Product Track SOAP API Guide

For Synchronous Messages

Version 2024.4 | Revision 01

tracelink | Help

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Getting Started

Overview

Integrate existing enterprise systems with TraceLink Product Track messages.

This document is intended for both TraceLink Customers and their Trade Partners. Whether a TraceLink Customer or Partner, information in this guide is specifically directed at IT professionals who are tasked with setting up system integration with the Product Track Application.

TraceLink facilitates data exchange between your existing operating system and TraceLink through a Simple Object Access Protocol (SOAP) application programming interface (API). This guide contains the SOAP integration information for enabling communication between your system and TraceLink. Once integrated, operations such as record maintenance and data queries can be performed synchronously. This communication between your system and TraceLink is conducted via Hypertext Transfer Protocol (HTTP) in Extensible Markup Language (XML).

This guide specifically outlines the call requirements for the Product Track application, which is a Transaction History management system that provides end-to-end compliance with the US Drug Supply Chain Security Act (DSCSA) regarding pharmaceutical tracing and verification regulations. Product Track offers support for unique Pharmaceutical Manufacturer, Repackager, Wholesale Distributor, and Dispenser requirements.

Getting Started with SOAP

The following information must be obtained prior to implementation:

ⓘ Development platform installation is required prior to integration.

User Authentication and Identification

A valid TraceLink Network username and password for HTTP basic authentication validation is needed, as well as a user and app look-up to ensure proper validation of a given request.

⊘ To enforce strong security in the TraceLink Life Sciences Cloud, username:password in plain text is not accepted. To successfully send SOAP calls to TraceLink, Base64 encoding must be used for the username:password and sent in the HTTP Authorization header to conform with the IETF basic authorization standard (https://tools.ietf.org/html/rfc7617).

An HTTP 401 Unauthorized client error status response code occurs in the following scenarios:

- A non-Base64 encoded username:password is sent in the HTTP Authorization header.

- A Base64-encoded or plain text username:password is sent in the Username header.

- The Username header is sent.

For Product Track

Product Track requires basic authentication.

ⓘ TraceLink uses the pickLocation from the given request in a similar nature to how LocationType and LocationValue are used for *Serialized Operations Manager*.

For Serial Number Exchange

Serial Number Exchange requires basic authentication.

For Serialized Operations Manager

Serialized Operations Manager requires basic authentication. TraceLink also allows the caller to pass a username (possibly a different username from the one used to authenticate), a location type, and location value for the purpose of executing a *Serialized*

Operations Manager call. If these values are not provided, TraceLink executes the call at the company level.

Header	Usage	Sample Value	Required
User	Use to identify a user making the request (for Audit purposes).	User email or GUID. Example: snxpubco1-mem1@tracelink.com	No. Value defaults to user used in authentication (basic authentication).
LocationType	Use to identify location type executing the call.	SGLN	No. If excluded, call is made at the Company level.
LocationValue	Use to identify location value executing the call.	12345.678.10	No, unless LocationType is specified.

For Compliance Reporting

Compliance Reporting requires basic authentication.

WSDL Access

Access to the Web Services Description Language (WSDL), where the XSDs reside along with other functionality information, is needed for integration. The URL for the WSDL contains the name of the TraceLink environment being accessed, followed by a specified app path. The following are itest WSDL examples by application:

- *Product Track*: https://itestapi.tracelink.com/soap/producttrack?wsdl

- *Serial Number Exchange*: https://itestapi.tracelink.com/soap/snx/snrequest?wsdl

- *Serialized Operations Manager*: https://itestapi.tracelink.com/soap/som?wsdl

> ⓘ Ensure authentication success before attempting to access the WSDL.

SOAP API Call Limits

Before configuring data, query limitations should be noted. The table below outlines the query limitation details for TraceLink SOAP messages:

API Call	Limit	Description of Limit
Serial Number Exchange Messages		
serialNumberRequestResponse	500,000	The maximum quantity of serial numbers that can be requested is 500,000.

API Call	Limit	Description of Limit
Serialized Operations Manager Messages		
Commission	50	The maximum amount of serial numbers that can be commissioned is 50.
Decommission	500	The maximum amount of serial numbers that can be decommissioned is 500.
GetSerialNumberHierarchy	100000	A maximum of 100,000 serial numbers can be returned with a GetSerialNumberHierarchy request.
SetSerialNumberStatus	500	The serial number status can be set for a maximum of 500 serial numbers.

Read Me

It is recommended that the following topics are read before proceeding through this guide:

- How Integration Works

- How To Use this Guide

How Integration Works

TraceLink communicates with certain operating systems or programs of choice through SOAP (XML-based messaging protocol) integration. As indicated in the diagram below, the TraceLink applications that use the SOAP API are *Serialized Operations Manager*, *Serial Number Exchange*, and *Product Track*.
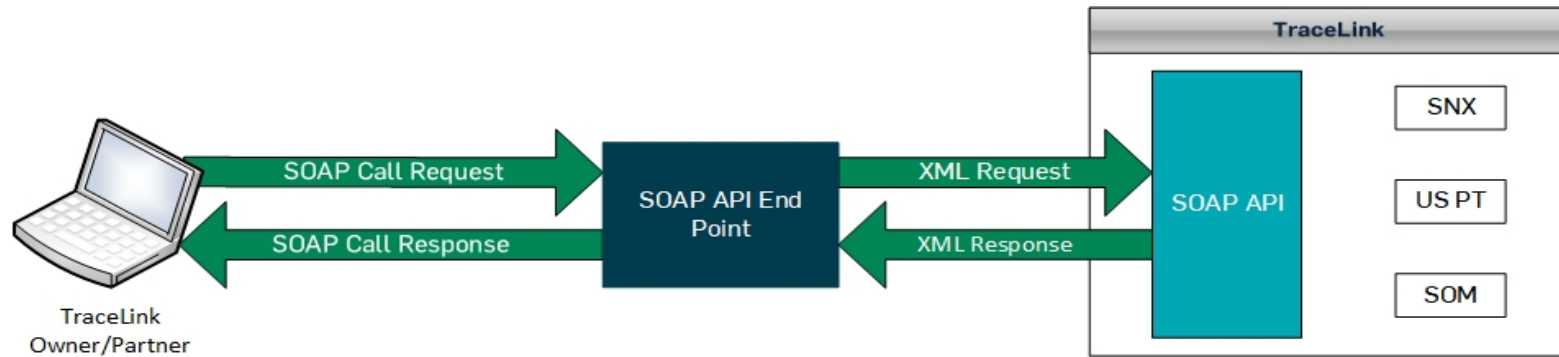
For example, if an internal system needs serial numbers, the SerialNumberRequest SOAP call is sent from that internal system to TraceLink's SOAP API endpoint, which is the main request-response communication hub. The endpoint simply extracts the XML from the SerialNumberRequest call and passes it to the TraceLink platform (the *Serial Number Exchange* app, in this example). *Serial Number Exchange* waits for the XML response containing the requested serial numbers, sends the serial number data back through the endpoint where the SOAP response generates, and sends the response back to the original system. This response also confirms whether the operation is successful or if it fails.

See below for an XML Serial Numbers Request and Response example:

Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:urn="urn:tracelink:soap">
  <soapenv:Header/>
  <soapenv:Body>
    <urn:serialNumbersRequest>
      <SendingSystem>LineSys11</SendingSystem>
      <ReceivingSystem>0060354701201</ReceivingSystem>
    <IdType>CN_SER</IdType>
      <EncodingType>CN_EDMC</EncodingType>
      <Size>10</Size>
      <ObjectKey>
        <Name>CN_SUBTYPE_LEVEL_RATIO</Name>
        <Value>1008721001|3|1:5:50></Value>
      </ObjectKey>
      <ReferenceDocuments>
```

```
        <PONumber>10043</PONumber>
        <POLine>2</POLine>
        <WorkOrderNumber>10043-001<WorkOrderNumber>
        <ReferenceIdentifier>917902db-1307-4182-ad3d-29eca2d699ae</ReferenceIdentifier>
    </ReferenceDocuments>
  </urn:serialNumbersRequest>
 </soapenv:Body>
</soapenv:Envelope>
```

Response

```
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
    <S:Body>
        <ns2:serialNumbersRequestResponse xmlns:ns2="urn:tracelink:soap">
            <SNResponse>
                <ReceivingSystem>LineSys11</ReceivingSystem>
                <SendingSystem>0060354701201</SendingSystem>
                <ActionCode>C</ActionCode>
                <EncodingType>CN_EDMC</EncodingType>
                <IDType>CN_SER</IDType>
                <ObjectKey>
                    <Name>CN_SUBTYPE_LEVEL_RATIO</Name>
                    <Value>1008721001|3|1:5:50</Value>
                </ObjectKey>
                <ReferenceDocuments>
                    <PONumber>10043<PONumber>
                    <POLine>2</POLine>
                    <WorkOrderNumber>10043-001<WorkOrderNumber>
                    <ReferenceIdentifier>917902db-1307-4182-ad3d-29eca2d699ae</ReferenceIdentifier>
                </ReferenceDocuments>
                <RandomizedNumberList>
                    <SerialNo>88102310003224703914</SerialNo>
                    <SerialNo>88102310003224711129</SerialNo>
                    <SerialNo>88102310003224729784</SerialNo>
                    <SerialNo>88102310003224737489</SerialNo>
                    <SerialNo>88102310003224745328</SerialNo>
                    <SerialNo>88102310003224754037</SerialNo>
                    <SerialNo>88102310003224765706</SerialNo>
                    <SerialNo>88102310003224772104</SerialNo>
                    <SerialNo>88102310003224780113</SerialNo>
                    <SerialNo>88102310003224790304</SerialNo>
                </RandomizedNumberList>
            </SNResponse>
        </ns2:serialNumbersRequestResponse>
```

