameter as well as a reason code are defined:  
- DATMF is always the Date of Manufacture, in the format YYYYMMDD and always 8 digits.  
- LOTNO is always the lot/batch number and must not exceed 20 characters.  
- DATEX is always the Expiry date YYYYMMDD and always 8 digits.  
- Global Trade Item number of the product commissioned/decommissioned or shipped, field is optional | M |
### 4.3.2.2 EPCIS Shipping Event

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;ObjectEvent&gt;</code></td>
<td>ObjectEvent: represents an event on one or more physical or digital objects. For commissioning and decommissioning of serialization items (Item level) is always</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;eventTime&gt;</code></td>
<td>EventTime: 2016-04-28T19:26:45Z is the time when the event was created. -06:00 is the time difference with UTC</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;epcList&gt;</code></td>
<td>Unique Identifier: URN format or GS1 element string format can be used GS1-format using application identifiers for GTIN (01) and serial number (21) can to be used</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;action&gt;</code></td>
<td>Action type: says how an event relates to the lifecycle of the entity being described • For Shipping event: always OBSERVE</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;bizStep&gt;</code></td>
<td>Business Step: identifies what was taking place from a business perspective at the time of the event. • For Shipping event bizstep is always shipping</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;disposition&gt;</code></td>
<td>Disposition: identifies the business condition subsequent to the event of the physical or digital objects named. • For shipping event it disposition is always in_transit <a href="http://www.gs1.org/sites/default/files/docs/epc/cbv_1_1-standard-20140520.pdf">http://www.gs1.org/sites/default/files/docs/epc/cbv_1_1-standard-20140520.pdf</a> See Page 26 from the above link for a list of dispositions.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;readPoint&gt;</code></td>
<td>The Read Point is the location where the event took place, for example, the CMO SGLN can be used.</td>
<td>M</td>
</tr>
<tr>
<td>Content from examples</td>
<td>Explanation</td>
<td>Mandatory/Optional</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>&lt;bizLocation&gt;</td>
<td>The Business Location is the location where the object(s) is now considered</td>
<td>M</td>
</tr>
<tr>
<td>&lt;id&gt;urn:epc:id:sgln:3537555000000000&lt;/id&gt;</td>
<td>to reside until a subsequent event takes place, for example, a manufacturing</td>
<td></td>
</tr>
<tr>
<td>&lt;/bizLocation&gt;</td>
<td>site SGLN.</td>
<td></td>
</tr>
<tr>
<td>&lt;SAPExtension&gt;</td>
<td>Each Object Event Should have only one SAPExtension Segment</td>
<td>O</td>
</tr>
<tr>
<td>&lt;objAttributes&gt;</td>
<td>One SAPExtension for Each File.</td>
<td></td>
</tr>
<tr>
<td>&lt;DATMF&gt;20170127&lt;/DATMF&gt;</td>
<td>Within the SAP Extension, the batch parameter as well as a reason code are</td>
<td></td>
</tr>
<tr>
<td>&lt;LOTNO&gt;DSAD&lt;/LOTNO&gt;</td>
<td>defined:</td>
<td></td>
</tr>
<tr>
<td>&lt;DATEX&gt;20170621&lt;/DATEX&gt;</td>
<td>- DATMF is always the Date of Manufacture, in the format YYYYMMDD</td>
<td></td>
</tr>
<tr>
<td>&lt;GTIN&gt;10012345337007&lt;/GTIN&gt;</td>
<td>and always 8 digits.</td>
<td></td>
</tr>
<tr>
<td>&lt;/objAttributes&gt;</td>
<td>- LOTNO is always the lot/batch number and must not exceed 20 characters.</td>
<td></td>
</tr>
<tr>
<td>&lt;/SAPExtension&gt;</td>
<td>- DATEX is always the Expiry date YYYYMMDD and always 8 digits.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global Trade Item number of the product commissioned/decommissioned or shipped,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>field is optional</td>
<td></td>
</tr>
<tr>
<td>&lt;bizTransactionList&gt;</td>
<td>Identifiers for business transactions populate the “why” dimension of EPCIS</td>
<td>M</td>
</tr>
<tr>
<td>&lt;bizTransaction</td>
<td>events. This includes the bizTransactionList field in all EPCIS event</td>
<td></td>
</tr>
<tr>
<td>type=&quot;urn:epcglobal:cbv:btt:po&quot;&gt;urn:epcglobal:cbv:bt:0095981000019:0600022733</td>
<td>types. The EPCIS standard provides for a business transaction to be</td>
<td></td>
</tr>
<tr>
<td>&lt;/bizTransaction&gt;</td>
<td>identified by a pair of identifiers, the “business transaction identifier”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(“BTT”) that names a business transaction that says what kind of business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>transaction the identifier denotes (purchase order, invoice, etc.).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The PO refers to Purchase Order: A document/message that specifies details</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for goods and services ordered under conditions agreed by the seller and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>buyer. Hence the purchase order number needs to be given.</td>
<td></td>
</tr>
<tr>
<td>&lt;/bizTransactionList&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.3.2.3 EPCIS Decommission Event

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;ObjectEvent&gt;</td>
<td>ObjectEvent: represents an event on one or more physical or digital objects. For commissioning and decommissioning of serialization items (item level) is always <strong>ObjectEvent</strong></td>
<td>M</td>
</tr>
<tr>
<td>&lt;eventTime&gt;2016-04-28T19:26:45Z&lt;/eventTime&gt;</td>
<td>EventTime: 2016-04-28T19:26:45Z is the time when the event was created. -06:00 is the time difference with UTC</td>
<td>M</td>
</tr>
<tr>
<td>&lt;epcList&gt;</td>
<td>Unique Identifier: URN format or GS1 element string format can be used. GS1-format using application identifiers for GTIN (01) and serial number (21) can be used.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;epc&gt;urn:epc:id:sgtin:0365250.026620.000000006731&lt;/epc&gt; or &lt;epc&gt;(01)10012345337007(21)000000002158&lt;/epc&gt;</td>
<td>Action type: says how an event relates to the lifecycle of the entity being described. For decommissioning event: always <strong>DELETE</strong></td>
<td>M</td>
</tr>
<tr>
<td>&lt;action&gt;DELETE&lt;/action&gt;</td>
<td>Business Step: identifies what was taking place from a business perspective at the time of the event. For decommissioning event bizstep is always <strong>decommissioning</strong></td>
<td>M</td>
</tr>
<tr>
<td>&lt;bizStep&gt;urn:epcglobal:cbv:bizstep:decommissioning&lt;/bizStep&gt;</td>
<td>Disposition: identifies the business condition subsequent to the event of the physical or digital objects named. For decommissioning event disposition is always <strong>inactive</strong></td>
<td>M</td>
</tr>
<tr>
<td>&lt;disposition&gt;urn:epcglobal:cbv:disp:inactive&lt;/disposition&gt;</td>
<td>See Page 26 from the above link for a list of dispositions.</td>
<td>M</td>
</tr>
</tbody>
</table>
### Definition of Interface between CMO and SAP Pharma Network for Serial Number Management

#### EPCIS Based Serialized Data Transmission

#### Content from examples

<table>
<thead>
<tr>
<th>Element</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;readPoint&gt;</code></td>
<td>The Read Point is the location where the event took place, for example, the CMO SGLN can be used.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;id&gt;</code></td>
<td>The ID is the identifier of the event.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;bizLocation&gt;</code></td>
<td>The Business Location is the location where the object(s) is now considered to reside until a subsequent event takes place, for example, a manufacturing site SGLN.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;SAPExtension&gt;</code></td>
<td>Each Object Event Should have only one SAPExtension Segment Within the SAP Extension,</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;objAttributes&gt;</code></td>
<td>- DATMF is always the Date of Manufacture, in the format YYYYMMDD and always 8 digits.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- LOTNO is always the lot/batch number and must not exceed 20 characters.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- DATEX is always the Expiry date YYYYMMDD and always 8 digits.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- REAS_CODE is only mandatory for decommissioning</td>
<td></td>
</tr>
</tbody>
</table>
4.3.3 EPCIS Body for Aggregation Events

Within the EPCIS body an event list can be defined consisting of object events, aggregation events and transaction events. Multiple events with different event type can be listed within the EPCIS body of the same message. This section covers Aggregation Events only. Transaction events are not covered in this version of the specification.