```
      </S:Body>
   </S:Envelope>
```

How To Use this Guide

There are three main sections for each SOAP message that are pertinent to integration (available from the "[App] Messages" side menu):

1. Guidelines Table

2. Errors Table

3. Message Examples

Guidelines Table

A *Guidelines Table* contains message requirements for both the message request and response:

Data Element				Occurs	Format	Length	Enums	Req	Description
soapenv:Envelope				1...1	-	-	-	M	Soap envelope.
	soapenv:Header			0...1	-	-	-	O	Not used by TraceLink, therefore the element can be null or omitted.
	soapenv:Body			1...1	-	-	-	M	Soap message body.
		urn:serialNumbersRequest		1...1	-	-	-	M	The serialNumbersRequest message payload.
			SendingSystem	0...1	String	1/*	-	M	Identifier for site manager system requesting serial numbers. This value must match the configured value for the requesting system in the *Serial Number Exchange* configuration. This value will be repeated in the response message as the ReceivingSystem. [1]
			ReceivingSystem	0...1	String	1/*	-	M	Identifier for target service that will respond to serial number requests. This value must match the configured value for the app in the *Serial Number Manager* configuration. This value will be repeated in the response message as the SendingSystem. [2]
			IdType	0...1	String	1/*	IdType	O	Specifies the type of serial numbers requested. [3]
			EncodingType	0...1	String	1/*	EncodingType	M	Specifies the encoding format for the type of serial numbers requested. SGTIN is used for both GTIN-14 and NTIN numbers. [4]

[1] SYSTEM-100001
[2] 0060354701201
[3] GS1_SER CN_SER
[4] SGTIN SSCC CN_EDMC

The following columns are included in the Guidelines Table:

Data Element

This column indicates the source/element name included in the API call.

> ⓘ Hovering over a linked footnote in the Data Element column displays sample data for that element. When using the printed version of the document, simply refer to the matching footnote at the bottom of the screen.

Occurs

This column indicates the minimum and maximum amount of times that the particular element can occur within the API call (note that repeating elements are indicated in the "Description" column). In the example above, the urn:serialNumbersRequest element must occur a minimum of once and can only occur up to once for the maximum occurrence as indicated by the "1...1". If "*" is indicated, the element has an unbounded maximum occurrence.

Format

This column indicates the element's data format type (such as String, Integer, Boolean, Date, or Time).

Length

This column indicates the length of the element. For the SendingSystem example element above, the value must have at least one character, but does not have a maximum restriction (therefore can be any length). However, be mindful of the description column, as further criteria may be indicated that impacts the field length (such as serial number formatting).

Enums

Certain elements are restricted to a list of specified enumeration values. A link to the enumerations and their definitions is provided in this column. For example, *EncodingType* links to the available enumerators.

Req

Each table indicates if the field is required for the message. Use the key below to interpret the information in this column:

- **C = Conditionally:** A "C" indicates that this element is contingent on other factors. For example, an element could be required for the US but not for any other country. Therefore the element's requirement is contingent on location. Another conditional

scenario is that an element may be mandatory, but only if another related parent element is populated.

> ⓘ If indicated as "C", read the "Description" column as conditional values may still be mandatory in certain cases.

- **M** = **Mandatory:** An "M" indicates the element must be included in the message.

- **O** = **Optional:** An "O" indicates that an element may be included in the message but is not required.

Description

Any important notes regarding this section of the API call are included here (required countries, formatting notes, etc.) along with a brief description of the element/attribute.

Errors Table

The *Errors Table* displays all potential errors that may be encountered for a certain message. The Error Code and the actual error message (Error Message) are provided to assist in troubleshooting:

Error Code	Error Message
500	CN-Subtype identifier [CN-Subtype] is not in the permitted serial number request list.
500	Encoding type requested is not correct type for product [ObjectKey/Name] [ObjectKey/Value] and service [Serial Number Exchange Service Identifier].
500	Filter value [FilterValue] or Company Prefix [CompanyPrefix ObjectKey] is not valid.
500	GTIN-14 identifier [GTIN-14] is not in the permitted serial number request list.
500	More than one Code Level found for [CN_SUBTYPE_LEVEL_RATIO]. PackagingRatio must be specified to disambiguate request.
500	NTIN identifier [NTIN Value] is not in the permitted serial number request list.
500	Product ID [ObjectKey/Name] [ObjectKey/Value] is not valid for products in service [Serial Number Exchange ServiceID].
500	Quantity requested for [Object Identifier] exceeds the maximum quantity allowed: [Maximum Quantity for Serial Number Requests].

Message Examples

The *Message Examples* section is where fully populated message examples for both the request and response are located. Select the drop-down option associated with the example you wish to view and the example displays:

ⓘ Line numbers and syntax highlights are only available in the online version of the guide.

Example

The following is a fully populated EDMC Case List Request example:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:urn="urn:tracelink:soap">
  <soapenv:Header/>
  <soapenv:Body>
    <urn:serialNumbersRequest>
      <SendingSystem>LineSys11</SendingSystem>
      <ReceivingSystem>0060354701201</ReceivingSystem>
     <IdType>CN_SER</IdType>
      <EncodingType>CN_EDMC</EncodingType>
      <Size>10</Size>
      <ObjectKey>
        <Name>CN_SUBTYPE_LEVEL_RATIO</Name>
        <Value>1008721001|3|1:5:50></Value>
      </ObjectKey>
     <ReferenceDocuments>
          <PONumber>10043</PONumber>
          <POLine>2</POLine>
          <WorkOrderNumber>10043-001<WorkOrderNumber>
          <ReferenceIdentifier>917902db-1307-4182-ad3d-29eca2d699ae</ReferenceIdentifier>
      </ReferenceDocuments>
    </urn:serialNumbersRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

RELEASE INFORMATION

What's New?

Release Trace & Trace Services Version 2024.4

Messages Updated in Version 2024.4:

No messages were updated in this release.

Messages Added in Version 2024.4:

No messages were added in this release.

Release Trace & Trace Services Version 2024.3

Messages Updated in Version 2024.3:

No messages were updated in this release.

Messages Added in Version 2024.3:

No messages were added in this release.

Release Trace & Trace Services Version 2024.2

Messages Updated in Version 2024.2:

No messages were updated in this release.

Messages Added in Version 2024.2:

No messages were added in this release.

Known Issues

Release Trace & Trace Services Version 2024.4

Known Issues in Version 2024.4:

There are no known issues in this release.

Use Cases

Pharmaceutical Manufacturer Use Cases

TraceLink Roles

TraceLink API Guides group messages by application. Each API Guide contains all messages available within that application. Your company's business type (e.g. CMO, Wholesale Distributor, 3PL) and role in the TraceLink Network (Owner or Partner[1]) determine which of these messages to develop (i.e. not all messages within this guide may fulfill your business or compliance needs).

See below to confirm which messages you should develop based on your role in the supply chain and/or the TraceLink Network.

> ⓘ Configure and exchange (send or receive) each message separately as a best practice.

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[1]See Glossary for details on Owners and Partners.

US Product Track Owners

TraceLink US Product Track PickShip Request/Response

Pharmaceutical Manufacturers use the PickShip Request to communicate the Transaction Information (TI), Transaction History (TH), and Transaction Statement (TS) to:

- Wholesale Distributors or Repackagers purchasing the product within the shipment.

- Another location receiving the product without a change of ownership (e.g. a warehouse-to-warehouse transfer).

TraceLink uses the PickShip Response to communicate the status of the Pharmaceutical Manufacturer's PickShip request.

Repackager Use Cases

TraceLink Roles

TraceLink API Guides group messages by application. Each API Guide contains all messages available within that application. Your company's business type (e.g. CMO, Wholesale Distributor, 3PL) and role in the TraceLink Network (Owner or Partner[1]) determine which of these messages to develop (i.e. not all messages within this guide may fulfill your business or compliance needs).

See below to confirm which messages you should develop based on your role in the supply chain and/or the TraceLink Network.

> ⓘ Configure and exchange (send or receive) each message separately as a best practice.

[1]See Glossary for details on Owners and Partners.

US Product Track Owners

TraceLink US Product Track PickShip Request/Response

Repackagers use the PickShip Request to communicate the Transaction Information (TI), Transaction History (TH), and Transaction Statement (TS) to:

- Wholesale Distributors purchasing the product within the shipment.

- Another location receiving the product without a change of ownership (e.g. a warehouse-to-warehouse transfer).

TraceLink uses the PickShip Response to communicate the status of the Repackager's PickShip request.

Wholesale Distributor Use Cases

TraceLink Roles

TraceLink API Guides group messages by application. Each API Guide contains all messages available within that application. Your company's business type (e.g. CMO, Wholesale Distributor, 3PL) and role in the TraceLink Network (Owner or Partner[1]) determine which of these messages to develop (i.e. not all messages within this guide may fulfill your business or compliance needs).

See below to confirm which messages you should develop based on your role in the supply chain and/or the TraceLink Network.

> ⓘ Configure and exchange (send or receive) each message separately as a best practice.

[1]See Glossary for details on Owners and Partners.

US Product Track Owners

TraceLink US Product Track PickShip Request/Response

Wholesale Distributors use the PickShip Request to communicate the Transaction Information (TI), Transaction History (TH), and Transaction Statement (TS) to:

- Other Wholesale Distributors or Repackagers purchasing the product within the shipment.

- Another location receiving the product without a change of ownership (e.g. a warehouse-to-warehouse transfer).

TraceLink uses the PickShip Response to communicate the status of the Wholesale Distributor's PickShip request.

Pick Ship Request Response Overview

The Product Track Pick Ship message is used by Wholesale Distributors and Repackagers. This message's purpose is communicating the details of a delivery and the products picked against a delivery for either a) a shipment of sold products for which a change of ownership has occurred or b) a shipment of an intra-company transfer of products, from one Product Track location to another, to transfer Transaction History access to the new location (e.g. warehouse-to-warehouse transfer). This call also sets a delivery to complete in order for TraceLink to initiate the processing of the delivery to generate outbound Transaction Histories.

ⓘ The SOAP PickShip interface is used in conjunction with the PickShip asynchronous message interface, which provides the remaining delivery information, business party information, and packing aggregation information that is required to generate an ASN.

Main Topics

- Pick Ship Request Guidelines

- Pick Ship Response Guidelines

- Pick Ship Request Response Errors

- Pick Ship Request Response Message Examples

Pick Ship Request Guidelines

See How to Use this Guide before reading the below information.

> ⓘ When sending an element in Date or DateTime format, a valid date must be given. "00" is not a valid day or month value and "0000" is not a valid year value.

The following data is sent in the request to TraceLink:

Data Element				Occurs	Format	Length	Enums	Req	Description
soapenv:Envelope				1...1	-	-	-	M	The SOAP envelope.
	soapenv:Header			0...1	-	-	-	O	Not used by TraceLink, therefore the element can be null or omitted.
	soapenv:Body			1...1	-	-	-	M	SOAP message body.
		urn:PickShip		1...1	-	-	-	M	The PickShip message payload.
			WorkList	0...1	-	-	-	O	The WorkList allows TraceLink to identify a message so the same call can be made repeatedly while producing the same result.
			WorkListID	1...1	String	0/*	-	M	A globally-unique value that groups related calls together (e.g. multiple calls within the same business message). A GUID is a good choice with which to populate this field.
			DeliveryId	1...1	String	1/*	-	M	Delivery document identification number.[1]

[1] 0080016047

Data Element				Occurs	Format	Length	Enums	Req	Description
									⚠ Delivery Document is mandatory.
			@type	1...1	String	1/*	ShipmentIDType	M	Type of shipment ID. Delivery document number tells system which delivery to update with pick or unpick quantities. Valid values include the Delivery Document.[1] ⚠ Delivery Document is mandatory.
		DeliveryType		1...1	String	1/*	DeliveryType	M	Indicates if delivery is for a transfer or sale. Each option triggers a different workflow in the system. Transaction History quantities available to different locations but no outbound TH message created.[2]
		infoExchangeID		0...1	String	0/*	-	N/A	The info exchange id of the field that triggered the request. Not used.
		DeliveryTransactionType		1...1	String	1/*	DeliveryType	M	This field indicates the type of delivery operation.
		PickLocation		0...1	String	0/*	-	C	Pick location. Warehouse location where product was picked. System then matches to Transaction Histories. Value

[1]DeliveryDocument
[2]Transfer

Data Element	Occurs	Format	Length	Enums	Req	Description

						1
						
						• DeliveryType = Purchase (Optional): Configured Product Track locations where items were picked. Transaction Histories matched against this location.
						
						   • If Product Track Service configured to use Locations to model facilities, populate this element with one of the configured location values.
						
						   • If Product Track Service not configured to use Locations, omit this data element.
						
						• DeliveryType = Transfer (Mandatory): PickLocation mandatory to represent the Product Track TransferFromLocation from which Transaction History quantities should be

[1]8888882028677

Data Element				Occurs	Format	Length	Enums	Req	Description
									decremented.
			@Value	1...1	String	1/*	SubscriberLocation	M	Type of pick location entered.[1]
		TransferToLocation		0...1	String	0/*	-	C	Transfer to location. Captures warehouse location to which the product is being transferred. System then assigns to Transaction Histories. Must match a configured Product Track location. Conditional value dependent on DeliveryType.[2] • DeliveryType = Purchase - Do not populate. • DeliveryType = Transfer (Required): Element represents Product Track TransferToLocation where Transaction History quantities need to be made available.
			@Value	1...1	String	1/*	SubscriberLocation	M	Type of pick location entered.[3]
		DeliveryCompleteFlag		1...1	Boolean	1/*	-	M	Delivery complete indicator. Flag determines how delivery is processed. Valid values:[4] • False - Delivery remains

---

[1]GLN
[2]8888882028677
[3]GLN
[4]false

Data Element					Occurs	Format	Length	Enums	Req	Description
										open. Transaction History quantities incrementally captured, verified for availability, and reserved against Delivery. Value will be false for Pick. • True - Completes delivery. System processes Transaction History. System requires both Delivery Document number and Delivery Complete flag set to true or false each time a pick/ship API call is sent. ⚠ Mandatory for Delivery Document ID only.
		PickShipTransaction			0...1	-	-	-	M	Header data for shipment.
			DeliveryIdentifiers		0...1	-	-	-	O	Ship document identification numbers group.
				DeliveryDocument	0...*	-	-	-	O	All other delivery and ship document ID's are optional. DeliveryDocument is NOT returned in this group.
					DeliveryDocumentId	1...1	String	1/*	-	M	Optional delivery and ship document IDs.[1]

---

[1] 0080016047

					Data Element		Occurs	Format	Length	Enums	Req	Description
						@type	1…1	String	1/*	ShipmentIDType	M	Type of optional shipment document ID except for Delivery document. Valid values:[1] • ShipmentNumber • BillOfLading • ExternalDelivery • GoodsReceiptIssue • TrackingNumber
					DocumentDate		0…1	Date	0/*	-	O	Date for the shipment document in XML date format YYYY-MM-DD.[2]
					DocumentTime		0…1	Time	0/*	-	O	Time for the shipment document in XML time format HH:MM:SS.[3]
				TransactionDate			1…1	Date	1/*	-	M	Transaction date.[4]
				ShipmentDate			0…1	Date	0/*	-	O	Shipment date if greater than 24 hours after transaction date. Also serves as EPCIS shipping event date/time. Must be in GMT format.[5]
				DSCSATransactionStatement			1…1	-	-	-	M	Transaction statement verifying compliance with DQSA.
					Affirmation		1…*	-	-	-	M	Transaction statement affirmation and customer text looping group.

[1]ShipmentNumber
[2]2014-06-06
[3]14:20:00
[4]2014-06-06
[5]2014-06-06

Data Element						Occurs	Format	Length	Enums	Req	Description
					TransactionStatementIndicator	1...1	Boolean	1/*	-	M	Transaction statement indicator.[1]
						@statement	1...1	String	1/*	TransactionStatement	M	Transaction statement. Tentative mapping until further clarification from FDA. Will accept whatever is sent by sender of transaction. Will only return an error if TransactionStatementIndicator is set to false.[2]
					TransactionStatementText	0...1	String	0/*	-	O	Customer provided transaction statement text. If provided, will be mapped to the outbound ASN. If not provided, TL will use default language for this field, one of the following statements:[3] - Seller has complied with each applicable subsection of FDCA Sec. 581(27)(A)-(G). - The entity transferring ownership is authorized as required under the Drug Supply Chain Security Act. - The entity transferring ownership received the product from a person that is authorized as required under

[1]true
[2]MeetsAllApplicableTSReqts
[3]Seller has complied with each applicable subsection of FDCA Sec. 581(27)(A)'"(G)

Data Element				Occurs	Format	Length	Enums	Req	Description
									the Drug Supply Chain Security Act. • The entity transferring ownership received transaction information and a transaction statement from the prior owner of the product, as required under section 582. • The entity transferring ownership did not knowingly ship a suspect or illegitimate product. • The entity transferring ownership had systems and processes in place to comply with verification requirements under section 582. • The entity transferring ownership did not knowingly provide false transaction information. • The entity transferring ownership did not knowingly alter the Transaction History.
			BusinessEntityDetails	1…1	-	-	-	M	All parties and shipping organizations and locations

Data Element					Occurs	Format	Length	Enums	Req	Description
										relevant to the shipment and delivery at the shipment header level. Accommodates the following partner address types: • Business address for transfer from party (Optional) • Shipping address for transfer from party (Mandatory) • Business address for transfer to party (Mandatory) • Shipping address for transfer to party (Mandatory) • Drop-ship recipient party (Optional)
				SenderInfo	1...1	-	-	-	M	Business and shipping address information of the supply chain partner from whom ownership is being transferred in the shipment.
					choice%1	1...1	Choice	-	-	M	Option 1 within choice%1 of SenderInfo NOT SUPPORTED. Option 2 within choice%1 of SenderInfo contains full FromBusinessPartyInfo data fields that will be populated by the customer in the interface.
					FromBusinessPartyLookupId	0...1	String	0/*	-	N/A	NOT SUPPORTED.
						@type	1...1	String	1/*	BusinessAddressIdLookup	N/A	NOT SUPPORTED.

Data Element						Occurs	Format	Length	Enums	Req	Description
					FromBusinessPartyInfo	0...1	String	1/*	-	C	Choice 2 for senderInfo choice%1 group. All mandatory fields must be filled in if this option is selected. ⚠ Mandatory if LookupId is not provided.
						BusinessId	1...*	String	1/*	-	M	This identifies the sending party who is transferring ownership of the product to the receiving party. Valid values:[1] • GLN = Global location number (Wal-Mart, RiteAid, Meijer) • DEA = Drug Enforcement Agency number (CVS, RiteAid, Meijer) • HIN = Health Industry Number (Wal-Mart, RiteAid, Meijer) • DUNS = Dun and Bradstreet ID (Wal-Mart, Walgreens, Publix, Meijer) • DUNS4 = DUNS+4 ID (Wal-Mart, Walgreens, Meijer) • COMPANYID = Company ID (Wal-Mart, Meijer)

[1]8888882028677

Data Element							Occurs	Format	Length	Enums	Req	Description
												• COMPANYSITEID = Company site ID (Wal-Mart, Walgreens, Meijer) • PARTNERCOMPANYID = Customer's internal supplier number (Wal-Mart, Walgreens
						@type	1...1	String	1/*	AddressIdQualifier	M	The type of the BusinessId identifier.[1] • For DQSA purposes, only GLN, DEA and HIN are allowed. • For X12 ASN purposes, DUNS, DUNS+4, COMPANYID, and COMPANYSITEID are also supported.
						BusinessInfo	0...1	-	-	-	O	Address details.
						BusinessName	1...1	String	1/*	-	M	The business name of the trading partner.[2]
						Name2	0...1	String	0/*	-	O	Business name line 2 for the trading partner.
						Street1	1...1	String	1/*	-	M	The first line of the street address.[3]

[1]GLN
[2]Kendall Pharma
[3]300 Trade Center

Data Element										Occurs	Format	Length	Enums	Req	Description
								Street2		0...1	String	0/*	-	O	The second line of the street address.[1]
								City		1...1	String	1/*	-	M	The city.[2]
								StateOrRegion		1...1	String	1/*	-	M	The state, province, or region using the standard two-letter abbreviation specified in ISO 3166-2:1998 country subdivision code.[3]
								PostalCode		1...1	String	1/*	-	M	The ZIP or other postal code.[4]
								Country		1...1	String	1/*		M	The country using the standard two-letter abbreviation specified in ISO 3166-1alpha-2:1997 country code.[5]
						choice%2				1...1	Choice	-	-	M	Option 1 within choice%2 of SenderInfo NOT SUPPORTED. Option 2 within choice%2 of SenderInfo contains full ShipFromLocationInfo data fields that will be populated by the customer in the interface.
						ShipFromLocationLookupId				0...1	String	0/*	-	N/A	NOT SUPPORTED.
							@type			1...1	String	1/*	ShippingAddressIdLookupEnums	N/A	NOT SUPPORTED.
						ShipFromLocationInfo				0...1			-	C	Choice 2 for senderInfo choice%2 group. All required fields must be filled in if this

[1]Suite 7690
[2]Woburn
[3]MA
[4]01801
[5]US

Data Element							Occurs	Format	Length	Enums	Req	Description
												option is selected. ⚠ Mandatory if LookupId is not provided.
						FacilityId	1...*	String	1/*	-	M	This identifies the ship-from party transferring ownership of the product, and optionally identifies the store number. Multiple identifiers can be sent. If FacilityId/@type=STORENUMBER is sent, it must be in addition to one of the other supported identifier types.[1]
							@type	1...1	String	1/*	AddressIdQualifier	M	The type of the FacilityId identifier. FacilityId/@type=STORENUMBER is only sent for the ship-to party store number. Valid values:[2] • GLN = Global location number • DEA = Drug Enforcement Agency number • HIN = Health Industry Number • DUNS =Dun and Bradstreet ID

[1]8888882028677
[2]GLN

Data Element							Occurs	Format	Length	Enums	Req	Description
												• DUNS4 = DUNS+4 ID • COMPANYID = Company ID • COMPANYSITEID = Company site ID • STORENUMBER = Store Number
						LocationInfo	1...1	-	-	-	M	Address details.
							BusinessName	1...1	String	1/*	-	M	The business name of the trading partner.[1]
							Name2	0...1	String	0/*	-	O	Business name line 2 for the trading partner.
							Street1	1...1	String	1/*	-	M	The first line of the street address.[2]
							Street2	0...1	String	0/*	-	O	The second line of the street address.[3]
							City	1...1	String	1/*	-	M	The city.[4]
							StateOrRegion	1...1	String	1/*	-	M	The state, province, or region using the standard two-letter abbreviation specified in ISO 3166-2:1998 country subdivision code.[5]
							PostalCode	1...1	String	1/*	-	M	The ZIP or other postal code.[6]

[1]Kendall Pharma
[2]300 Trade Center
[3]Warehouse 1234
[4]Woburn
[5]MA
[6]01801

Data Element								Occurs	Format	Length	Enums	Req	Description
							Country	1...1	String	1/*	-	M	The country using the standard two-letter abbreviation specified in ISO 3166-1alpha-2:1997 country code.[1]
						LicenseNumber		0...*	String	0/*	-	O	License number value for the trade partner. Optional for DQSA.[2]
							@state	0...1	String	0/*	-	O	The state or region in which the trading partner is licensed, using the standard two letter abbreviation specified in ISO 3166-2:1998 country sub-division code. This attribute is used to give additional context to the license number.[3]
							@agency	0...1	String	0/*	-	O	Issuing agency information. Valid values:[4] • FAWD = State License Identification Number • FW = State License Identification Number • NABP = National Association of Boards of Pharmacy Number • D3 = National Association of Boards of Pharmacy Number

[1]US
[2]3836300205731
[3]MA
[4]FAWD

Data Element								Occurs	Format	Length	Enums	Req	Description
						ContactInfo		0...1	-	-	-	O	Contact information for use by downstream trading partners to authenticate (e.g. verify) the message information. Optional for DQSA.
							Name	0...1	String	0/*	-	O	Full name of the person or name of the company.[1]
							Telephone	1...1	String	1/*	-	M	Phone number of the person.[2]
							Email	0...1	String	0/*	-	O	Email of the person.
				ReceiverInfo				1...1	-	-	-	M	Business and shipping address Information about the supply chain partner to whom ownership is being transferred in the shipment.
					choice%1			1...1	Choice	-	-	M	Option 1 within choice%1 of ReceiverInfo NOT SUPPORTED. Option 2 within choice%1 of ReceiverInfo contains full ToBusinessPartyInfo data fields that will be populated by the customer in the interface.
					ToBusinessPartyLookupId			0...1	-	-	-	N/A	NOT SUPPORTED.
						@type		1...1	String	1/*	BusinessAddressIdLookup	N/A	NOT SUPPORTED.
					ToBusinessPartyInfo			0...1			-	C	Choice 2 for ReceiverInfo choice%1 group. All mandatory fields must be filled in if this option is selected.

[1]Customer Service
[2]1-716-865-1258

Data Element						Occurs	Format	Length	Enums	Req	Description
											⚠ Mandatory if LookupId not provided.
					BusinessId	1...*	String	1/*	-	M	This identifies the receiving party to whom ownership of the product is being transferred from the sending party. Valid values:[1] • GLN = Global location number (Wal-Mart) • DEA = Drug Enforcement Agency number (CVS) • HIN = Health Industry Number (Wal-Mart) • DUNS = Dun and Bradstreet ID (Wal-Mart, Walgreens, Publix) • DUNS4 = DUNS+4 ID (Wal-Mart, Walgreens, Meijer) • COMPANYID = Company ID (Wal-Mart) • COMPANYSITEID = Company site ID (Wal-Mart, Walgreens) • PARTNERCOMPANYID = Customer's internal supplier number

[1]3333331013655

Data Element								@type	Occurs	Format	Length	Enums	Req	Description
								@type	1…1	String	1/*	AddressIdQualifier	M	The type of the BusinessId identifier.[1] • For DQSA purposes, only GLN, DEA and HIN are allowed. • For X12 ASN purposes, DUNS, DUNS+4, COMPANYID, and COMPANYSITEID are also supported.
							BusinessInfo		1…1	-	-	-	M	Address details.
								BusinessName	1…1	String	1/*	-	M	The business name of the trading partner.[2]
								Name2	0…1	String	0/*	-	O	Business name line 2 for the trading partner.
								Street1	1…1	String	1/*	-	M	The first line of the street address.[3]
								Street2	0…1	String	0/*	-	O	The second line of the street address.[4]
								City	1…1	String	1/*	-	M	The city.[5]
								StateOrRegion	1…1	String	1/*	-	M	The state, province, or region using the standard two-letter abbreviation specified in ISO

[1]GLN
[2]Wholesale Inc
[3]555 Neelan Road
[4]Suite 123
[5]Sacramento

Data Element								Occurs	Format	Length	Enums	Req	Description
													[1]
							PostalCode	1...1	String	1/*	-	M	The ZIP or other postal code.[2]
							Country	1...1	String	1/*	-	M	The country using the standard two-letter abbreviation specified in ISO 3166-1alpha-2:1997 country code.[3]
				choice%2				1...1	choice		-	M	Option 1 within choice%2 of ReceiverInfo NOT SUPPORTED. Option 2 within choice%2 of Receiver contains full ShipToLocationInfo data fields that will be populated by the customer in the interface.
				ShipToLocationLookupId				0...1	String	0/*	-	N/A	NOT SUPPORTED.
					@type			1...1	String	1/*	ShippingAddressIdLookup	N/A	NOT SUPPORTED.
				ShipToLocationInfo				0...1	-	-	-	C	Choice 2 for ReceiverInfo choice%2 group. All mandatory fields must be filled in if this option is selected. ⚠ Mandatory if LookupId not provided.
					FacilityId			1...*	String	1/*	-	M	This identifies the ship-to party to whom ownership of the product is being transferred from the sending party. Valid values:[4]

[1]CA
[2]95833
[3]US
[4]3333331013655

Data Element								Occurs	Format	Length	Enums	Req	Description
													• GLN = Global location number (Wal-Mart) • DEA = Drug Enforcement Agency number (CVS, Meijer) • HIN = Health Industry Number • DUNS = Dun and Bradstreet ID • DUNS4 = DUNS+4 ID (Meijer) • COMPANYID = Company ID • COMPANYSITEID = Company site ID (Walgreens, RiteAid, Publix, Meijer) • PARTNERCOMPANYID = Customer's internal supplier number • STORENUMBER = Ship to store number. Multiple identifiers may be sent. If STORENUMBER is sent, it must be in addition to one of the other supported identifier types.
							@type	1...1	String	1/*	AddressIdQualifier	M	The type of the FacilityId identifier.[1]

[1]DEA

Data Element							Occurs	Format	Length	Enums	Req	Description
												• For DQSA purposes, only GLN, DEA and HIN are allowed. • For X12 ASN purposes, DUNS, DUNS+4, COMPANYID, and COMPANYSITEID are also supported. • STORENUMBER is only sent for the ship-to party store number.
						LocationInfo	1…1	-	-	-	M	Address details.
							BusinessName	1…1	String	1/*	-	M	The business name of the trading partner.[1]
							Name2	0…1	String	0/*	-	O	Business name line 2 for the trading partner.
							Street1	1…1	String	1/*	-	M	The first line of the street address.[2]
							Street2	0…1	String	0/*	-	O	The second line of the street address.[3]
							City	1…1	String	1/*	-	M	The city.[4]
							StateOrRegion	1…1	String	1/*	-	M	The state, province, or region using the standard two-letter

[1]Wholesale Inc
[2]555 Neelan Road
[3]Suite 123
[4]Sacramento

Data Element							Occurs	Format	Length	Enums	Req	Description
												1
						PostalCode	1...1	String	1/*	-	M	The ZIP or other postal code.[2]
						Country	1...1	String	1/*	-	M	The country using the standard two-letter abbreviation specified in ISO 3166-1alpha-2:1997 country code.[3]
					LicenseNumber		0...*	String	0/*	-	O	License number value for the trade partner. Optional for DQSA.[4]
						@state	0...1	String	0/*	-	O	The state or region in which the trading partner is licensed, using the standard two letter abbreviation specified in ISO 3166-2:1998 country sub-division code. This attribute is used to give additional context to the license number.[5]
						@agency	0...1	String	0/*	-	O	License number value for the trade partner. Optional for DQSA. Valid values:[6] • FAWD = State License Identification Number • FW = State License Identification Number • NABP = National Association

[1] CA
[2] 95833
[3] US
[4] 3333300008701
[5] CA
[6] FAWD

Data Element							Occurs	Format	Length	Enums	Req	Description
												of Boards of Pharmacy Number
												• D3 = National Association of Boards of Pharmacy Number
						ContactInfo	0...1	-	-	-	O	Contact information for use by downstream trading partners to authenticate (e.g. verify) the message information. Optional for DQSA. Not used for the receiving party.
							Name	0...1	String	0/*	-	O	Full name of the person or name of the company.
							Telephone	1...1	String	1/*	-	M	Phone number of the person.
							Email	0...1	String	0/*	-	O	Email of the person.