4.3.3.1 EPCIS Aggregation/Packing Event

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>M/O/R</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;AggregationEvent&gt;</code></td>
<td>Represents an event to one or more objects that are physically aggregated together (physically constrained in the same place at the same time, as when cases are aggregated to a pallet). Aggregation reflects the packaging hierarchy of for example, units in bundles, bundles in cases and cases on a pallet.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;eventTime&gt;</code> 2016-04-28T19:26:45Z &lt;/eventTime&gt;</td>
<td>2016-04-28T19:26:45Z is the time when the event was created. -06:00 is the time difference with UTC</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;eventTimeZoneOffset&gt;</code> -06:00 &lt;/eventTimeZoneOffset&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;parentID&gt;</code> urn:epc:id:sscc:9300055.0000000028 Or urn:epc:id:sgtin:0365250.026620.00000673 Or (01)1001234537007(21)000000002158 &lt;/parentID&gt;</td>
<td>The parent ID depicts the parent unit into which the children are being packed. The parent can be an SSCC or a EPC. Both can be defined via the URN format or GS1-format using application identifiers for GTIN (01) and serial number (21) or SSCC (00) respectively.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;childEPCs&gt;</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>&lt;epc&gt;</code> urn:epc:id:sgtin:0365250.026620.00000000673 &lt;/epc&gt; Or (01)1001234537007(21)000000002158 &lt;/epc&gt;</td>
<td>urn:epc:id:sgtin:0365250.026620.00000000673 represents the ID. ID can be with the GS1 application identifiers (01) and (21) (01)1001234537007(21)000000002158. *Note that the Pharma Network does not convert the urn format to GS1 and vice-versa. So the data that would be sent to the network shall remain the same</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;action&gt;</code> ADD &lt;/action&gt;</td>
<td>Action type: describes how an event relates to the lifecycle of the entity described</td>
<td>M</td>
</tr>
</tbody>
</table>
### 4.3.3.2 EPCIS Deaggregation/UnpackEvent

<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>M/O/R</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;AggregationEvent&gt;</code></td>
<td>Represents an event to one or more objects that are physically aggregated together (physically constrained in the same place at the same time, as when cases are aggregated to a pallet). Aggregation reflects the packaging hierarchy of, for example, units in bundles, bundles in cases and cases on a pallet.</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;eventTime&gt;</code></td>
<td>2016-04-28T19:26:45Z is the time when the event was created. -06:00 is the time difference with UTC</td>
<td>M</td>
</tr>
<tr>
<td><code>&lt;parentID&gt;</code></td>
<td>The parent ID depicts the parent unit into which the children are being packed. The parent can be an SSCC or a EPC. Both can be defined via the URN format or GS1-format using application identifiers for GTIN (01) and serial number (21) or SSCC (00) respectively.</td>
<td>M</td>
</tr>
</tbody>
</table>

**Example:**

- For packing it is always **ADD**
- **Business Step:** identifies what was taking place from a business perspective at the time of the event.
- For packaging, for example, an aggregation event **ADD** use **packing**.