				BusinessPartyInfo			0...*	-	-	-	O	Additional business party info such as bill to information. Use for drop-ship recipient party or parties.
					choice%1		1...1	Choice	-	-	M	Option 1 within choice%1 of BusinessPartyInfo NOT SUPPORTED. Option 2 within choice%1 of BusinessPartyInfo contains full BusinessPartyDetail data fields that will be populated by the customer in the interface.
					BusinessPartyLookupId		0...1	String	0/*	-	N/A	NOT SUPPORTED.
						@type	1...1	String	1/*	BusinessAddressIdLookup	N/A	NOT SUPPORTED.
					BusinessPartyDetail		0...1	String	-	-	C	Choice 2 for BusinessPartyInfo

Data Element						Occurs	Format	Length	Enums	Req	Description
											choice%1 group. All mandatory fields must be filled in if this option is selected.
					BusinessId	1...*	String	1/*	-	M	This identifies the business party recorded in this instance. Valid values include: • GLN = Global location number (Wal-Mart, RiteAid, Meijer) • DEA = Drug Enforcement Agency number (CVS, RiteAid, Meijer) • HIN = Health Industry Number (Wal-Mart, RiteAid, Meijer) • DUNS = Dun and Bradstreet ID (Wal-Mart, Walgreens, Publix, Meijer) • DUNS4 = DUNS+4 ID (Wal-Mart, Walgreens, Meijer) • COMPANYID = Company ID (Wal-Mart, Meijer) • COMPANYSITEID = Company site ID (Wal-Mart, Walgreens, Meijer) • PARTNERCOMPANYID = Customer's internal supplier number

Data Element								Occurs	Format	Length	Enums	Req	Description
							@type	1…1	String	1/*	AddressIdQualifier	M	The type of the BusinessId identifier. • For DQSA purposes, only GLN, DEA and HIN are allowed. • For X12 ASN purposes, DUNS, DUNS+4, COMPANYID, and COMPANYSITEID are also supported.
						BusTransactionRole		0…1	String	0/*	-	O	Identifies role of trading partner in BusinessPartyInfo. For drop-ship party use: DropShip.[1]
						BusinessInfo		1…1	-	-	-	M	Address details.
							BusinessName	1…1	String	1/*	-	M	The business name of the trading partner.
							Name2	0…1	String	0/*	-	O	Business name line 2 for the trading partner.
							Street1	1…1	String	1/*	-	M	The first line of the street address.
							Street2	0…1	String	0/*	-	O	The second line of the street address.
							City	1…1	String	1/*	-	M	The city.
							StateOrRegion	1…1	String	1/*	-	M	The state, province, or region using the standard two-letter abbreviation specified in ISO

[1]DropShip

Data Element							Occurs	Format	Length	Enums	Req	Description
												3166-2:1998 country subdivision code.
						PostalCode	1...1	String	1/*	-	M	The ZIP or other postal code.
						Country	1...1	String	1/*	-	M	The country using the standard two-letter abbreviation specified in ISO 3166-1alpha-2:1997 country code.
		ASNMilestoneDates					0...*	-	-	-	O	Milestone target and actual dates for ASN.
			DeliveryDateType				1...1	String	1/*	DeliveryDateType	M	Type of date-time recorded. Include all important delivery and shipping dates here. Shipped and estimated delivery dates and times are required. Valid values:[1] - Shipped (Mandatory) - EstimatedDelivery (Mandatory) - Outbound Delivery (Recommended) - CurrentScheduledDelivery - ProofOfDelivery - TransportationPlanning - Loading
			Date				1...1	Date	10/10	-	M	Milestone date.[2]

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[1]EstimatedDelivery
[2]2014-06-06

				Data Element	Occurs	Format	Length	Enums	Req	Description
				TimeZone	0...1	Time	8/9	-	O	Milestone time. Please note: time is mandatory for EstimatedDelivery date time.[1]
			ShipmentInformation		1...1	-	-	-	M	Transport, routing, and shipping information for shipment or delivery.
				DocumentControl	0...1	String	0/*	-	O	Optional field indicates purpose of message: create new or replace existing.
				LadingQuantity	0...1	Decimal	0/*	-	O	Total number of packages in shipment.[2]
				NetWeight	0...1	Decimal	0/*	-	O	Net weight for shipment.[3]
				@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	HDMA weight units of measure.[4]
				GrossWeight	0...1	Decimal	0/*	-	O	Gross weight for shipment.[5]
				@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	C	HDMA weight units of measure.[6] ⚠ Mandatory if GrossWeight is populated.
				CarrierSCACNumber	0...1	String	0/*	-	O	The carrier's 4-character standard SCAC number code.[7]
				CarrierName	0...1	String	0/*	-	O	The carrier name.

[1] 14:20:00Z
[2] 180.000
[3] 1248.000
[4] LB
[5] 1248.000
[6] LB
[7] 4WAY

				Data Element	Occurs	Format	Length	Enums	Req	Description
				DropShipIndicator	0...1	String	0/*	DropShipIndicator	O	Message type code identifying delivery type message, i.e. ASN or drop ship notice. The system will default to ASN if the data element is missing or empty.[1]
				PortalAccessCode	0...1	String	0/*	-	O	Unique customer-generated code for use in the TraceLink system to retrieve Transaction Histories. Customer is responsible for generating this code.
				ShipmentStatus	0...1	String	0/*	ShipmentStatus	O	Status of shipment as a whole. Mapped to TD506 in outbound ASN (Mandatory for Meijer).[2]
		ItemDetails			0...*	-	-	-	O	Pick/Ship item product details. Total quantities shipped for saleable units by material number, batch number, and quantity are stored here.
			LineItemNumber		0...1	String	0/*	-	C	Delivery order line item ID number for saleable product and lot in the shipping or delivery document. While this is an optional data element, line item number is required to support multiple purchase order numbers. The line item number must match the line item number for the purchase order linked to the aggregation

[1]ASN
[2]COMPLETE

Data Element				Occurs	Format	Length	Enums	Req	Description
									1
			PickShipAction	1...1	String	1/*	ActionCode	M	Tells system whether to add a new line item to a delivery or to remove it from the delivery, and to reserve or to unreserve the corresponding Transaction Histories. Valid values:[2] • Pick = Add a line to delivery • Unpick = Remove a line from delivery The following data elements are used as keys to match and select Transaction Histories: • NDC (Mandatory) • Lot Number (Optional) • Reference Identifier (Optional) • Quantity (DSCSA saleable unit / each quantity, mandatory)
				unpickDeliveryNumber	0...1	String	0/*	-	C	Document identifier for another open delivery document used to unpick the reported quantity of the current item. Optional attribute will only be used in Unpick case. Will only be used if the attribute is populated and if PickShipAction = Unpick. If

[1]000010
[2]Pick

Data Element				Occurs	Format	Length	Enums	Req	Description
									UnpickDeliveryNumber is not populated and PickShipAction = Unpick the unpick will occur from the current delivery.
		InternalMaterialNumber		0...1	String	0/*	-	C	Material number in sender's internal system for saleable shipped item or packing item recorded in detail record.[1] ⚠ If DSCSAExempt = True, then either InternalmaterialNumber or NDC is mandatory.
		NDC		0...1	String	0/*	-	C	National drug code number of the product.[2] • Mandatory for DSCSA products. • Can be omitted when DSCSAExempt = true. • If DSCSAExempt = false or is not set, then NDC is mandatory.
			@type	1...1	String	0/*	NDCType	M	NDC code type.[3]
		LotNumber		0...1	String	0/*	-	C	Batch or lot number for saleable shipped product. Lot number is optional, but must be

[1]CS-100
[2]08202000230
[3]NDC542

Data Element				Occurs	Format	Length	Enums	Req	Description
									1
			ExpDate	0...1	Date	0/*	-	C	The expiration date in YYYY-MM-DD format. ⚠ Mandatory if LotNumber is populated.
			SerializedLotIndicator	0...1	String	0/*	-	O	Serialized lot identifier. Identifies if lot-based message (ASN) will also include serialized data that will be sent to TraceLink in a separate Serialized Operations Manager or TL XML EPCIS message. Valid values include: • X = Yes, separate serialized transaction to be sent • Null or empty = No.
			PickQuantity	1...1	Decimal	1/*	-	M	Quantity recorded for pick / unpick message.[2]
			@quantityUnitOfMeasure	1...1	String	1/*	QuantityUOM	M	Quantity unit of measure.[3]
			THItemQuantity	1...1	String	1/*	-	M	Number of saleable units in the lot to represent the Transaction Information 'number of containers' that were part of the Transaction Histories.[4]

[1]A12345
[2]180.000
[3]EA
[4]180

Data Element				Occurs	Format	Length	Enums	Req	Description
			NonRxProductCode	0…1	String	0/*	-	O	Non Rx product identification code. [1]
			@type	1…1	String	1/*	NonRxProductCode	C	Product service ID qualifier for non-Rx product code types recorded in NonRxProductCode. Valid values:[2] • BP = Customer product code (CVS, Meijer) • CB = Buyer's catalog number (Meijer, CVS) • EN = EAN 2-5-5-1 (Wal-Mart, Walgreens, Meijer, CVS) • IN = Buyer's Item Number (Walgreens, Meijer, CVS) • VN = Seller's item number (Walgreens, Meijer, CVS) • MF = Manufacturer's code (Wal-Mart) • NH = National health code (Wal-Mart) • UA = Case UPC, UPC Case Code (2-5-5), Legacy UPC (Wal-Mart, Meijer, CVS) • UI = Package UPC, Consumer Package Code (1-5-5), Legacy UPC (Wal-Mart, Walgreens,

[1]943845757
[2]UA

Data Element	Occurs	Format	Length	Enums	Req	Description
						Meijer, RiteAid, Publix, CVS)
						• UK = EAN/UCC-14, 14-digit EAN.UCC (1-2-5-5-1), GTIN-14 (Wal-Mart, Walgreens, Meijer, RiteAid, Publix, CVS)
						• UP = UCC-12, 12-digit EAN.UCC (1-5-5-1). Also UPC-A and GTIN-12 (Wal-Mart, Walgreens, Meijer, RiteAid, Publix, CVS)
						• UX = Universal Product Number, unique identifier for a healthcare product. (Wal-Mart, CVS)
						• VC = Vendor Catalog Number (Wal-Mart, Walgreens, Meijer, RiteAid, Publix, CVS)
						⚠ Mandatory if NonRxProductCode is populated.
DSCSAExempt	0...1	Boolean	0/*	-	O	Identifies whether product requires, or not, DSCSA Transaction History. Supports sending exempt Rx or OTC products in the delivery that can be included in the outbound ASN. Valid values:[1]

[1]true

Data Element				Occurs	Format	Length	Enums	Req	Description
									• True = Product does not require Transaction History. Data mapped to outbound ASN but no OB Transaction History created. • False = Product requires Transaction History. If not populated, defaults to false and Transaction History created.
			ReferenceIdentifier	0…1	String	0/*	-	O	Identification number assigned to the product in receiving, such as a location identifier. The customer defines the Identifier as part of the pick information. Instructs system to precisely match a specific Transaction History with the ReferenceIdentifier and to use that Transaction History for outbound processing.[1]
			SalesQuantity	0…1	Decimal	0/*	-	O	Total quantity of saleable items for delivery at line item level.[2]
			@quantityUnitOfMeasure	1…1	String	1/*	QuantityUOM	M	Quantity unit of measure.[3]
			Volume	0…1	Decimal	0/*	-	O	Volume for item.
			@volumeUnitOfMeasure	1…1	String	1/*	VolumeUOM	M	Volume unit of measure.

[1]458724545445
[2]180.000
[3]EA

				Data Element	Occurs	Format	Length	Enums	Req	Description
				NetWeight	0...1	Decimal	0/*	-	O	Net weight for item.
				@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	Weight unit of measure.
				GrossWeight	0...1	Decimal	0/*	-	O	Gross weight for item.[1]
				@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	Weight unit of measure.
				ShippingReferenceDocuments	1...*	-	-	-	M	Business documents relevant to shipment of saleable items. Mandatory purchase order instance of group.[2]
				BusinessDocument	1...1	String	1/*	-	M	Shipment document identification number. Purchase order number is mandatory. An error will be thrown if it is not included. It is a mandatory HDMA data element. Mulitple purchase order numbers can be sent in any message, but only one PO number can be sent in any one line item.[3]
				@type	1...1	String	1/*	BusinessDocumentIdType	M	Type of document identifier.[4]
				LineItemNumber	0...1	String	0/6	-	O	Document line item number for the reference document.[5]
				DocumentDate	0...1	String	10/10	-	O	Date of the reference document.[6]
			PackingAggregation		0...*	-	-	-	O	Logistic unit header data for

[1]14000.000
[2]LB
[3]04563869
[4]PurchaseOrder
[5]000010
[6]2014-06-06

Data Element				Occurs	Format	Length	Enums	Req	Description
									delivery. Highest level Logistic unit, i.e. container, pallet, pack, etc, for shipment. Contains all other packaged items for one delivery in shipment. TL XML map expects only the following packing hierarchies: • Shipment > Order > Item • Shipment > Order > Pallet > Item • Shipment > Order > Case > Item
			ContainerIdentifier	1...1	String	1/*	-	M	SSCC-18 identifier for the container in the packaging aggregation. Expecting SSCC-18 code.[1]
			PackagingLevel	1...1	String	1/*	PackagingLevel	M	Identifies type of container for parent packing item.[2]
			ExternalPackagingId	0...1	String	0/*	-	O	The packing id number in the sender's internal system.
			ExternalPackagingIdType	0...1	String	0/*	-	O	The type of the external packing material identifier. Typically used in SAP to identify how the handling unit (packaging items) identification, including SSCC-18, is generated in SAP.
			InternalPackagingItemCode	0...1	String	0/*	-	O	The item code for the parent packaging material from the

[1]038202300000001
[2]PL

Data Element	Occurs	Format	Length	Enums	Req	Description
						sender's internal system.
InternalPackingItemDescription	0...1	String	0/*	-	O	Description of packing material from sender's internal system.[1]
PackCount	0...1	Integer	0/*	-	O	The number of packs or inner packs per outer pack or pallet. Count is only reported here for packaging items.
PackagingMaterialType	0...1	String	0/*	-	O	Not used.
PackagingMaterialTypeDescription	0...1	String	0/*	-	O	Not used.
PackagingMaterialTypeStatus	0...1	String	0/*	-	O	Not used.
PackagingMaterialGroup	0...1	String	0/*	-	O	Not used.
PackagingMaterialGroupDescription	0...1	String	0/*	-	O	Not used.
PackagingMaterialCategory	0...1	String	0/*	-	O	The packaging material category of the packaging items.
TravelTime	0...1	String	0/*	-	O	The time traveled during the delivery.
TrackingNumber	0...1	String	0/*	-	O	The number tracking the delivery of the packaging items.
DistanceTraveled	0...1	String	0/*	-	O	The distance traveled during the delivery.
SMGId	0...1	String	0/*	-	O	Not used.
WeightsAndMeasures	-	-	-	-	-	Lists the weight and measurement details of the items and packaging materials.

[1]Standard pallet

Data Element	Occurs	Format	Length	Enums	Req	Description
TareWeight	0...1	Decimal	0/*	-	O	Tare weight of packing material.[1]
@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	HDMA weight unit of measure.[2]
GrossWeight	0...1	Decimal	0/*	-	O	Gross total weight of aggregation and packing material.[3]
@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	HDMA weight unit of measure.[4]
NetWeight	0...1	String	0/*	-	O	Net weight for item.
@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	HDMA weight unit of measure.[5]
AllowedWeight	0...1	String	0/*	-	O	Allowed weight of the item.
@weightUnitOfMeasure	1...1	String	1/*	WeightUOM	M	HDMA weight unit of measure.[6]
GrossVolume	0...1	Decimal	0/*	-	O	Gross volume of packing material.
@volumeUnitOfMeasure	1...1	String	1/*	VolumeUOM	M	HDMA volume unit of measure.
NetVolume	1...1	String	1/*	-	M	Net volume of packaging material.
@volumeUnitOfMeasure	1...1	String	1/*	VolumeUOM	M	HDMA volume unit of measure.
AllowedVolume	1...1	String	1/*	-	M	Allowed volume of packaging material.
@volumeUnitOfMeasure	1...1	String	1/*	VolumeUOM	M	HDMA volume unit of measure.
TareVolume	1...1	String	1/*	-	M	Tare volume of packing

[1] 1400.000
[2] LB
[3] 1400.000
[4] LB
[5] LB
[6] LB

				Data Element	Occurs	Format	Length	Enums	Req	Description
										material.
				@volumeUnitOfMeasure	1...1	String	1/*	VolumeUOM	M	HDMA volume unit of measure.
			Volume		1...1	String	0/*	-	N/A	Not used.
				@volumeUnitOfMeasure	1...1	String	1/*	VolumeUOM	M	HDMA volume unit of measure.
			Length		0...1	Decimal	0/*	-	O	Length of packing material.
				@dimensionUnitOfMeasure	1...1	String	1/*	DimensionUOM	M	HDMA dimension unit of measure.
			Height		0...1	Decimal	0/*	-	O	Height of packing material.
				@dimensionUnitOfMeasure	1...1	String	1/*	DimensionUOM	M	HDMA dimension unit of measure.
			Width		0...1	Decimal	0/*	-	O	Width of packing material.
				@dimensionUnitOfMeasure	1...1	String	1/*	DimensionUOM	M	HDMA dimension unit of measure.
			LoadingPlatformLength		0...1	String	0/*	-	O	The length of the loading platform.
				@dimensionUnitOfMeasure	1...1	String	1/*	DimensionUOM	M	HDMA dimension unit of measure.
		AggregationItem			0...*	-	-	-	M	Items aggregated to parent packing item in can: PackingAggregation.
			PackingContentsType		0...1	String	0/*	PackingContentsTypeEnum	O	Indicates type of container or item in the aggregation. Defaults to valid value, "IT" = Item.
			ExternalPackagingId		0...1	String	0/*	-	O	The packaging identifier of the aggregation item.

Data Element					Occurs	Format	Length	Enums	Req	Description
				ContainerIdentifier	0...1	String	0/*	-	O	The identifier for the container in the packaging aggregation.
				LineItemNumber	0...1	String	0/*	-	R	Line item number for saleable product and lot in the shipping or delivery document. Line item number is mandatory to support multiple purchase order numbers. The line item number must match the line item number for the purchase order linked to the aggregation item. If line item number is missing with multiple POs only the first PO will be mapped.[1]
				InternalMaterialNumber	0...1	String	0/*	-	O	ID number for saleable item or package in list. Should match with the NDC or GTIN for the product lot in the aggregation group.
				LotNumber	0...1	String	0/*	-	O	Batch or lot number for saleable shipped product.[2]
				PackedQuantity	1...1	String	1/*	-	M	Quantity of saleable item packed in parent container. Not populated for packs or inner packs.[3]
					@quantityUnitOfMeasure	1...1	String	1/*	QuantityUOM	M	HDMA quantity unit of measure.[4]

[1]000010
[2]A12345
[3]40.000
[4]EA

Pick Ship Response Guidelines

See How to Use this Guide before reading the below information.

> ⓘ When sending an element in Date or DateTime format, a valid date must be given. "00" is not a valid day or month value and "0000" is not a valid year value.

The following data is included in the message response:

Data Element						Occurs	Format	Length	Enums	Req	Description
S:Envelope						1...1	-	-	-	M	SOAP Envelope root element.
	S:Body					1...1	-	-	-	M	SOAP Message Body.
		ns2:PickShipResponse				1...1	-	-	-	M	The results of the pick operation.
			TLResponse			0...1	-	-	-	M	TraceLink response.
				Success		0...1	-	-	-	M	Indicates if PickShip had success in processing.
				ExceptionReturn		0...1	-	-	-	C	Populated with error information only if Success = false, otherwise omitted, e.g. the PickShip message contains a pick of 5 items but 4 picks process successfully and 1 pick fails. The system returns the overall results of total success/fails.
					CallException	1...*	-	-	-	M	Contains error details.
						ExceptionCode	0...1	String	0/*	-	M	Error code. See PickShipRequestResponse Errors Table for all potential error codes and exception messages.
						ExceptionMessage	0...1	String	0/*	-	C	Message that further describes error condition. See PickShipRequestResponse Errors Table for all potential error codes and exception messages.

Pick Ship Request Response Errors

The following errors may be encountered with the Pick Ship Request Response message:

Error Code	Error Messages
BADPICKLOCATION	The error occurs if the Location specified when instantiating the PTTHClient does not match the PickLocation.
CANNOT_PICK_COMPLETED_ORDER	The error occurs if a pick against Delivery Number is attempted, but order is marked as complete.
INTERNALERROR	The error occurs if THUNPICKEXCEEDQTY is not a ParametereizedException.
INTERNALERROR	The error occurs if THPICKNOREFERENCEINVENTORY is not a ParameterizedException.
INTERNALERROR	The error occurs if pickship returned a string but should not have.
INTERNALERROR	The error occurs if pickShipRequest contains more than one value for itemDetails.
INTERNALERROR	The error occurs if THPICKEXCEEDQTY is not a ParameterizedException.
INTERNALERROR	The error occurs if mfgPick is not populated.
INTERNALERROR	The error occurs if source Transaction History and pickedItem.sourceTransactionHistoryID cannot be found.
INTERNALERROR	The error occurs if the publisher company and user.getAbsoluteCompanyID cannot be fetched.
MDLOOKUPLOCATIONFAILED	The error occurs if location master data cannot be found.
PICKORIGINNOMATCH	The error occurs if Create is selected and no prior Transaction Histories exist, but Product Origin does not equal Originator or has no value.
THPICKEXCEEDQTY	The error occurs if there are insufficient Transaction Histories remaining matching at Location. This causes an over pick of, which can be reversed by submitting an Unpick action.
THPICKEXCEEDQTYERROR	The error occurs if no Transaction Histories are found matching at Location.
THPICKNOINVENTORY	The error occurs if no Transaction Histories are found matching NDC and Lot Number at Location.
THPICKNOINVENTORY	The error occurs if no Transaction Histories are found matching at Location.
THUNPICKEXCEEDQTY	The error occurs if the unpick quantity exceeds the picked quantity. Picked quantity was unpicked.
THUNPICKNOPICK	The error occurs if no matching picked Transaction Histories are found.

Pick Ship Request Response Message Examples

The following is a fully populated Pick Ship Request Response message:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:urn="urn:tracelink:soap"/>
  <soapenv:Header/>
  <soapenv:Body/>
    <urn:PickShip/>
       <PickShipRequest/>
          <DeliveryId type="DeliveryDocument">D70309</DeliveryDocumentId>
          <DeliveryType>Transfer</DeliveryType>
          <PickLocation type="GLN">0096295000993</PickLocation>
          <TransferToLocation type="GLN">0010939182005</TransferToLocation>
          <DeliveryCompleteFlag>false</DeliveryCompleteFlag>
          <PickShipTransaction>
             <DeliveryIdentifiers>
                <DeliveryDocument>
                   <DeliveryDocumentId type="ShipmentNumber">0080016047</DeliveryDocumentId>
                   <DocumentDate>2014-07-24</DocumentDate>
                   <DocumentTime>00:20:00</DocumentTime>
                </DeliveryDocument>
             </DeliveryIdentifiers>
             <TransactionDate>2014-07-22</TransactionDate>
             <ShipmentDate>2014-07-24</ShipmentDate>
             <DSCSATransactionStatement>
                <Affirmation>
                   <TransactionStatementIndicator statement="MeetsAllApplicableTSReqts">true</TransactionStatementIndicator>
                   <TransactionStatementText>Seller has complied with each applicable subsection of FDCA Sec. 581(27)(A)–(G)</TransactionStatementText>
                </Affirmation>
             </DSCSATransactionStatement>
             <BusinessEntityDetails>
                <SenderInfo>
                   <FromBusinessPartyInfo>
                      <BusinessId type="GLN">3333331013655</BusinessId>
                      <BusinessInfo>
                         <BusinessName>RxWholesaler</BusinessName>
                         <Street1>1919 E THOMAS RD</Street1>
                         <City>PHOENIX</City>
```

```
                <StateOrRegion>AZ</StateOrRegion>
                <PostalCode>85016</PostalCode>
                <Country>US</Country>
            </BusinessInfo>
        </FromBusinessPartyInfo>
        <ShipFromLocationInfo>
            <FacilityId type="DEA">RF10009</FacilityId>
            <LocationInfo>
                <BusinessName>RxWholesale</BusinessName>
                <Street1>1919 E THOMAS RD</Street1>
                <City>PHOENIX</City>
                <StateOrRegion>AZ</StateOrRegion>
                <PostalCode>85016</PostalCode>
                <Country>US</Country>
            </LocationInfo>
            <LicenseNumber state="AZ" agency="FAWD">8888800003604</LicenseNumber>
            <ContactInfo>
                <Name>Letitia Fernandes</Name>
                <Title>Logistics Liaison</Title>
                <Telephone>(716) 450-8502</Telephone>
            </ContactInfo>
        </ShipFromLocationInfo>
    </SenderInfo>
    <ReceiverInfo>
            <ToBusinessPartyLookupId type="GLN">8888882028677</ToBusinessPartyLookupId>
        <ShipToLocationInfo>
            <FacilityId type="DEA">RP8888342</FacilityId>
            <LocationInfo>
                <BusinessName>Kendall</BusinessName>
                <Street1>1301 PERRY ROAD</Street1>
                <City>PLAINFIELD</City>
                <StateOrRegion>IN</StateOrRegion>
                <PostalCode>46168</PostalCode>
                <Country>US</Country>
            </LocationInfo>
            <LicenseNumber state="IN" agency="FAWD">9878500402913</LicenseNumber>
        </ShipToLocationInfo>
    </ReceiverInfo>
```

```
        </BusinessEntityDetails>
        <ASNMilestoneDates>
            <DeliveryDateType>EstimatedDelivery</DeliveryDateType>
            <Date>2014-07-22</Date>
            <Time>12:06:46</Time>
        </ASNMilestoneDates>
        <ASNMilestoneDates>
            <DeliveryDateType>Shipped</DeliveryDateType>
            <Date>2014-07-24</Date>
            <Time>11:23:02</Time>
        </ASNMilestoneDates>
        <ASNMilestoneDates>
            <DeliveryDateType>OutboundDelivery</DeliveryDateType>
            <Date>2014-07-24</Date>
            <Time>11:23:02</Time>
        </ASNMilestoneDates>
        <ShipmentInformation>
            <DocumentControl>Original</DocumentControl>
            <LadingQuantity>100</LadingQuantity>
            <NetWeight weightUnitOfMeasure="LB">60.000</NetWeight>
            <GrossWeight weightUnitOfMeasure="LB">60.000</GrossWeight>
            <CarrierSCACNumber>4WAY</CarrierSCACNumber>
            <DropShipIndicator>ASN</DropShipIndicator>
        </ShipmentInformation>
    </PickShipTransaction>
    <ItemDetails>
        <LineItemNumber>900001</LineItemNumber>
        <PickShipAction>Pick</PickShipAction>
        <InternalMaterialNumber>TCC-1101282</InternalMaterialNumber>
        <NDC type="NDC542">08202401033</NDC>
        <LotNumber>LP023K0699</LotNumber>
        <SerializedLotIndicator>X</SerializedLotIndicator>
        <PickQuantity quantityUnitOfMeasure="EA">90.000</PickQuantity>
        <THItemQuantity>90</THItemQuantity>
        <DSCSAExempt>false</DSCSAExempt>
        <ReferenceIdentifier>458724545445</ReferenceIdentifier>
        <SalesQuantity quantityUnitOfMeasure="EA">90.000</SalesQuantity>
        <Volume volumeUnitOfMeasure="CF">81.500</Volume>
```

```
            <NetWeight weightUnitOfMeasure="LB">30.000</NetWeight>
            <GrossWeight weightUnitOfMeasure="LB">30.000</GrossWeight>
            <ShippingReferenceDocuments>
                <BusinessDocument type="PurchaseOrder">PO303009</BusinessDocument>
                <LineItemNumber>001</LineItemNumber>
                <DocumentDate>2014-07-19</DocumentDate>
            </ShippingReferenceDocuments>
        </ItemDetails>
        <ItemDetails>
            <LineItemNumber>900002</LineItemNumber>
            <PickShipAction>Pick</PickShipAction>
            <InternalMaterialNumber>TCC-1101282</InternalMaterialNumber>
            <NDC type="NDC542">08202701010</NDC>
            <LotNumber>LP023K0700</LotNumber>
            <SerializedLotIndicator>X</SerializedLotIndicator>
            <PickQuantity quantityUnitOfMeasure="EA">90.000</PickQuantity>
            <THItemQuantity>90</THItemQuantity>
            <DSCSAExempt>false</DSCSAExempt>
            <ReferenceIdentifier>458724545446</ReferenceIdentifier>
            <SalesQuantity quantityUnitOfMeasure="EA">90.000</SalesQuantity>
            <Volume volumeUnitOfMeasure="CF">81.500</Volume>
            <NetWeight weightUnitOfMeasure="LB">30.000</NetWeight>
            <GrossWeight weightUnitOfMeasure="LB">30.000</GrossWeight>
            <ShippingReferenceDocuments>
                <BusinessDocument type="PurchaseOrder">04563869</BusinessDocument>
                <LineItemNumber>001</LineItemNumber>
                <DocumentDate>2014-02-16</DocumentDate>
            </ShippingReferenceDocuments>
        </ItemDetails>
        <PackingAggregation>
            <ContainerIdentifier>382025401033400000</ContainerIdentifier>
            <PackagingLevel>CA</PackagingLevel>
            <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
            <PackCount>1</PackCount>
            <WeightsAndMeasures>
                <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
                <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
            </WeightsAndMeasures>
```

```
<AggregationItem>
    <LineItemNumber>900001</LineItemNumber>
    <AggregationItemId>TCC-1101282</AggregationItemId>
    <LotNumber>LP023K0699</LotNumber>
    <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
</AggregationItem>
</PackingAggregation>
<PackingAggregation>
    <ContainerIdentifier>382025401033400001</ContainerIdentifier>
    <PackagingLevel>CA</PackagingLevel>
    <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
    <PackCount>1</PackCount>
    <WeightsAndMeasures>
        <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
        <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
    </WeightsAndMeasures>
    <AggregationItem>
        <LineItemNumber>900001</LineItemNumber>
        <AggregationItemId>TCC-1101282</AggregationItemId>
        <LotNumber>LP023K0699</LotNumber>
        <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
    </AggregationItem>
</PackingAggregation>
<PackingAggregation>
    <ContainerIdentifier>382025401033400002</ContainerIdentifier>
    <PackagingLevel>CA</PackagingLevel>
    <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
    <PackCount>1</PackCount>
    <WeightsAndMeasures>
        <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
        <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
    </WeightsAndMeasures>>
    <AggregationItem>
        <LineItemNumber>900001</LineItemNumber>
        <AggregationItemId>TCC-1101282</AggregationItemId>
        <LotNumber>LP023K0699</LotNumber>
        <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
    </AggregationItem>
```

```
            </PackingAggregation>
            <PackingAggregation>
                <ContainerIdentifier>382025401033400003</ContainerIdentifier>
                <PackagingLevel>CA</PackagingLevel>
                <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
                <PackCount>1</PackCount>
                <WeightsAndMeasures>
                    <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
                    <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
                </WeightsAndMeasures>
                <AggregationItem>
                    <LineItemNumber>900002</LineItemNumber>
                    <AggregationItemId>TCC-1101282</AggregationItemId>
                    <LotNumber>LP023K0700</LotNumber>
                    <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
                </AggregationItem>
            </PackingAggregation>
            <PackingAggregation>
                <ContainerIdentifier>382025401033400004</ContainerIdentifier>
                <PackagingLevel>CA</PackagingLevel>
                <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
                <PackCount>1</PackCount>
                <WeightsAndMeasures>
                    <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
                    <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
                </WeightsAndMeasures>
                <AggregationItem>
                    <LineItemNumber>900002</LineItemNumber>
                    <AggregationItemId>TCC-1101282</AggregationItemId>
                    <LotNumber>LP023K0700</LotNumber>
                    <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
                </AggregationItem>
            </PackingAggregation>
            <PackingAggregation>
                <ContainerIdentifier>382025401033400005</ContainerIdentifier>
                <PackagingLevel>CA</PackagingLevel>
                <InternalPackingItemDescription>Standard case</InternalPackingItemDescription>
                <PackCount>1</PackCount>
```

```
            <WeightsAndMeasures>
                <TareWeight weightUnitOfMeasure="LB">10.000</TareWeight>
                <GrossWeight weightUnitOfMeasure="LB">10.000</GrossWeight>
            </WeightsAndMeasures>
            <AggregationItem>
                <LineItemNumber>900002</LineItemNumber>
                <AggregationItemId>TCC-1101282</AggregationItemId>
                <LotNumber>LP023K0700</LotNumber>
                <PackedQuantity quantityUnitOfMeasure="EA">30.000</PackedQuantity>
            </AggregationItem>
        </PackingAggregation>
    <PickShipRequest/>
  <urn:PickShip/>
 <soapenv:Body/>
<soapenv:Envelope/>
```

The following is a fully populated Pick Ship Request Response message:

```
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
  <S:Body>
   <ns3:PickShipResponse xmlns:ns2="http://tracelink.com/producttrack" xmlns:ns3="urn:tracelink:soap" xmlns:ns4="http://tracelink.com/som">
    <TLResponse>
     <Success>false</Success>
     <ExceptionReturn>
      <CallException>
       <ExceptionCode>THPICKNOINVENTORY</ExceptionCode>
       <ExceptionMessage>No Transaction Histories found matching NDC NDC542 08202401033 and Lot lotLP023K0699, at Location DEA
RP8888342.</ExceptionMessage>
      </CallException>
     </ExceptionReturn>
     <TLResponsePayload xsi:type="ns2:TLResponsePickShip" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <Result>
       <Warning>false</Warning>
       <Error>true</Error>
       <ExceptionCode>THPICKNOINVENTORY</ExceptionCode>
       <ExceptionText>No Transaction Histories found matching NDC NDC542 08202401033 and Lot lotLP023K0699, at Location DEA RP8888342.</ExceptionText>
       <PickShipAction>Pick</PickShipAction>
       <PickQuantity quantityUnitOfMeasure="EA">90.00</PickQuantity>
       <NDC type="NDC542">08202401033 </NDC>
```

```
            <Lot>lotLP023K0699</Lot>
            <DeliveryId>D70309</DeliveryNumber>
            <Quantity>90</Quantity>
          </Result>
        </TLResponsePayload>
      </TLResponse>
    </ns3:PickShipResponse>
  </S:Body>
</S:Envelope>
```