**M/O/R**

- **M**
- **O**
- **R**

**Content from examples**

- `<bizStep>urn:epcglobal:cbv:bizstep:packing</bizStep>`
- `<readPoint>`
  - `<id>urn:epc:id:sgln:053755.00000.0</id>`
- `<bizLocation>`
  - `<id>urn:epc:id:sgln:053755.00000.0</id>`
<table>
<thead>
<tr>
<th>Content from examples</th>
<th>Explanation</th>
<th>M/O/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>(01)1001234537007(21)000000002158</td>
<td>urn:epc:id:sgtin:0365250.026620.000000006731 represents the ID. ID can be with the GS1 application identifiers (01) and (21) (01)1001234537007(21)000000002158. *Note that the Pharma Network does not convert the urn format to GS1 and vise-versa. So the data that would be sent to the network shall remain the same.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;childEPCs&gt;</td>
<td>Action type: describes how an event relates to the lifecycle of the entity described • For unpacking it is always DELETE</td>
<td>M</td>
</tr>
<tr>
<td>&lt;epc&gt;urn:epc:id:sgtin:0365250.026620.000000006731&lt;/epc&gt; Or &lt;epc&gt;(01)1001234537007(21)000000002158&lt;/epc&gt; &lt;/childEPCs&gt;</td>
<td>Business Step: identifies what was taking place from a business perspective at the time of the event. • For unpacking, for example, an aggregation event DELETE use unpacking.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;action&gt;DELETE&lt;/action&gt;</td>
<td>The Read Point is the location where the event took place, for example, the CMO SGLN can be used.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;bizStep&gt;urn:epcglobal:cbv:bizstep:unpacking&lt;/bizStep&gt;</td>
<td>The business Location is the location where the object(s) now resides until a subsequent event takes place, for example a manufacturing site SGLN.</td>
<td>M</td>
</tr>
<tr>
<td>&lt;readPoint&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;id&gt;urn:epc:id:sgln:0353755.00000.0&lt;/id&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;/readPoint&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;bizLocation&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;id&gt;urn:epc:id:sgln:0353755.00000.0&lt;/id&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;/bizLocation&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.4 Message Specifications – Important Considerations

This section describes important message format considerations for CMOs.

4.4.1 Header Information: Identifiers for Sender and Receiver

EPCIS Standard Business Document Header is used for the Sender/Receiver Identifier.

The receiver ID identifies the MAH. See the MAH specific supplement.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z" schemaVersion="1.1"
xmlns:epcis="urn:epcglobal:epcis:xsd:1" xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
  <EPCISHeader>
    <n1:StandardBusinessDocumentHeader
      <n1:HeaderVersion>1.0</n1:HeaderVersion>
      <n1:Sender>
        <n1:Identifier Authority="SGLN">1234567890123</n1:Identifier>
      </n1:Sender>
      <n1:Receiver>
        <n1:Identifier Authority="SGLN">7612790098765</n1:Identifier>
      </n1:Receiver>
      <n1:DocumentIdentification>
        <n1:Standard>EPCglobal</n1:Standard>
        <n1:TypeVersion>1.0</n1:TypeVersion>
        <n1:InstanceIdentifier>005056BA6ACA1ED5B0E9C0665D4063C1</n1:InstanceIdentifier>
        <n1:Type>Events</n1:Type>
        <n1:CreationDateAndTime>2016-01-25T10:25:53.940923Z</n1:CreationDateAndTime>
      </n1:DocumentIdentification>
    </n1:StandardBusinessDocumentHeader>
  </EPCISHeader>
</epcis:EPCISDocument>
```
4.4.2 ADD for Commissioning Event

The Object Event with an action “ADD” indicates the commissioning event. All <epc> under the ADD event are taken as items for commissioning. The action is mandatory. An example follows for an Object Event with Action “ADD” and <bizStep> commissioning and <disposition> active.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:23Z"
schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
</epcis:EPCISDocument>
```
4.4.3 **DELETE Decommissioning Event**