Enumerations

ActionCode

Choose from one of the following enumerators:

Data Code	Description
Pick	Item not picked (add a line to delivery).
Unpick	Remove a line from delivery.

AddressIdQualifier

Choose from one of the following enumerators:

Data Code	Description
BR_PROF_REG	Brazil Professional Registration Number.
CNES	Brazil National Registry of Health Facilities Number.
CNPJ	Brazil Tax ID.
COMPANYID	Company Id in Internal ERP System.
COMPANYSITEID	Internal Location or Site Id in Internal ERP System.
CPF	Brazil Individual Tax Payer ID.
CUIT	Argentina Tax ID.
DEA	Drug Enforcement Agency Number.
DUNS	Dun & Bradstreet Number.
DUNS4	Dun & Bradstreet Number + 4-digit location code.
GCP	GS1 Global Company Prefix (6- to 12-digit number).
GLN	Global Location Number.
HIN	Health Industry Number partner address ID.
IN_COMPANY_ID	India Company Identifier (alphanumeric).
IN_IEC	India Importer Exporter Code (10-digit number).
IN_LOCATION_ID	India company location identifier (alphanumeric).
IN_PAN	India Permanent Account Number (10-character alphanumeric, with format AAPL1234C, the first five characters are letters, next four numerals, and one check-digit character letter).
IN_TIN	India Taxpayer Identification Number (11-digit number).

Data Code	Description
KR_BUS_REG_NUMBER	Korea Business Registration Number (10 digits with format 000-00-0000).
KR_PROVIDER_CODE	Korea Provider Code (8-digit number).
PARTNERCOMPANYID	The partner company identifier.
Seller	The seller.
SGLN	Serialized Global Location Number (for a sub-location) expressed as: [CompanyPrefix].[LocationRef].0. First two segments contain only digits.
STORENUMBER	The store number.
Supplier	The supplier.
VAWD	Not Used.

BusinessAddressIdLookupQualifier

Choose from one of the following enumerators:

Data Code	Description
BR_PROF_REG	Brazil Professional Registration Number.
CNES	Brazil National Registry of Health Facilities Number.
CNPJ	Brazil Tax ID.
COMPANYID	Company Id in Internal ERP System.
COMPANYSITEID	Internal Location or Site Id in Internal ERP System.
CPF	Brazil Individual Tax Payer ID.
CUIT	Argentina Tax ID.
DEA	Drug Enforcement Agency Number.
DUNS	Dun & Bradstreet Number.
DUNS_4	Dun & Bradstreet Number + 4-digit location code.
GCP	GS1 Global Company Prefix (6- to 12-digit number).
GLN	Global Location Number.
HIN	Health Industry Number partner address ID.
SGLN	Serialized Global Location Number (for a sub-location) expressed as: [CompanyPrefix].[LocationRef].0. First two segments contain only digits.

BusinessDocumentIdType

Choose from one of the following enumerators:

Data Code	Description
Invoice	Invoice
PurchaseOrder	Customer purchase order.
VendorOrder	Vendor sales order.

ContactFunction

Choose from one of the following enumerators:

Data Code	Description
MFR	Manufacturer
SWL	Secondary Wholesaler/Distributor
WHL	Wholesaler/Distributor

DeliveryDateType

Choose from one of the following enumerators:

Data Code	Description
CurrentScheduledDelivery	Scheduled delivery date.
EstimatedDelivery	Estimated delivery date.
GoodsIssue	SAP goods issue.
Loading	Date goods loaded onto truck.
Other	Other
Outbound Delivery	Outbound Delivery.
Picking	Picking event.
ProofOfDelivery	Proof of delivery date.
Shipped	Date goods shipped, however defined.
TransportationPlanning	Transportation planning date.

DeliveryType

Choose from one of the following enumerators:

Data Code	Description
Purchase	Receipt from supplier with change of ownership - NOT USED for Pick/Ship.
Sale	Sale to customer with change of ownership.
Transfer	Warehouse to warehouse, or warehouse to 3PL transfer with no change of ownership.

DimensionUOM

Choose from one of the following enumerators:

Data Code	Description
CM	Centimeter
IN	Inch
MM	Millimeter

DropShipIndicator

Choose from one of the following enumerators:

Data Code	Description
ASN	Advanced Shipment Notification (ASN).
DropShip	Drop Ship Notice.

NDCType

Choose from one of the following enumerators:

Data Code	Description
NDC442	National Drug Code in 442 format.
NDC532	National Drug Code in 532 format.
NDC541	National Drug Code in 541 format.
NDC542	NDC542 value as it would appear in master data/Redbook.

NonRxProductCode

Choose from one of the following enumerators:

Data Code	Description
BP	Customer product code.
CB	Buyer's catalog number.
EN	EAN 2-5-5-1.
IN	Buyer's Item Number.
MF	Manufacturer's code.
NH	National health code.
UA	UPC Case Code (2-5-5). Legacy UPC.
UI	Package UPC. Consumer Package Code (1-5-5). Legacy UPC.
UK	EAN/UCC-14. 14- digit EAN.UCC (1-2-5-5-1). GTIN-14.
UP	UCC-12. 12- digit EAN.UCC (1-5-5-1). Also UPC-A and GTIN-12.
UX	Universal Product Number. Unique identifier for a healthcare product.
VC	Vendor's Catalog Number.
VN	Vendor's item number.

PackagingCode

Choose from one of the following enumerators:

Data Code	Description
Case	Case or pack
Pallet	Pallet

PackagingLevel

Choose from one of the following enumerators:

Data Code	Description
CA	Case or outer pack.
EA	Each
PK	Pack or inner pack.
PL	Pallet

PackingContentsType

Choose from one of the following enumerators:

Data Code	Description
AP	Assortment pack - Not used.
CA	Case or outer pack - Not used.
IT	Item
PK	Pack or inner pack- Not used.

QuantityUOM

Choose from one of the following enumerators:

Data Code	Description
AM	Ampoule
BO	Bottle
BX	Box
CA	Case
CH	Container
CT	Carton
DS	Display
DZ	Dozen
EA	Each
GS	Gross
KT	Kit
OZ	Ounce
P1	Percent
PC	Piece
PF	Pallet
PK	Package
SP	Shelf package
SZ	Syringe
TS	Transaction Statement - Not used.

Data Code	Description
UN	Unit (use UN for all pill counts or for partials).
US	Not used.
VI	Vial

ShipmentIDType

Choose from one of the following enumerators:

Data Code	Description
BillOfLading	Bill of Lading document number.
CarrierReference	Carrier reference number (PRO/Invoice).
DeliveryDocument	Delivery document number.
ExternalDelivery	External delivery document number.
GoodsReceiptIssue	Goods receipt or goods issue document number.
MasterBOL	Master Bill of Material.
SealNumber	Seal number.
ShipmentNumber	Shipment document number.
TrackingNumber	Tracking number.

ShipmentStatus

Choose from one of the following enumerators:

Data Code	Description
CC	Shipment completed.
PR	Parital shipment.

ShippingAddressIdLookup

Choose from one of the enumerators below:

Data Code	Description
BR_PROF_REG	Brazil Professional Registration Number.
CNES	Brazil National Registry of Health Facilities Number.
CNPJ	Brazil Tax ID.
COMPANYSITEID	Internal Location or Site Id in Internal ERP System.
CPF	Brazil Individual Tax Payer ID.
CUIT	Argentina Tax ID.
DEA	Drug Enforcement Agency Number.
DUNS4	Dun & Bradstreet Number + 4-digit location code.
GCP	GS1 Global Company Prefix (6- to 12-digit number).
GLN	Global Location Number.
HIN	Health Industry Number partner address ID.
IN_COMPANY_ID	India Company Identifier (alphanumeric).
IN_IEC	India Importer Exporter Code (10-digit number).
IN_LOCATION_ID	India company location identifier (alphanumeric).
IN_PAN	India Permanent Account Number (10-character alphanumeric, with format AAPL1234C, the first five characters are letters, next four numerals, and one check-digit character letter).
IN_TIN	India Taxpayer Identification Number (11-digit number).
KR_BUS_REG_NUMBER	Korea Business Registration Number (10 digits with format 000-00-0000).
KR_PROVIDER_CODE	Korea Provider Code (8-digit number).
SGLN	Serialized Global Location Number (for a sub-location) expressed as: [CompanyPrefix].[LocationRef].0. First two segments

Data Code	Description
	contain only digits.
VAWD	Not used.

SubscriberLocation

Choose from one of the following enumerators:

Data Code	Description
BR_PROF_REG	Brazil Professional Registration Number.
BR_CNES	Brazil National Registry of Health Facilities Number.
CNPJ	Brazil Tax ID.
COMPANYSITEID	Internal Location or Site Id in Internal ERP System.
BR_CPF	Brazil Individual Tax Payer ID.
CUIT	Argentina Tax ID.
DEA	Drug Enforcement Agency Number.
DUNS	Dun & Bradstreet Number.
DUNS4	Dun & Bradstreet Number + 4-digit location code.
GCP	GS1 Global Company Prefix (6- to 12-digit number).
GLN	Global Location Number.
HIN	Health Industry Number partner address ID.
SGLN	Serialized Global Location Number (for a sub-location).
VAWD	Not Used.

TransactionStatement

Choose from one of the following enumerators:

Data Code	Description
AuthorizedUnderDSCSA	Is authorized and registered under DSCSA.
AcquiredAsDirectPurchase	Product was acquired as a direct purchase.
MeetsAllApplicableTSReqts	Meets all applicable transaction statement requirements.
MeetSection852Reqts	Had systems and processes in place to comply with verification requirements under Section 852.
MeetShipmentReqts	Did not knowingly ship suspect or illegitimate product
MeetTHReqts	Did not knowingly alter the transaction history.
MeetTIReqts	Did not knowingly provide false transaction info.
ReceivedDirectPurchase	Received product as a direct purchase.
ReceivedFromDSCSAAuthorizedParty	Received product from authorized, registered party under DSCSA.
ReceivedTIAndTS	Received Transaction Information and a Transaction Statement from the prior owner.

VolumeUOM

Choose from one of the following enumerators:

Data Code	Description
CC	Cubic centimeter
CF	Cubic feet
CI	Cubic inches
CR	Cubic meter
CY	Cubic yard

WeightUOM

Choose from one of the following enumerators:

Data Code	Description
LB	Pounds

GLOSSARY

A

Administration

An application utility that includes tools for configuring global company settings for use across all TraceLink applications. Users that have access to this utility are considered Administrators.

Advance Ship Notice (ASN)

A notification of pending deliveries, usually in an electronic format.

Aggregation

The process of recording the serial number of a container along with the serial numbers of its contents; often referred to as a parent/child relationship, or a serialized container to content relationship.

Agile Process Teams (APT)

A multienterprise application that enables cross-enterprise teams to digitally execute, manage, and track shared processes to increase speed and improve effectiveness of the supply chain.

Alphanumeric

Character set made up of digits and letters of the alphabet.

Applicability Statement 2 (AS2)

The protocol used to securely transmit data over the internet in the preferred method for exchanging Electronic Data Interchange (EDI) transactions.

Application Administration

An Opus enterprise app, provided by TraceLink, that supports the routing of event handlers and message handlers to the correct app.

Application Administrator

A member of a Network Company that has the permissions to perform administration functions, specific to an app. App Administrators can be members of app Owner companies to manage their apps and can also be members of app Partner companies to manage the partner side of the app, typically with limited capabilities.

Application Identifier (AI)

A GS1 term for numeric prefixes used in barcodes and Electronic Product Code (EPC)/Radio Frequency Identification (RFID) tags to define the meaning and format of encoded data elements.

Application Master

The master metadata store for all of the application metadata.

Application Metadata

Defines the metadata of an application or platform service. The goals of accelerating application development, facilitating the management of apps, and presenting a developer with a visual Solution Builder require that much of the behavior of an application be defined via metadata. See: Solution Builder

Application Program Interface (API)

The interface that allows other software programs to interact with applications. Members on the Network can generate a series of request and response messages corresponding to various TraceLink applications (whether synchronously or asynchronously).

Application Repository

Defines where application images are stored so they can be deployed as running code.

Application(s)/App(s)

A product offering that includes one or more functions to fulfill customer/market needs. Applications are offered in various forms including, but not restricted to, web applications, mobile apps, APIs, and SDKs to appeal to different user needs.

APT App Administrator / Business Technology Specialist

A member of APT with permissions to configure the app, data models, workflows, and Experiences in support of the company's business processes. They also define Process Teams, create additional roles, assign process team admins, and add/remove user access to the APT app.

Asynchronous Message

An integration message (formerly known as transaction) is used as an interface to exchange data between two companies. Asynchronous messages do not fully process in real-time.

Attribute

One of the three primitive building blocks used to create the data model. (The others are object type and relationship.) An attribute is a characteristic or inherent part of an object type or relationship. The specific object instance of an attribute is known as a property. Example attributes include: Username, Serial Number, Product Identifier.

Authenticate

The practice of checking a unique identifier against a set of captured serialized data to determine its authenticity.

Authorization Service

An Opus system app, provided by TraceLink, that governs what authenticated users are authorized to do within the context of an app through enforcement points and policies.

Authorized Distributor of Record (ADR)

A wholesale distributor that a manufacturer designates or authorizes to distribute its products.

Auto ID

Method of automatically capturing data encoded on items and containers, and entering that data directly into computer systems without human involvement.

B

Bahrain Compliance

A TraceLink compliance reporting app that searches, views, and generates reports required by the Bahrain National Health Regulatory Authority (NHRA).

Base Solution

The solution created and released by the app developer, which serves as the default solution that is automatically applied to the network when a company licenses an app (e.g. TraceLink created and released the Supply Chain Work Management solution for the Agile Process Teams app).

Batch

A group of products associated with a manufacturing or packaging operation. Synonymous with lot.

Bill of Lading (BoL)

A document issued by a carrier which details a shipment of merchandise and gives the shipment title to a specified party.

Bootstrapping

A process in which the kernel is installed and made operational for the first time so that the rest of the system can be built using the TDE.

Brazil Compliance

A TraceLink compliance reporting app that searches, views, and generates reports required by ANVISA.

Brazilian Health Surveillance Agency (ANVISA)

The Brazilian Regulatory Agency responsible for the approval and supervision of food, cosmetics, tobacco, pharmaceuticals, health services, and medical devices.

Bright Stock

An approach to labeling and packaging operations in which products are produced in large batches, stored in unlabeled containers, and then labeled just prior to shipment.

Build Pipeline

Defines a module's build and deploy processes in the TDE to enable continuous delivery.

Bundle

A group of items held together, usually by shrink wrap. Synonymous with Inner Pack.

Business-to-Business (B2B)

Interactions that support the transfer of standardized interchange files up to an enterprise's EDI system. B2B interactions are not integrated with manufacturing, warehouse, or other backend business systems.

C

Cadastro Nacional da Pessoa Jurídica (National Registry for Legal Entities) (CNPJ)

An identification number issued to Brazilian companies by the Secretariat of the Federal Revenue of Brazil.

Cardinality

How many instances of a type may exist on either the FROM or TO ends of a relationship. The cardinality key defines the relationship as one to one, one to many, many to one, or many to many.

Case

A container of product eaches (e.g. cartons, packages, bottles) which may or may not be bundled.

Catalog Exchange Manager

An Opus system app used to manage global catalog items available to all companies on all environments.

Change Management

A TraceLink app that allows the users to manage and view supplier changes.

Check Digit

Redundancy check used for error detection of identification numbers, used in National Drug Code (NDC) numbers, US Drug Enforcement Administration (DEA) numbers, Global Trade Item Number (GTIN-14) identifiers, and Serial Shipping Container Codes (SSCC).

China Compliance

A TraceLink compliance reporting app that integrates with the National Medical Products Administration (NMPA) reporting system directly or through a local partner.

China Electronic Data Monitoring Code (CN_EDMC)

The encoding format for serial numbers, issued by the Chinese government, used for products sold in China.

China Food and Drug Administration (CFDA)

Former organization in China responsible for ensuring pharmaceutical quality. Replaced by National Medical Products Administration in 2018. See NMPA.

Cluster

A logical grouping of containers that you can place tasks on. A cluster represents an instance of an AWS EKS controller.

Collection

A group of objects.

Commissioning

Process of associating a serial number to a particular object (product or container).

Community

A TraceLink app that allows companies within the TraceLink Network to connect and engage with each other. The Community Hub also allows non-TraceLink Members to search, verify, and track specific products.

Company Administration

An Opus enterprise app, provided by TraceLink, that supports various administrative functions for System Administrators. These functions include user and role management across applications, network-level user and role management, partner management, location management, and maintaining company information.

Company Administrator

A member of a Network Company that has the permissions to perform system administration functions for apps to which the company has access.

Compliance Reporting

Each TraceLink product app that corresponds to a specific country, retains compliance data, and allows users to search and review the details of that data in compliance reports.

Compliance Reports

Reports that display specific country compliance data.

Component

A visual element in the Design Studio that is used for building screens. A component is defined by its Properties. There are two types of components: UI components and Data components.

Container

A standardized unit of TraceLink code. A container is created from a Docker image at runtime.

Content Area

A section of the Foundation layer. Screens are displayed in the content area.

Contract Manufacturing Organization (CMO)

A company providing manufacturing and sometimes packaging services for one or more pharmaceutical manufacturers based on contracts or service agreements.

Contract Packaging Organization (CPO)

A third-party organization that manufacturers subcontract to package products.

Core Business Vocabulary (CBV)

Vocabulary elements agreed upon by trading partners who will exchange data. See: http://www.gs1.org/epcis

Corrective and Preventive Action (CAPA)

Improvements to an organization's processes taken to eliminate quality failures.

Counterfeit

An imitation usually created with the intent of fraudulently passing it off as genuine, often to take advantage of the established worth of the imitated product. The word counterfeit frequently describes the forgeries of currency and documents, and the imitations of clothing, software, pharmaceuticals, jeans, watches, electronics, and company logos and brands. In the case of goods, it results in patent or trademark infringement.

Crypto code

Encrypted identification numbers generated by the Tsentr Razvitiya Perspektivnykh Tekhnologiy (CRPT) for use in Russia. Provides additional security and allows Russian pharmacies without internet access to verify products. A crypto code is associated to a serial number and consists of a key portion and a code portion.

D

Data Carrier

A GS1 term for the different kinds of media, such as barcodes, that can hold GS1 identification keys and application identifiers.

Data Component

A special type of a UI component in the XD Studio that has been preconfigured with an Opus Query. Included as part of a Screen Template section and configured to have specific behavior based on the Properties setting. To use a Data component, apps must be licensed so they can provide an API that responds to the Opus Query.

Data Mesh Pipeline Manager

An Opus system app, provided by TraceLink, that provides a set of standard processing steps as well as the ability for an application to define custom processing steps that can be used to transform, enrich, and combine data in various ways to create data products that can be used in applications for analytics and reporting purposes.

Data Model

The event interface for the schema store that allows authorized users to retrieve schemas. Kernel and platform developers create object types, relationships, and attribute definitions directly in the system. These items make up the Logical Data Model that an application manages.

Data Studio

A part of the Solution Builder. Customers and Solution Partners use the data studio to configure data validations and actions.

Decommission

To disassociate a serial number from a product or container so that it is no longer tracked. In TraceLink, decommissioned serial numbers can be reused, whereas destroyed serial numbers cannot be reused.

Delivery

In TraceLink, a delivery is considered a sale, transfer, or return.

Design Studio

A part of the Opus Solution Builder. Customers and Solution Partners use the Design Studio to create and modify experiences, create and modify screen/field layout, and configure data and actions.

Destroy

To disassociate a serial number from a product or container so that it is no longer tracked. In TraceLink, destroyed serial numbers cannot be reused, whereas decommissioned serial numbers can be reused.

Disaggregate

To remove products or containers from a parent container. The serial numbers of the contained product or container are no longer associated as children of the parent container.

Dispenser

A retail pharmacy, hospital pharmacy, group of chain pharmacies, or any other person authorized by law to dispense or administer prescription drugs. Under DSCSA (United States), an entity is not considered a dispenser if it acts as a wholesale distributor or dispenses products only used for animals.

Disposition

The state of a serial number. TraceLink updates serial number disposition states after provisioning, encoding, commissioning, aggregating, decommissioning, and destroying serial numbers.

Distribution Center (DC)

A warehouse stocked with goods to be redistributed to retailers, wholesalers, or customers.

Docker Image

A file that includes the code, runtime, tools, libraries, and settings needed to execute code for an app. A Docker image becomes a container at runtime.

Double Byte Character Set

A character encoding that contains a large number of unique characters or symbols that is used to express languages such as Japanese, Korean, and Chinese.

Downstream

The direction of product flow, e.g. pharmaceuticals travel first through the manufacturers, then downstream to repackagers, then downstream to wholesaler distributors, and finally downstream to dispensers.

Drug Quality and Security Act (DQSA)

US Federal Legislation passed in November 2013.

Drug Supply Chain Security Act (DSCSA)

An Act signed into law in 2013, which dictates the governance of pharmaceutical distribution and traceability in the US. See https://www.f-
da.gov-
/Drug-
s/DrugSafety/DrugIn-
tegrityandSupplyChainSecurity/DrugSupplyChainSecurityAct/ for details.

Drug Track and Trace System (DTTS)

The Saudi Arabia compliance reporting repository, which supports Saudi Food & Drug Authority serialization and traceability regulations.

Drugs Authentication and Verification Application (DAVA)

India's web portal where manufacturers and exporters upload the compliance reports required for Indian pharmaceutical regulations.

Dun & Bradstreet (D&B)

A company that publishes a business directory of other companies and assigns and maintains a unique identifier for each company within the directory.

DUNS® Number

D&B's copyrighted, proprietary means of identifying business entities on a location-specific basis. Assigned and maintained solely by D&B, this unique nine-digit identification number has been assigned to over 100 million businesses worldwide.

DUNS® Number+4

The DUNS Number plus a 4-digit extension (13-digit total) created by assignees when there is a need for more than one bank/Electronic Funds Transfer (EFT) account for a location. D&B does not create or maintain the +4 number.

E

Each

The smallest saleable unit of product, the secondary package level. Synonymous with item.

Elastic Container Registry (ECR)

A fully managed Docker container registry from AWS that makes it easy for developers to store, manage, and deploy Docker images.

Electronic Data Interchange (EDI)

The electronic transfer of data between computer systems in a standardized message format.

Electronic Drug Monitoring Code (EDMC)

A unique identifier provided by the Chinese government for serialized product.

Electronic Product Code (EPC)

A unique number that identifies a specific item in the supply chain. Also known as a serial number.

Electronic Product Code Information Services (EPCIS)

See: www.gs1.org/epcis for the definition.

Encoding

The process of preprinting labels for serial numbers after they are provisioned. Once the labels are affixed to the products, the serial numbers enter the

"commissioned state."

Enterprise Application

An application used only by the owning company, much like their enterprise systems. Enterprise apps do not have linked partners, however they can be linked to the owning company and/or its locations to support integration with the company's other enterprise systems. Examples of Enterprise Applications are Master Data, Administration, Audit Trail, Compliance Apps, TDE, and Opus Solution Builder.

Enterprise Resource Planning (ERP)

Business process management software used to manage and automate back-office operations.

Enterprise Serialization Manager (ESM)

A term used for a serialization system that a customer may use as its System of Record (SOR) for serial numbers instead of TraceLink's serialization services. The ESM system provides serial numbers to TraceLink for serialization operations and global compliance reporting. Synonymous with External Serialization Manager.

Environment

A namespace that contains a group of Kubernetes deployments.

EPC Global

An organization sponsored by GS1. Develops the standards for Electronic Product Code (EPC) and for Radio-Frequency Identification (RFID) systems that store and manage EPCs.

Error Correction Coding (ECC)

A code applied to transferred data for error control. The ECC provides redundancy and allows the receiver to recover the original data.

Essential Drug List (EDL)

A country-specific list of drugs that satisfies the healthcare needs of the population majority. In China, serial number file structures differentiate whether or not a drug is on or off the EDL and is known as Provincial Reimbursement Essential Drug List (PEDL).

EU Compliance

TraceLink app. Generates EU required reports regarding Serialization and Product Verification.

European Hub

A cloud-based gateway for EU compliance reporting. Provides interoperability between different national systems in the EU, and manages product status (e.g. decommissioning, recalls) and exceptions throughout the life cycle of a product. The hub does not store serialization data like a repository – instead it acts as a single point of entry.

European Medicines Verification System (EMVS)

Pan-European system that implements the Falsified Medicines Directive (FMD). Verifies the authenticity of a medicinal product.

Event

Any action that is triggered in the TraceLink system becomes an "event" once processed in the system.

Event Gateway

An Opus system app, provided by TraceLink, that includes libraries for Route Manager. Event Gateway also includes GraphQL.

Event Repository

A computer system designed to store serial number information and events relating to serialized products.

Exchange Transaction

A DSCSA term that describes the movement of a product where a change of ownership occurs.

Exclusive Distributor

A wholesale distributor that purchases directly from a manufacturer and is the sole distributor of that manufacturer's product.

Experience Manager

An Opus system app, provided by TraceLink, that provides APIs that enable the creation of experiences in Customize for companies that own Solution Builder.

Experiences

Experiences enable access to app functionality in a responsive web user interface (UI) accessible across devices (PC, mobile, etc). Experiences are defined using the Solution Builder Design Studio using low-code, UI-driven configuration. Experiences can include functionality within a single app or functionality that spans across apps. For example, an experience can be created that provides access to features of two different apps in an integrated user experience (when the customer has licensed both apps). Different Experiences can be created for different classes of users that may use the same app. For example, one app can contain a Dispenser Experience, a Manufacturer Experience, and a Partner Experience.

Expiry

Date of expiration or the last day an item should be used.

Extensible Markup Language (XML)

A set of rules that allows documents to be readable by both humans and machines.

Extension Digit

A one-digit segment used to extend the serial reference segment of a Serial Shipping Container Code (SSCC) identifier. The SSCC format is: urn:epc:id:sscc:"[company prefix].[extension digit + serial number]."

External Product Identifier

A standards-based product code, e.g. Global Trade Item Number (GTIN) or a market-specific product code, used to identify the product. Note that this is not a manufacturer Stock Keeping Unit (SKU), as SKUs are not regulated or standardized.

F

Falsified Medicines Directive (FMD)

A pan-European directive intended to protect patients from counterfeit medicines in the regulated pharmaceutical supply chain. The European Medicines Verification System (EMVS) was developed to implement the FMD.

Federal Law No. 425-FZ

A law enacted in 2017 that dictates the governance of pharmaceutical distribution and traceability in Russia.

File Manager

An Opus app, provided by TraceLink, that supports the ability to import and export files to and from an app.

Filter Value

A digit in the 0-9 range that is used in certain EPC and coding formats, as part of the RFID control information, to specify the packaging level associated with the serial number (e.g. each, case, pallet).

Foundation

Foundation layer of the platform. Experiences are built on top of the Foundation, which is always visible.

G

Global Catalog Administration

An Opus enterprise app that allows authorized administrators to approve or reject requests to promote catalog items from a company's catalog into the

global catalog. UI access to the Global Catalog Administration app is provided by the Global Catalog Administration solution.

Global Company Prefix (GCP)

The Company Prefix of the GS1 Identification Key. The Company Prefix is used for any location (physical, operational, or legal) that needs to be identified for use in the supply chain.

Global Identifier

A unique reference number used to identify a legal entity (e.g. company, location) to support the secure exchange of business information.

Global Location Number (GLN)

A unique 13-digit number containing a GS1 company prefix, a location reference, and a check digit, used to uniquely identify a physical location or legal entity in the supply chain. The GLN makes possible the unique and unambiguous identification of those locations and entities.

Global Trade Item Number (GTIN)

A globally unique product identifier used by a company to identify its trade items at all item and package levels. To ensure the identifier is globally unique, GTINs contain the company's GS1 Company Prefix which is assigned by GS1.

Good Practice (GxP)

A general term, usually referring to quality and regulations, in which "x" serves as a variable (e.g. GMP is "Good Manufacturing Practice").

GS1

A leading global organization dedicated to the design and implementation of global standards and solutions, to improve the efficiency and visibility of supply and demand chains globally. The GS1 system of standards is the most widely used supply chain standards system in the world (more at www.gs1.com).

GS1-128

Formerly known as Code-128. A linear barcode used by organization members of GS1.

GS1 Company Prefix

A 4-12 digit globally unique company identifier assigned and administered by GS1 Global. A component of Global Location Number (GLN), Global Trade Item Number (GTIN), and Serial Shipping Container Code (SSCC) identifiers.

GS1 Datamatrix

A two-dimensional matrix barcode, also called a 2D matrix, consisting of black and white cells arranged in either a square or rectangular pattern. The information to be encoded can be text or raw data. Usage granted by the GS1 standards organization.

H

Handler

A mechanism that executes one or more actions in response to an event. Handlers can be organized into modules.

Header

Headers comprise the prefixes used in Human Readable Interpretation of variable data. Common headers include GS1 Application Identifiers (AIs) or GS1 recommended field labels.

Headless App

In software development, a headless application architecture leverages an API-first approach that is focused on the data model, workflow, business logic, and APIs. The APIs are at the center for exposing information that can be consumed by user experiences and used for integration with other systems and applications. All Opus applications are headless apps built using the API-first paradigm.

Health Industry Number (HIN)

9-character alphanumeric unique identifier that is assigned to every facility, delivery location, and business activity in the healthcare supply chain.

Healthcare Distribution Alliance (HDA)
US National Association representing primary, full-service healthcare distributors. Formerly the Healthcare Distribution Management Alliance (HDMA).

Homogenous Case
Defined under DSCSA as a sealed case containing only product that has a single National Drug Code number belonging to a single lot.

Human Readable Interpretation (HRI)
Characters (e.g. letters, numbers) which can be read by persons and are encoded in data carriers. HRI is a one-to-one illustration of the encoded data.

Illegitimate Product
Defined under DSCSA as a product for which credible evidence shows that the product is counterfeit, diverted, or stolen; is intentionally adulterated such that the product would result in serious adverse health consequences or death to humans; is the subject of a fraudulent transaction; or appears otherwise unfit for distribution such that the product would be reasonably likely to result in serious adverse health consequences or death to humans.

Importer
A company that oversees the importation of product to a specific country.

India Compliance
TraceLink app. Searches and views reports required by the Indian government.

Individual Saleable Unit
Defined under DSCSA as the smallest container of product introduced into commerce by the manufacturer or repackager that is intended by the manufacturer or repackager for individual sale to a dispenser.

Industry 4.0
The digital transformation of manufacturing/production and related industries and value creation processes. It refers to the intelligent networking, automation, and data exchange of machines and processes, including cyber-physical systems, the Internet of Things, cloud computing, and cognitive computing.