In the case where the CMO destroys a unit or removes it, for example, for sampling before shipping, a corresponding decommissioning event must be posted. An MAH expects the message to cover the serialization data for what is shipped. An example follows for an Object Event with Action “DELETE” and `<bizStep>` decommissioning and `<disposition>` inactive.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z"
schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
<EPCISHeader>
<n1:StandardBusinessDocumentHeader
<n1:HeaderValue>1.0</n1:HeaderValue>
<n1:Sender>
```
<n1:Identifier Authority="GLN">XXXXXXXXXXXXXXX</n1:Identifier>
</n1:Sender>

<n1:Receiver>
<n1:Identifier Authority="GLN">XXXXXXXXXXXXXXX</n1:Identifier>
</n1:Receiver>

<n1:DocumentIdentification>
<n1:Standard>EPCglobal</n1:Standard>
<n1:TypeVersion>1.0</n1:TypeVersion>
<n1:InstanceIdentifier>005056BA6ACA1ED5B0E9C0665D4063C1</n1:InstanceIdentifier>
</n1:DocumentIdentification>

<n1:Typ3>Events</n1:Type>
<n1:CreationDateAndTime>2016-01-25T10:25:53Z</n1:CreationDateAndTime>

<n1:StandardBusinessDocumentHeader>
</EPCISHeader>

<EPCISBody>
<EventList>
<ObjectEvent>
<eventTime>2016-08-11T16:44:23Z</eventTime>
<eventTimeZoneOffset>+01:00</eventTimeZoneOffset>
<epcList>
<epc>urn:epc:id:sgtin:030781.0572010.15100100000042</epc>
<epc>urn:epc:id:sgtin:030781.0572010.15100100000043</epc>
</epcList>
&action>DELETE</action>
<bizStep>urn:epcglobal:cbv:bizstep:decommissioning</bizStep>
<disposition>urn:epcglobal:cbv:disp:inactive</disposition>
<brreadPoint>
</brreadPoint>
<br.bizLocation>
</br.bizLocation>
<br>SAPExtension>
<br$objAttributes>
<br>DATMF>20160621</br>DATMF>
<br>LOTNO>DSAD</br>LOTNO>
<br>DATEX>20170621</br>DATEX>
<br>REAS_CODE>DEFECT</br>REAS_CODE>
</br$objAttributes>
</SAPExtension>
</ObjectEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
4.4.4 OBSERVE for Shipping Event

Sample messages for OBSERVE Shipping Event:

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z" schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
<EPCISHeader>
<n1:StandardBusinessDocumentHeader
<n1:HeaderVersion>1.0</n1:HeaderVersion>
<n1:Sender>
<n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
</n1:Sender>
<n1:Receiver>
<n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
</n1:Receiver>
<n1:DocumentIdentification>
<n1:Standard>EPCglobal</n1:Standard>
<n1:TypeVersion>1.0</n1:TypeVersion>
<n1:InstanceIdentifier>005056BA6ACA1ED5B0E9C0665D4063C1
</n1:InstanceIdentifier>
<n1:Type>Events</n1:Type>
<n1:CreationDateAndTime>2016-01-25T10:25:53Z
</n1:CreationDateAndTime>
</n1:DocumentIdentification>
</n1:StandardBusinessDocumentHeader>
</EPCISHeader>
<EPCISBody>
<EventList>
<ObjectEvent>
<eventTime>2016-12-09T13:45:16Z</eventTime>
<eventTimeZoneOffset>-05:00</eventTimeZoneOffset>
<epcList>
<epc>urn:epc:id:sscc:030123.00000001399</epc>
</epcList>
</ObjectEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
```
<disposition>urn:epcglobal:cbv:disp:in_transit</disposition>
<readPoint>
{id>urn:epc:id:sgln:030123.000001.0</id>
</readPoint>
<bizLocation>
{id>urn:epc:id:sgln:030123.000001.0</id>
</bizLocation>
<bizTransactionList>
</bizTransactionList>
</ObjectEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
4.4.5 Packing for Aggregation Event

Sample messages for a packing Aggregation Event:

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z"
schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
    <EPCISHeader>
        <n1:StandardBusinessDocumentHeader
            <n1:HeaderVersion>1.0</n1:HeaderVersion>
            <n1:Sender>
                <n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
            </n1:Sender>
            <n1:Receiver>
                <n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
            </n1:Receiver>
            <n1:DocumentIdentification>
                <n1:Standard>EPCglobal</n1:Standard>
                <n1:TypeVersion>1.0</n1:TypeVersion>
                <n1:InstanceIdentifier>005056BA6AC01ED5B0E9C0665D4063C1</n1:InstanceIdentifier>
                <n1:Type>Events</n1:Type>
                <n1:CreationDateAndTime>2016-01-25T10:25:53Z</n1:CreationDateAndTime>
            </n1:DocumentIdentification>
        </n1:StandardBusinessDocumentHeader>
    </EPCISHeader>
    <EPCISBody>
        <EventList>
            <AggregationEvent>
                <eventTime>2014-05-07T16:05:10Z</eventTime>
                <eventTimeZoneOffset>-04:00</eventTimeZoneOffset>
                <parentID>urn:epc:id:sscc:030143.0000006433</parentID>
                <childEPCs>
                    <epc>urn:epc:id:sgtin:030781.0572010.1510010000042</epc>
                    <epc>urn:epc:id:sgtin:030781.0572010.1510010000043</epc>
                    <epc>urn:epc:id:sgtin:030781.0572010.1510010000044</epc>
            </AggregationEvent>
        </EventList>
    </EPCISBody>
</epcis:EPCISDocument>
```
<childEPCs>
  <action>ADD</action>
  <bizStep>urn:epcglobal:cbv:bizstep:packing</bizStep>
  <bizLocation>
    <id>urn:epc:id:sgln:0012345.00003.0</id>
  </bizLocation>
  <readPoint>
    <id>urn:epc:id:sgln:012349.111111.0</id>
  </readPoint>
</AggregationEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
### 4.4.6 Unpacking for Deaggregation Event

Sample messages for an Unpacking Deaggregation Event:

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z"
schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
<EPCISHeader>
<n1:StandardBusinessDocumentHeader
<n1:HeaderVersion>1.0</n1:HeaderVersion>
<n1:Sender>
<n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
</n1:Sender>
<n1:Receiver>
<n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
</n1:Receiver>
<n1:DocumentIdentification>
<n1:Standard>EPCglobal</n1:Standard>
<n1:TypeVersion>1.0</n1:TypeVersion>
<n1:InstanceIdentifier>005056BA6ACA1ED5B0E9C0665D4063C1</n1:InstanceIdentifier>
<n1:Type>Events</n1:Type>
<n1:CreationDateAndTime>2016-01-25T0:25:53Z</n1:CreationDateAndTime>
</n1:DocumentIdentification>
</n1:StandardBusinessDocumentHeader>
</EPCISHeader>
<EPCISBody>
<EventList>
<AggregationEvent>
<eventTime>2014-05-13T17:40:10Z</eventTime>
<eventTimeZoneOffset>05:00</eventTimeZoneOffset>
<parentID>urn:epc:id:sscc:030143.00000006433</parentID>
<childEPCs>
<epc>urn:epc:id:sgtin:1234567.009005.100000000048</epc>
</childEPCs>
</AggregationEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
```
<bizStep>urn:epcglobal:cbv:bizstep:unpacking</bizStep>
<bizLocation>
<id>urn:epc:id:sgln: 0123491.00001.0</id>
</bizLocation>
=readPoint>
<id>urn:epc:id:sgln: 0123491.00001.0</id>
</readPoint>
</AggregationEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
4.4.7 Event Time

The event time (commissioning event time) is made available on the EPCIS message. The eventTime indicates when the object event happened. The eventTimeZoneOffset indicates that the event happened in a time zone with +01:00h time difference to UTC.