Inference
The recognition of the serial numbers within a sealed container based on previous observation, and not by directly reading each serial number. Inference is accomplished using data systems or documents and is controlled through validated procedures.

Info Exchange
A TraceLink B2B monitoring tool. Allows certain users to review data that is moving in and out of TraceLink. Monitors and logs file exchanges, errors, search details, and raw files.

Info Express
A TraceLink app that allows for B2B transaction exchanges between Trade Partners in custom formats.

Inspection
The process of reviewing an item, either manually or using automated systems.

Installation Qualification (IQ)
Demonstrates that a process or equipment meets all specifications, is installed correctly, and all required components and documentation needed for continued operation are installed and in place.

Internal Material Number
A number assigned to a product for internal use and not for identifying the product externally.

Internal Partner
A location within the Owner Company that has been granted specified access to a TraceLink app.

Interoperability

The ability of technology systems and software to communicate, exchange data and/or information, and make use of the information that has been exchanged.

Item

The smallest saleable unit of product, the secondary package level. Synonymous with each.

K

Kernel Developer

Responsible for maintaining the verticle, which serves as the starting point of every app. The kernel developer maintains code that defines default behavior for every pod in the system.

Korean Pharmaceutical Information Service (KPIS)

The South Korea compliance reporting repository, which supports serialization and traceability regulations.

Kubernetes (k8s)

Enables dynamic deployment of a group of apps so they can be accessed at runtime. A Helm chart describes how Kubernetes deployments are grouped together in an environment.

L

L1-L5

The 5 levels of serialization and information management, which include: L1 – Device, L2 – Packaging line software, L3 – Site-level serialization, L4 – Enterprise serialization system, and L5 – Network-level serialization system.

Lightweight Directory Access Protocol (LDAP)

An industry standard protocol for accessing and maintaining distributed directory information services.

Line Management System (LMS)

A system that manages a production line and interfaces with a company's Enterprise Resource Planning (ERP) system.

Link

The representation of the relationship between an Owner and a Partner within the context of an app. A Link creates the shared context within the app and defines the permissions for data exchange and access. A Link can be initiated by the app Owner or by a Member of the TraceLink Network, based on the app configuration. Links can be made at the company or location level, depending on what is appropriate for the given app.

Local Library

A company's local storage for solution packages. Each company can maintain their collection of packages in their local library. In a future release, companies will be able to download solution packages and add to their local library, save their local solution customizations as packages to their local library, and use their local library to move packages between environments (i.e. from Validation to Production).

Logistics Labeling

Comprises the data and process of printing labels for use on all containers above the secondary packaging level (e.g. shipper and pallet labels).

Lot

A group of products associated with a manufacturing or packaging operation. Synonymous with batch.

M

Management

An application utility that includes tools for managing application settings and Partners. Users that have access to this utility are considered Managers.

Manufacturer

An entity or organization responsible for producing a product.

Manufacturing Execution System (MES)

A control system for managing and monitoring work-in-process on a factory floor.

Marketing Authorization Holder (MAH)

The license holder (brand owner) of a pharmaceutical product.

Markirovka (MDLP)

The Russia compliance reporting repository, which supports serialization and traceability regulations. MDLP is controlled by the Tsentr Razvitiya Perspektivnykh Tekhnologiy (CRPT).

Master Data

The collection of data representing a company's details, global identifiers, products, and trading partners. Particular types of data are required for serialization and global compliance reporting.

Master Data Exchange (MDX)

TraceLink app for managing Company Master Data, Partner Master Data, and Product Master Data.

Master Data Manager

An Opus multienterprise app, provided by TraceLink, that provides read-only access to Master Data Exchange (MDX) from Track & Trace Services.

Member

Any company, location, or person on the TraceLink Network.

Message

An integration message (formerly known as transaction) which is used as an interface to exchange data between two companies. Messages process in real-time.

Message Hub

An Opus system app, provided by TraceLink, that enables notifications and inbox messages, based on the triggering of certain application events.

Message Processing Framework

An Opus infrastructure app, provided by TraceLink, that is used by app developers to define message processing flows and branching, which support asynchronous message processing via message handlers.

Metadata

Defines an app or platform service. The goals of accelerating app development, facilitating the management of apps, and presenting a developer with a visual development experience require that much of the behavior of an app be defined via metadata. The metadata repository contains object types, associations, and attributes.

Metadata Manager

An Opus system app, provided by TraceLink, that is responsible for managing data models, which consist of object types, relationships, and attributes. This app generates the schema that apps use to persist the data and navigate the data model.

Mobile App

A mobile instance of a customer's application run on a tablet or phone.

Module

Organizes a set of event handlers. Modules have their own Git repositories and their own build pipelines. In TDE, a developer selects which modules to include in the app they are building.

Multienterprise Application

An app used by the owning company that enables the company to share the app and data with supply chain partners on the TraceLink Network. Support for integrated supply chain partners is inherent to the app. Data can be exchanged via the user interface or message exchange with a linked Partner on the TraceLink Network. Examples of multienterprise apps are Agile Process Teams (APT), Serial Number Exchange (SNX), Product Track, and Product Information Manager (PIM).

Multienterprise Process Connect

An app that allows companies to share financial information, product movement, serialized data, and production information about commercial activities with upstream and downstream supply chain partners.

N

Namespace

A term used by Kubernetes as a mechanism to support multiple virtual clusters backed by the same physical cluster. These virtual clusters are called namespaces and can be thought of as an abstract container or environment created to hold a logical grouping of apps and data stores.

National Association of Boards of Pharmacy (NABP)

A nonprofit organization that promotes safe pharmacy practices.

National Drug Code (NDC)

A unique three-segment numeric identifier assigned to each medication prepared for commercial distribution in the United States. The three segments of the NDC identify the labeler, the product, and the commercial package size. The NDC is used as the Item Code in Product Master Data for products distributed in the US.

National Essential Drug List (NEDL)

A list of drugs that a country specifies that satisfies the healthcare needs of the majority of the population.

National Medical Products Administration (NMPA)

The organization in China responsible for ensuring pharmaceutical quality. Replaced China Food and Drug Administration (CFDA) in 2018.

National Medicines Verification Systems (NMVS)

A country-specific product verification system that implements the Falsified Medicines Directive (FMD). NMVS systems verify the authenticity of a medicinal product by leveraging information sent through NMVS Compliance.

National Medicines Verification Systems (NMVS) Compliance

A TraceLink app that generates searchable reports about pack verification and status update events across all European national systems.

National System

An information system set up and governed by national stakeholders to ensure a medicine's authenticity by verifying its safety features. This prevents falsified products from entering the supply chain.

National Trade Item Number (NTIN)

A product identifier that adopts the structure of a Global Trade Item Number (GTIN) and is assigned by a third-party national agency. An NTIN contains a country-specific drug registration number.

Navigation Drawer

Provides access to app destinations as the side menu of the Design Studio. The navigation drawer allows a user to navigate content by selecting different objects to perform actions on.

Network

A business ecosystem is composed of networks. A single network is owned by a company and enables the execution of one or more processes. Networks can have linked entities, which can include Partner companies, Partner locations, and Owner locations based on the nature of the business processes the app supports and the requirements of the specific business context.

Network Administration

An Opus system app, provided by TraceLink, which is responsible for arranging entities on the TraceLink Network, including companies, locations, users and roles, and their associations. Other end-user apps such as Network Operations, Company Administration, Application Administration, and User Administration all leverage this application's capabilities to facilitate the administration of their companies and networks.

Network Administrator

A member of a network that has the permissions to perform administration functions specific to a network (e.g. adding users at the network level, linking Partners and internal locations). Only apps that support multiple networks have Network Administrators.

Network Integration

A Business-to-Business (B2B) connection between a company's ERP system and TraceLink that allows the company to exchange files with other companies from the TraceLink Network. Once a company is integrated to the Network, they can access TraceLink through an Applicability Statement 2 (AS2) mailbox, Secure File Transfer Protocol (SFTP) directories, or HTTP Post web upload location (in addition to the web browser application).

Network Onboarding

Defining the company on the Network. TraceLink onboards a company once by adding a Company Profile to the TraceLink Network. The company's Network profile defines the company so that TraceLink can always interact with it. The profile uniquely identifies each company on the Network to distinguish it from all other parties.

Network Resource Planning (NRP)

An analytics-based application that will allow customers to plan and optimize demand and supply across the end-to-end supply chain.

Node

A server that hosts the platform for a consumer application. A node represents a physical location, a logical location, sub-location, organization, legal entity, or even specific system. Network nodes could be a plant, warehouse, or logical sub-division of a warehouse. For example, a 3PL facility that services multiple customers could have a different Network node representing a logical warehouse for each customer serviced at that location, a business unit or line of business, a geographic organization, a specific ERP system, or a corporate entity.

Node Pool

Namespaces can be mapped to node pools to control the placement of pods on physical devices.

O

Object Type

One of the three primitive building blocks used to create the data model. (The others are attribute and relationship.) A reusable component for managing data in applications. Examples include: Purchase Order, Company, Project.

Operation

A function that can be performed using an API. Referred to as an action in the platform data model.

Operational Qualification (OQ)

Formal testing of the TraceLink Life Sciences Cloud (TL-LSC) system performed by the TraceLink software quality assurance team. This formal testing is required by TraceLink's Software Development Lifecycle procedures for all changes to the

system before a version is approved for release to customers. All OQ testing is documented and reviewed, with objective evidence filed with the test results.

Operational Reporting

Within TraceLink, operational reporting allows TraceLink members to pull existing product data from the system into a CSV file.

Opus Development Environment (ODE)

An Opus enterprise solution, provided by TraceLink, that provides the user interface for programmers, business analysts, professional services, customer IT staff, and third-party developers to build business process applications using the TraceLink Development Environment (TDE).

Opus Digital Network Platform

A multi-tenant cloud environment for developing and hosting extensible mobile and web apps.

Orchestration

A multienterprise app that coordinates the processes made up of various discrete orchestration tasks across supply stakeholders. Orchestration tracks the key dates, responsible parties, and other information for those tasks and can recalibrate the process based on defined contingencies. Orchestrated processes are created from templates and each orchestrated process has specific information defined.

Overall Equipment Effectiveness (OEE)

Evaluation of the effectiveness of a manufacturing operation.

Owner

A TraceLink Member who has purchased a particular TraceLink application (a.k.a TraceLink Customer). Once purchased, the Owner establishes a Link to one or more Members, which makes that Member a Partner within that application's instance.

P

Pack Marking

Data and process for printing on primary and secondary product packaging.

Package

A portable version of a solution that preserves the functionality of the solution and the assets the solution uses (e.g. role or policy configurations, data model or workflow customizations, user experience tasks). Each package has a unique combination of package name and version number.

Package Transfer Service (PTS)

Track and trace system that transfers serialization data between entities when products are sold in Saudi Arabia. A component of the Drug Track and Trace System (DTTS).

Packaging and Labeling

Physical material, artwork, and printing used for all levels of product and logistics containers.

Packaging Code

A code that can be assigned at multiple levels of the packaging aggregation. The code type is chosen by the user. Packaging codes do not have to be the same code type between packaging levels.

Pallet

Largest of the TraceLink defined packaging levels. A flat transport structure that supports goods while being lifted by a forklift or other jacking device. Goods or shipping containers are often placed on a pallet secured with strapping, stretch wrap, or shrink wrap and shipped.

Parallel Importer

An organization that buys a product on the open market with the intention to repackage or relabel, and then distributes the product to a different market.

Park and Retry

A practice for pausing the processing of a message if certain prerequisite conditions have not been met. If a prerequisite for a message has not been met, TraceLink stops processing that task, returns the task to the queue, and then tries to process the task again every 15 minutes for a predetermined amount of time (the default amount is two hours).

Partner

A company on the TraceLink Network that is linked to an app controlled by another company for the purpose of collaborating with the app Owner in the context of a business process. A partner may or may not be a TraceLink customer for the app. When a Partner is also a TraceLink customer of the app, the information exchange is app to app.

Partnership for DSCSA Governance (PDG)

A collaborative forum and FDA public-private partnership dedicated to developing, advancing, and sustaining an effective and efficient model for interoperable tracing and verification of prescription pharmaceuticals in the US.

Pedigree

A certified record that contains information about each distribution of a prescription drug. It records the sale of an item by a manufacturer, any acquisitions and sales by wholesalers or repackagers, and final sale to a pharmacy or other entity administering or dispensing the drug. The process generally begins with the serialization of a product, and then continues through the supply chain as the product is received by each trading partner.

Performance Qualification (PQ)

The documented evidence that the system, equipment, or process is capable of consistently producing a safe product of high quality.

Pharmaceutical Manufacturer

An entity or organization that is the license holder of the pharmaceutical product. This includes Brand Owners, Generics, MAHs, and other Specialty Companies.

Picking

Process of collecting articles in a warehouse to fulfill a customer order.

Platform

A group of TraceLink-developed technologies that are used as a base upon which other applications, processes, or technologies are developed.

Platform Webapp

An Opus app, provided by TraceLink, that provides the basic UI framework for Opus Platform applications including the header, utilities menu, side menu, footer, and the content explorer. These major aspects of the UI framework are always present within any Opus app.

Pod

A Kubernetes term for a group of containers deployed together.

Policies

A policy defines the underlying expression that needs to be evaluated to determine whether the user with role X is permitted to perform the given action specified in role X (e.g. user can perform that action on that object in that environment). The policy expression is evaluated at the time the user initiates an action and responds in sub-millisecond time. The data model defines which attributes are available for policies to evaluate. TraceLink provides a set of policies with each app and Company Admins have permissions to update policies for apps they license. (See: Roles)

Portal

TraceLink web application particularly for Trading Partners as opposed to TraceLink Customers.

Primary Package

The packaging material in direct contact with a product's contents, usually the smallest unit of distribution or use (e.g. blisters, bottles).

Primitive Building Blocks

The three building blocks used to create the data model: object type, attribute, and association.

Process

A Process can be a base business object or custom business object. Solutions can only have a single instance of a specific object type. For example, if we have a base business object customized in 3 different ways, out of 4 variations of the base business object only one can be part of the solution.

Process Team

An organizing construct used by the Agile Process Teams (APT) app that provides the ability to configure team workspaces dedicated to specific groups of users and Partners that will use the solution to execute processes while maintaining separate data access and visibility within each Process Team. This enables a delegated usage model by multiple organizations or business units in the same company and their respective supply chain ecosystems. This enforces the same process across the enterprise while permitting each business unit to manage its partners, users, role assignments, and data visibility independently. See: Agile Process Teams (APT)

Process Team Administrator

A member of the APT app and one or more Process Teams with permissions to add/remove user access to the Process Team, link/unlink Partners to the Process Team, and assign the Process Team user roles to users and Partners.

ProcessLink

A TraceLink term that describes a one-to-one B2B relationship between a TraceLink customer and its Trade Partners.

ProcessLink Workspaces

A collaborative workspace that includes all active product apps as a B2B toolset for a TraceLink customer and its Trade Partners.

Product

A prescription drug that is fully manufactured and is in its intended dosage. Synonomous with Medicine.

Product Code

A unique identifier assigned to each finished manufactured product that is ready to be marketed or sold. Synonymous with Universal Product Code.

Product Information Exchange

A TraceLink app that routes Consumer verification requests to Product Information Manager (Product Verification). This app also stores a history of verification requests and responses.

Product Information Manager - Master Data Share

A TraceLink app that allows users to exchange product master data with any of their supply chain partners.

Product Information Manager - Product Verification

A TraceLink app that enables direct and indirect trading partners to manage product verification requests in real time across any party in the supply chain, without a need for preexisting relationships between the requesting and responding parties.

Product Verification

Allows a user to verify the status of a serial number against a pharmaceutical manufacturer's data.

Production Cluster

Each region has one production cluster and one test cluster.

Project

A collaboration space for developers to create versions of a set of apps. A project is used to develop one or more versions of one or more apps. A company in a namespace creates a project. A client must address events to the TDE app to create a new project.

Property

The specific object instance of an attribute (i.e. the value of the attribute).

Provisioned

A serial number state in which the serial number has been created and reserved for a product, but has not yet been commissioned.

Q

Quarantine

The storage or identification of a product, to prevent distribution or transfer of the product, in a physically separate area clearly identified for such use or through other procedures.

R

Radio-Frequency Identification (RFID, RFID tag)

The use of an object applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves.

Recall

The removal of a drug product from the market. In the US, recalls fall under three classifications: Class I is for drug products that can probably lead to adverse health effects or death; Class II is for drug products that can cause temporary or reversible health effects; and, Class III relates to instances where the drug product is not likely to cause adverse health effects.

Receipt

An inbound purchase, return, or transfer within TraceLink.

Reconcile

The process of verifying that information in a digital system accurately reflects the state of objects in the real world (e.g. comparing a label on a package with the same label in TraceLink).

Region

Company data is stored in a data center in one of two regions: US East or EU Central. For data residency and privacy, a company can only have their data in one region. Companies can exchange data with companies in other regions, but a company cannot move data to another region. If a company needs to migrate data from one region to another, TraceLink creates a new company in the other region. Migration happens only on the production cluster.

Relabel

To assign a new serial number to a container (preserving existing aggregations) within TraceLink.

Relationship

One of the three primitive building blocks used to create the data model. (The others are object type and relationship.) A relationship is how business objects can be connected to each other; relationships represent "why" two objects are connected.

Roles

Roles govern permissions to screens, functions, and data within an app, whether performed via the user interface or integration. Roles are managed by the Business Technology Specialists that configure and customize the app and by the Company Admins (users with Role Management access). An app can have many roles (to permit and restrict what different classes of members can do within the app). Roles are defined, named, and assigned to members of the app, including Partners. Every enterprise app must have roles for at least an Admin and a Member. Every multienterprise app must have roles for at least an Admin, Member, Partner Admin, and Partner Member. TraceLink will provide a set of default roles with each app that include the above, but may also include standard business use roles.