<ObjectEvent>
  <eventTime>2016-08-11T16:44:23.3666130Z</eventTime>
  <eventTimeZoneOffset>+01:00</eventTimeZoneOffset>
</ObjectEvent>
4.4.8 SAP Extension

SAP Extension is used to define the following:

<table>
<thead>
<tr>
<th>Element</th>
<th>Tag</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture Date</td>
<td>&lt;DATMF&gt;</td>
<td>20160101</td>
</tr>
<tr>
<td>Batch/Lot No</td>
<td>&lt;LOTNO&gt;</td>
<td>OWN200801</td>
</tr>
<tr>
<td>Expiry Date</td>
<td>&lt;DATEX&gt;</td>
<td>20170811</td>
</tr>
<tr>
<td>Reason Code</td>
<td>&lt;REAS_CODE&gt;</td>
<td>DEFECT</td>
</tr>
<tr>
<td>Global Transfer Item Number</td>
<td>&lt;GTIN&gt;</td>
<td>67890791391123</td>
</tr>
</tbody>
</table>

The SAP Extension structure should contain the elements in the above table, as follows:

```xml
<SAPExtension>
  <objAttributes>
    <DATMF>20160101</DATMF>
    <LOTNO>OWN200801</LOTNO>
    <DATEX>20170811</DATEX>
    <REAS_CODE>DEFECT</REAS_CODE>
    <GTIN>67890791391123</GTIN>
  </objAttributes>
</SAPExtension>
```

Note

Each Object Event Should have only one SAPExtension Segment

A CMO must send each commissioning file with homogeneous batch data. Homogeneous batch data means that each commissioning file contains the serialized items that have the same Batch/Lot No.
4.4.9 Container Commissioning

A container commissioning example follows.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<epcis:EPCISDocument creationDate="2016-08-11T16:44:24Z"
schemaVersion="1.1" xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:gs1ushc="http://epcis.gs1us.org/hc/ns"
    <EPCISHeader>
        <n1:StandardBusinessDocumentHeader
            <n1:HeaderVersion>1.0</n1:HeaderVersion>
            <n1:Sender>
                <n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
            </n1:Sender>
            <n1:Receiver>
                <n1:Identifier Authority="GLN">XXXXXXXXXXXXX</n1:Identifier>
            </n1:Receiver>
            <n1:DocumentIdentification>
                <n1:Standard>EPCglobal</n1:Standard>
                <n1:TypeVersion>1.0</n1:TypeVersion>
                <n1:InstanceIdentifier>005056BA6ACA1ED5B0E9C0665D4063C1</n1:InstanceIdentifier>
                <n1:Type>Events</n1:Type>
                <n1:CreationDateAndTime>2016-01-25T10:25:53Z</n1:CreationDateAndTime>
            </n1:DocumentIdentification>
        </n1:StandardBusinessDocumentHeader>

        <EPCISBody>
            <EventList>
                <ObjectEvent>
                    <eventTime>2014-05-05T14:25:39Z</eventTime>
                    <eventTimeZoneOffset>-05:00</eventTimeZoneOffset>
                    <epcList>
                        <epc>urn:epc:id:sscc:0350458.0000041128</epc>
                        <epc>urn:epc:id:sscc:0350458.0000041128</epc>
                        <epc>urn:epc:id:sscc:0350458.0000041128</epc>
                    </epcList>
                    <action>ADD</action>
                </ObjectEvent>
            </EventList>
        </EPCISBody>
    </EPCISHeader>
</epcis:EPCISDocument>
```
<bizStep>urn:epcglobal:cbv: bizstep: commissioning</bizStep>
<disposition>urn:epcglobal:cbv:disp:active</disposition>
=readPoint>
=id>urn:epc:id:sgln:456724.000001.0</id>
</readPoint>
<bizLocation>
=id>urn:epc:id:sgln:456724.000001.0</id>
</bizLocation>
</ObjectEvent>
</EventList>
</EPCISBody>
</epcis:EPCISDocument>
5 File Attachments

See Attachments for the files in this section.

5.1 Asynchronous Serial Number Request XSD

- Async_Serial_Number_Request_XSD_V3.2

5.1.1 Asynchronous Sample XML Serial Number Request Range

- Async_SAP_SerialNumber_Request_Range_CHINA_ANIMAL_V3.2
- Async_SAP_SerialNumber_Request_Range_CHINA_HUMAN_V3.2
- Async_SAP_SerialNumber_Request_Range_GTIN_V3.2
- Async_SAP_SerialNumber_Request_Range_SSCC_V3.2

5.1.2 Asynchronous Sample XML Serial Number Response Range

- Async_SAP_SerialNumber_Response_Range_CHINA_ANIMAL_V3.2
- Async_SAP_SerialNumber_Response_Range_CHINA_HUMAN_V3.2
- Async_SAP_SerialNumber_Response_Range_GTIN_V3.2
- Async_SAP_SerialNumber_Response_Range_SSCC_V3.2

5.2 Asynchronous Serial Number Response XSD

- Async_Serial_Number_Response_XSD_V3.2
5.2.1 Asynchronous Sample XML Serial Number Request List

- Async_SAP_Serialnumber_Request_List_CHINA_ANIMAL_V3.2
- Async_SAP_Serialnumber_Request_List_CHINA_HUMAN_V3.2
- Async_SAP_Serialnumber_Request_List_GTIN_V3.2
- Async_SAP_Serialnumber_Request_List_SSCC_V3.2

5.2.2 Asynchronous Sample XML Serial Number Response List

- Async_SAP_Serialnumber_Response_List_CHINA_ANIMAL_V3.2
- Async_SAP_Serialnumber_Response_List_CHINA_HUMAN_V3.2
- Async_SAP_Serialnumber_Response_List_GTIN_V3.2
- Async_SAP_Serialnumber_Response_List_SSCC_V3.2

5.3 Synchronous Serial Number Request and Response WSDL

- Sync_SI_SerialNumberRequestResponse_V3.2

5.3.1 Synchronous Sample XML Serial Number Request Range

- Sync_SAP_SerialNumber_Request_Range_CHINA_ANIMAL_V3.2
- Sync_SAP_SerialNumber_Request_Range_CHINA_HUMAN_V3.2
- Sync_SAP_SerialNumber_Request_Range_GTIN_V3.2
- Sync_SAP_SerialNumber_Request_Range_SSCC_V3.2

5.3.2 Synchronous Sample XML Serial Number Response Range

- Sync_SAP_SerialNumber_Response_Range_CHINA_ANIMAL_3.2
- Sync_SAP_SerialNumber_Response_Range_CHINA_HUMAN_3.2
- Sync_SAP_SerialNumber_Response_Range_GTIN_3.2
- Sync_SAP_SerialNumber_Response_Range_SSCC_3.2
5.3.3 **Synchronous Sample XML Serial Number Request List**

- Sync_SAP_SerialNumber_request_List_CHINA_ANIMAL_V3.2
- Sync_SAP_SerialNumber_request_List_CHINA_HUMAN_V3.2
- Sync_SAP_SerialNumber_request_List_GTIN_V3.2
- Sync_SAP_SerialNumber_request_List_SSCC_V3.2

5.3.4 **Synchronous Sample XML Serial Number Response List**

- Sync_SAP_SerialNumber_Response_List_CHINA_ANIMAL_V3.2
- Sync_SAP_SerialNumber_Response_List_CHINA_HUMAN_V3.2
- Sync_SAP_SerialNumber_Response_List_GTIN_V3.2
- Sync_SAP_SerialNumber_Response_List_SSCC_V3.2

5.4 **EPCIS 1.1 XSD**

- Sync_EPCIS_1.1_03042017_V3.2

5.4.1 **Sample EPCIS XML Message**

- SAP_Commission_Container_V3.2
- SAP_Decommission_V3.2
- SAP_Unpacking_V3.2
- SAP_EPCIS_Commission_Packing_Shipping_V3.2

5.5 **References**

EPCIS
6 Important Disclaimers and Legal Information

6.1 Coding Samples

Any software coding and/or code lines/strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP will not be liable for errors or damages caused by the usage of the Code, unless damages were caused by SAP intentionally or by SAP’s gross negligence.

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