Roszdravnadzor

Also known as the Federal Service for Surveillance in Healthcare. An executive body responsible for the control and supervision of the healthcare system in Russia. Part of the Ministry of Health. See http://www.roszdravnadzor.ru/en for more information.

Runtime Model

Currently placed under the metadata model.

Russia Biologically Active Food Supplements Compliance (Russia BAFS Compliance)

An Opus enterprise application that allows Marketing Authorization Holders (MAHs) who sell products in Russia to meet the reporting requirements of Federal Law No. 29-FZ of 2000 regarding the quality of food products and supplements and their safety for human health. Also refers to the Opus enterprise solution that provides the user interface for the Russia BAFS Compliance application.

Russia Compliance

A TraceLink application that allows Marketing Authorization Holders (MAHs) who sell products in Russia to meet the reporting requirements of Federal Law No. 425-FZ.

Russia Crypto Codes

A TraceLink application that enables Marketing Authorization Holders (MAHs) and their CMOs to manage encrypted identification numbers with the Tsentr Razvitiya Perspektivnykh Tekhnologiy Order Management Station (CRPT OMS).

S

Safety Features

Elements (e.g. anti-tampering devices, barcodes) carrying product and pack data, that are incorporated into a medicine product's packaging and identification to facilitate verification. Under FMD, for instance, safety features contain a unique identifier encoded in a 2D barcode and anti-tampering technologies.

Saudi Arabia Compliance

A TraceLink application that enables Pharmaceutical Manufacturers and Wholesale Distributors to comply with Saudi Food & Drug Authority (SFDA) regulations.

Saudi Food & Drug Authority (SFDA)

Saudi Arabia federal agency that oversees the regulation of food and health products within Saudi Arabia.
See https://www.sfda.gov.sa/en/pages/default.aspx for more information.

Schema

The physical database instantiation of the Logical Data Model that defines the detailed definition (i.e. attributes) of a particular object type or association, as opposed the metadata model, which is used when referencing the object types, associations, and attributes of the system.

Screen

Divides the content area into sections that contain UI components and data components. The Screen template is based on the Flexbox (or "Flexible Box") layout mode, which provides a responsive, device-independent content flow.

Screen Template

Defines physical and behavioral boundaries of a specific area in the UI, such as whether it spans across the entire screen or only part of the screen. A Screen template is composed in the XD Studio and can be reused across different devices.

Script

Defines a user's company-specific behavior. A script can insert pre-processing or post-processing steps to an event, or even override an event's defined behavior.

Section

An area within the XD Studio screen. A section contains UI components, Data components, or both.

Secure File Transfer Protocol (SFTP)

A network protocol that provides file access, transfer, and management over a secure channel.

Segment

A section of a market or industry. The pharmaceutical supply chain includes segments such as Manufacturer, Wholesale Distributer, Dispenser, Contract

Manufacturing Organization (CMO), Third-Party Logistics (3PL) companies, and Repackagers (also known as Third-Party Packagers or 3PPs).

Serial Number
The distinctive portion or component of a Unique Identifier (UID), also known as a Serial Reference.

Serial Number Exchange (SNX)
The TraceLink app used to exchange and track serial numbers during the manufacturing and packaging stages of the product.

Serial Number Manager (SNM)
The TraceLink app used to generate serial numbers. Manufacturers define the types and formats of the serial numbers and can assign them to packaging sites.

Serial Shipping Container Code (SSCC)
The number used to identify shipping pieces such as pallets and cases. See the "GS1 Glossary" at http://gddold.gs1.org for more information.

Serialized Global Location Number (SGLN)
A unique identifier to a physical location (e.g. a specific building or bin within a warehouse). Where the Global Location Number (GLN) is a GS1 format, the SGLN is an Electronic Product Code (EPC) format, and is represented in Uniform Resource Identifier (URI) format (e.g. urn:epc:id:sgln:0030001.12345.400).

Serialized Global Trading Item Number (SGTIN)
The combination of a Global Trade Identification Number (GTIN) and serial number which uniquely identify an item.

Serialized National Drug Code (sNDC)
The accepted format of unique identifier as defined by the US Food and Drug Administration (FDA) for serialization of US marketed products. The sNDC is comprised of the National Drug Code (NDC) and a serial number.

Serialized Operations Manager (SOM)
The TraceLink app that manages and reports on serial numbers and their corresponding products and containers.

Settings
An application utility that configures app notification settings and TraceLink default settings.

Shared Catalog Manager
An Opus system app used to add, edit, and delete catalog items in a company's catalog in a specific environment.

Simple Object Access Protocol (SOAP)
A messaging protocol for exchanging structured (XML) information in the implementation of web services.

Single Sign-On (SSO)
A session and user authentication service that allows software system users to log in with a single username and password to access connected systems.

Site Server
A computer system responsible for a location-specific function. In traceability systems, site servers usually refer to local servers that allocate serial numbers to packaging control systems and manage serial number data before it is transmitted to an enterprise traceability event repository.

Smart Event Manager
A TraceLink app that serves as an event ledger to capture and record serial number observations on serialized objects (in whatever order they may occur) related to pharmacy, warehouse, and supply chain activities in an independent repository, without depending on full track and trace and serial number life cycle requirements.

Smart Inventory Tracker
A TraceLink app that operates on a handheld device or smartphone that assists with warehouse and distribution functions.

Smart Rx Manager
A TraceLink mobile app that allows Pharmacies and Hospitals in the European Union to meet verification and reporting requirements. Smart Rx Manager leverages Smart Event Manager to store all events and National Medicine Verification

System (NMVS) Compliance to communicate with the appropriate European national system.

Snapshot

Represents the state of metadata and code at a particular point in time. Developers can choose to take a snapshot at any time. Snapshots are identified by snapshot numbers. Test companies can be configured to use a specific snapshot number of an app's specific version, or to always use the latest snapshot. The latter is useful in development, as the developer makes changes without having to continually change the settings for their test company.

Software Development Kit (SDK)

A set of developer tools that allows other software programs to interact with the TraceLink Platform. Members on the Network can generate a series of request and response messages corresponding to various TraceLink applications (whether synchronously or asynchronously).

Solution Builder

An Opus enterprise app, provided by TraceLink, that allows TraceLink, Customers, and Solution Partners (SP) to create and customize solutions in a low-code environment. Design Studio, Workflow Studio, and Data Studio are all part of the Solution Builder.

Solution Catalog

The global catalog where authorized solution providers can publish approved solution packages to be distributed to TraceLink customers. Companies can download packages from the catalog for the apps they have licensed, which they can then install as a solution and customize if needed.

Solution(s)

Once a bundle of applications (from a one or more Solution Areas) are chosen to meet a customer's needs, that customer's Solution is established.

Solutions

Solutions package configurations of data models, workflows, user experiences, and roles to create the functionality that a customer will use in support of a business requirement. The data model, workflow, and APIs come from the app. The user experiences and roles are associated in the context of the Solution.

TraceLink offers default Solutions that can be used out of the box by customers. Configuring and managing solutions is done using the Solution Builder. Customers can also clone and customize solutions with the Solution Builder.

South Korea Compliance

TraceLink app. Searches and views reports required by the South Korean government.

Standard Carrier Alpha Code (SCAC)

Code used to identify transportation companies.

Standardized Numerical Identifier (SNI)

A standard identifier affixed to a prescription drug package.

State License

Within the US, a particular state's license as a wholesale drug distributor, e.g. Indiana issues a wholesale drug distributor license number, in the format 4800XXXXA (including the "4800" prefix and the "A" suffix).

Stock Keeping Unit (SKU)

Specifies a distinct type of item for sale. SKUs are not regulated or standardized and thus are not used for serialization.

Storage Area Network (SAN)

A network that provides access to consolidated, block level data storage.

Supplier Issue Tracking

TraceLink app. Tracks external and internal supplier issues.

Supply Chain Issue Management (SCIM)

A multienterprise collaboration solution for Tracelink's Agile Process Teams (APT) app that allows capturing, analyzing, resolving, correcting, and preventing supply chain issues.

Supply Chain Work Management (SCWM)

A multienterprise work management Solution for digitalizing supply chain business processes and enabling structured execution cross-functionally and cross-

company with supply chain partners.

Suspect Product

A product for which there is reason to believe that such product is potentially counterfeit, diverted, or stolen; potentially intentionally adulterated such that the product would result in serious adverse health consequences or death to human; potentially the subject of a fraudulent transaction; or appears otherwise unfit for distribution such that the product would result in serious adverse health consequences or death to humans.

Synchronous Message

An integration message (formerly known as transaction) is an interface where data exchanges between two or more entities. Synchronous messages fully process in real-time.

Synchronous Processing

Type of processing that provides an immediate response to a query. Simple Object Access Protocol (SOAP) and REST web services provide synchronous processing.

System Administrator

A member of a company that has the permissions to perform system administration functions for apps to which the company has access (e.g. company configuration, adding users to the company).

System Application

An application that enables fundamental capabilities of the Opus Platform and makes these available to end-user applications. Examples of System Applications are Metadata Manager, Application Manager, Workflow Manager, Message Processing Framework, and Application Version Manager.

System of Record (SOR)

A data storage system that is the authoritative source for a particular data element when there are multiple sources of the same element.

T

T3

Under DSCSA, the combination of Transaction Information (TI), Transaction History (TH), and the Transaction Statement (TS) for a product as it moves through the drug supply chain.

Team

A team is composed of users from the company that owns the network and users from the linked entity who have access to the Link. Each Link within the network represents a single team.

Team Administrator

A member of an app or network that has permission to perform administration functions for that app or network (e.g. adding users at the network level, linking Partners and internal locations). Only apps that allow linking have Team Administrators.

Telepresence

For rapid development work, platform developers can use Telepresence to allow code to be run on their local machine and proxied to the cloud.

Templates - Serial Number

Using the Serial Number Manager (SNM) app, manufacturers define the formats of the serial numbers for particular products using serial number templates, which are defined presets for correlated serial number data.

Test Cluster

Contains the company namespace, QE, namespace, and other namespaces for QA/testing in a runtime environment for debugging. Each region has one production cluster and one test cluster.

Theme

Defines the visual branding information and applies to all screens hosted in the XD Studio. A theme can be modified by companies and users. Examples: color, font, spacing, and other visual aspects not affecting functionality.

Third-Party Logistics (3PL)

A contracted company that provides distribution services of finished goods on behalf of another company. A 3PL provides distribution services, but never takes ownership of the product although the product is in its possession.

Third-Party Manufacturer (TPM)

A company contracted to manufacturer products for a pharmaceutical manufacturer.

Third-Party Organization (TPO)

Term used to refer to any Third-Party Manufacturer (TPM), Third-Party Logistics (3PL), Contract Manufacturing Organization (CMO), or other externally contracted organization.

Third-Party Packager (3PP)

An organization that is contracted to package product.

Third-Party Printer (3PP)

An organization that is contracted to print serial numbers onto packaging containers.

TL Runtime

The set of implementations for the interface provided by the API package in the Opus SDK. It is part of the TL kernel verticle, and is shared by all subordinate verticles located in the container.

TLDB

A logical database built by TraceLink (based on RocksDB) to provide data persistence for Opus applications. An Opus application communicates with a TLDB instance through the Worldview data access layer.

TraceLink Application (App)

A TraceLink product offering which includes a fixed set of functions. For example, SNX is an app which includes provisioning, commissioning, and aggregation functions.

TraceLink Customer

The company or organization that enters into a commercial relationship with TraceLink, purchasing a TraceLink product offering, such as Product Track.

TraceLink Development Environment (TDE)

An Opus enterprise app, provided by TraceLink, that enables programmers, business analysts, professional services, customer IT staff, and third-party developers to quickly build business process applications in a low-code, cloud-scale environment.

TraceLink Network

The foundation of the TraceLink product offerings (i.e. TraceLink at the highest level). Members join the TraceLink Network and access applications either as Owners (if they purchased the application) or Partners (if Linked to the application).

TraceLink Web Experience

A responsive web experience that is accessed from http://opus.tracelink.com and will replace the tracelink.com website. The TraceLink Web Experience provides a Foundation layer of the platform UI that is always visible.

Track and Trace

A group of systems and processes used to determine the status and location (past and present) of a unique item.

Trading Partner

An on-going business-to-business relationship where a product transfer and change of ownership occurs (e.g. Customer, Supplier, 3PL).

Transaction History (TH)

A Drug Supply Chain Security Act (DSCSA) term. A statement in paper or electronic form that includes the Transaction Information (TI) for each prior change of

ownership, going back to the manufacturer of the product.

Transaction Information (TI)

A Drug Supply Chain Security Act (DSCSA) term. Information that documents the change in ownership of a product including drug product information, dates, and business party details.

Transaction Statement (TS)

A DSCSA term that refers to a statement, in paper or electronic form, that provides a legal attestation that the entity transferring ownership complies with DSCSA requirements. The Transaction Statament is included with the Transaction Information and History.

Transform Service

An Opus enterprise app, provided by TraceLink, which is responsible for transferring data from one format to another (e.g. JSON to CSV).

Tsentr Razvitiya Perspektivnykh Tekhnologiy (CRPT)

The public-private organization in Russia responsible for generating crypto codes via their Order Management Station (OMS). See https://crpt.ru/ for more information.

U

UI Component

Included as part of a screen template section in the XD Studio and configured to have specific behavior based on the Properties setting.

Uniform Product Code (UPC)

The US standard article number. A form of GTIN data carrier or barcode.

Unique Identifier (UID)

A string of numbers and characters relating to a product that is unique within a given system.

Universal Product Code (UPC)

A unique identifier assigned to each finished manufactured product that is ready to be marketed or sold. Synonymous with Product Code.

Upstream

The opposite of the normal product flow in a supply chain (i.e. moving back up the supply chain). Generally speaking, the pharmaceutical product flows, and transactions occur, through the supply chain from manufacturers, to repackagers, to wholesaler distributors, to dispensers.

US Center of Veterinary Medicine (CVM)

An FDA Organization that regulates some products that are administered by veterinarians but can also be consumed by humans.

US Drug Enforcement Administration (DEA)

Federal Agency which enforces federal drug laws within the US.

US Drug Enforcement Administration Number (DEA Number)

A registration number assigned to an entity that has to be authorized by the US Drug Enforcement Administration (DEA) to manufacture, distribute, research, prescribe, or dispense a controlled substance for the purpose of tracking controlled substances. A valid DEA number consists of: 2 letters, 6 numbers, and 1 check digit. The first letter of the code identifies the type of registrant (P/R-Manufacturer/Distributor). The second letter is the first letter of the registrant's last name.

US Food and Drug Administration (FDA)

US Federal Agency that oversees the regulation of food and health products within the US.

US Product Track

TraceLink app. Tracks movement of products within the US supply chain.

User

An individual associated with an entity or organization responsible for making use of product, process, or systems. A user must be an Owner or Partner (i.e. "Linked" within the context of an app).

User Application

A set of apps that enable general functionality, such as receiving notifications and setting preferences. These apps are available to any registered user on TraceLink without the need to own or link to an app.

User Interface (UI)

TraceLink web application for TraceLink customers.

V

Validation

The documented procedure for obtaining, recording, and interpreting the results required to establish that a process will consistently yield product complying with predetermined specifications.

Value Added Network (VAN)

A hosted service that acts as an intermediary between business partners sharing standards based on proprietary data via shared business processes.

Verification

Defined under DSCSA as a means of determining (i.e. verifying) whether the product identifier affixed to, or imprinted upon, a package or homogeneous case corresponds to the standardized numerical identifier or lot number and expiration date assigned to the product by the manufacturer or the repackager.

Verified-Accredited Wholesale Distributors (VAWD)

An accreditation for pharmaceutical wholesale distribution facilities. Those wholesale distributors that achieve accreditation are in compliance with state and federal laws, and NABP's VAWD criteria.

Vert.x

An open-source toolkit for building asynchronous apps on the JVM using reactive design patterns.

Verticle

A unit of deployment of code for one or more event handlers. Each Jar corresponds to a verticle. Jars can dynamically load multiple verticles when an app or microservice starts up.

Virtual (Manufacturer or CMO)

A company that outsources services to a Manufacturer/CMO.

W

Warehouse Management System (WMS)

A software application that supports the day-to-day operations in a warehouse. Enables centralized management of tasks such as tracking inventory levels and stock locations.

Web Application (Apps)

Web-based applications are accessed over a network connection and run inside of a web browser.

Web Service Definition Language (WSDL)

An XML-based interface used to describe the functionality of a web service. In TraceLink, WSDLs are typically used to implement synchronous serial number requests and responses.

Wholesale Distribution

The movement of a drug where the recipient is not a consumer/patient.

Wholesale Distributor

A company that purchases products from manufacturers and then sells them to an entity other than a consumer or patient.

Workflow

Actions that are enabled in TraceLink based on particular events. For example, these events may trigger government reports (e.g. shipping, receipt).

Workflow Manager

An Opus system app, provided by TraceLink, that executes base state transition conditions and transition actions as well as the custom transitions and actions for a given business object (e.g. Incidents).

Workflow Studio

A part of the Solution Builder. Extends workflows and add business logic and conditions. Customers or Solution Partners use the Workflow Studio to extend workflows by adding business logic and conditions, and sub-states and transitions to the base workflow states and transitions to the base workflow states (e.g. Review step, Approval step) and add logic conditions and handlers.

Worldview

A collection of lightweight data access APIs that Opus apps can use to interact with data services, including S3, Dynamo, EBS, RDS, Memcache, Redis, and TLDB. The Worldview API is part of the TL Runtime, and is available to every Opus app.

X

XSD

Describes the structure/schema of an XML document.