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7-19-04
# New Features in cXML 1.2.044

This section describes the features introduced in cXML version 1.2.044.

<table>
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<th>Element</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ConditionType</strong> [page 205]</td>
<td>This is a new element. It references a pricing condition type.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ContractRequest, QuoteRequest</td>
</tr>
<tr>
<td><strong>ConditionTypes</strong> [page 204]</td>
<td>This is a new element. It references a condition types list.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ContractRequest, QuoteRequest</td>
</tr>
<tr>
<td><strong>CostTermValue</strong> [page 205]</td>
<td>This is a new element. It references a pricing condition cost term.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ContractRequest, QuoteRequest</td>
</tr>
<tr>
<td><strong>IncorporationType</strong> [page 221]</td>
<td>This is a new element. It specifies the company type.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> PaymentProposalRequest, PaymentRemittanceRequest, TradeRequest</td>
</tr>
<tr>
<td><strong>InventoryTimeSeries</strong> [page 447]</td>
<td>The type attribute now supports the following additional values:</td>
</tr>
<tr>
<td></td>
<td>- minimumStock</td>
</tr>
<tr>
<td></td>
<td>- maximumStock</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ProductActivityMessage</td>
</tr>
<tr>
<td><strong>Packaging</strong> [page 174]</td>
<td>The following element was added: AssetInfo.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> InvoiceDetailRequest, MasterAgreementRequest, OrderRequest, PunchOutSetupRequest, ShipNoticeRequest, TransportRequest</td>
</tr>
<tr>
<td><strong>PaymentPartner</strong> [page 217]</td>
<td>The following element was added: IncorporationType.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> PaymentProposalRequest, PaymentRemittanceRequest, TradeRequest</td>
</tr>
<tr>
<td><strong>PricingConditions</strong> [page 203]</td>
<td>This is a new element. It references a pricing condition object for a given line item.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ContractRequest, QuoteRequest</td>
</tr>
<tr>
<td><strong>Scale</strong> [page 206]</td>
<td>This is a new element. It represents the volume scale.</td>
</tr>
<tr>
<td></td>
<td><strong>Message:</strong> ContractRequest, QuoteRequest</td>
</tr>
<tr>
<td>Element</td>
<td>Description of change</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Scales [page 205]</td>
<td>This is a new element. It references a pricing condition scales vector.</td>
</tr>
<tr>
<td>UnitPrice [page 203]</td>
<td>The following element was added: PricingConditions.</td>
</tr>
<tr>
<td>ValidityPeriod [page 204]</td>
<td>This is a new element. It references a pricing condition validity period.</td>
</tr>
<tr>
<td>ValidityPeriods [page 203]</td>
<td>This is a new element. It references a list of validity periods.</td>
</tr>
</tbody>
</table>
2 Introduction to cXML

This section introduces cXML (commerce eXtensible Markup Language) for electronic-commerce transactions.

2.1 cXML, an XML Implementation

XML (eXtensible Markup Language) is a meta-markup language used to create syntaxes for languages. It is also a standard for passing data between applications, particularly those that communicate across the Internet.

XML documents contain data in the form of tag/value pairs, for example:

    <DeliverTo>Joe Smith</DeliverTo>

XML has a structure similar to HTML (HyperText Markup Language), which is an implementation of SGML, XML's parent meta language. Applications can extract and use data from XML documents more easily than from HTML documents, however, because XML data is tagged according to its purpose. XML contains only data, while HTML contains both data and presentation information.

Each cXML document is constructed based on XML Document Type Definitions (DTDs). Acting as templates, DTDs define the content model of a cXML document, for example, the valid order and nesting of elements, and the data types of attributes.

The DTDs for cXML are files available on the www.cXML.org website.

2.2 cXML DTDs

Because cXML is an XML language, it is thoroughly defined by a set of Document Type Definitions (DTDs). These DTDs are text files that describe the precise syntax and order of cXML elements. DTDs enable applications to validate the cXML they read or write.

The header of each cXML document contains the URL to the DTD that defines the document. cXML applications can retrieve the DTD and use it to validate the document.

For the most robust transaction handling, validate all cXML documents received. If you detect errors, issue the appropriate error code so the sender can retransmit. cXML applications are not required to validate cXML.
documents received, although it is recommended. However, all cXML documents must be valid and must refer to the cXML DTDs described in the following section.

### Getting cXML DTDs

DTDs for all versions of cXML are available on cXML.org. The various kinds of cXML documents are defined in multiple DTDs to reduce DTD size, which enables faster validation in some parsers.

<table>
<thead>
<tr>
<th>Document</th>
<th>DTD</th>
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<tbody>
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<td>Basic cXML documents</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/cXML.dtd">http://xml.cXML.org/schemas/cXML/version/cXML.dtd</a></td>
</tr>
<tr>
<td>Confirmation and Ship Notice</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/Fulfill.dtd">http://xml.cXML.org/schemas/cXML/version/Fulfill.dtd</a></td>
</tr>
<tr>
<td>Invoice</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/InvoiceDetail.dtd">http://xml.cXML.org/schemas/cXML/version/InvoiceDetail.dtd</a></td>
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<tr>
<td>Type Definition</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/Catalog.dtd">http://xml.cXML.org/schemas/cXML/version/Catalog.dtd</a></td>
</tr>
<tr>
<td>Payment Remittance</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/PaymentRemittance.dtd">http://xml.cXML.org/schemas/cXML/version/PaymentRemittance.dtd</a></td>
</tr>
<tr>
<td>Request for Quotations</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/Quote.dtd">http://xml.cXML.org/schemas/cXML/version/Quote.dtd</a></td>
</tr>
<tr>
<td>Contracts</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/Contract.dtd">http://xml.cXML.org/schemas/cXML/version/Contract.dtd</a></td>
</tr>
<tr>
<td>Logistics</td>
<td><a href="http://xml.cXML.org/schemas/cXML/version/Logistics.dtd">http://xml.cXML.org/schemas/cXML/version/Logistics.dtd</a></td>
</tr>
</tbody>
</table>

where version is the full cXML version number.

cXML applications use these DTDs to validate all incoming and outgoing documents.

### Caching DTDs

For best performance, cXML applications should cache DTDs locally. After cXML DTD files are published, they never change, so you can cache them indefinitely. (Each new version of the DTDs has a new URL.) When cXML applications parse a cXML document, they should look at the SYSTEM identifier in the document header and retrieve that DTD if it has not already been stored locally.

Caching DTDs locally offers the advantages of faster document validation and less dependence on the cXML.org site.

In some environments, cXML applications might not be allowed to automatically retrieve DTDs as they receive new documents. In these environments, you must manually retrieve the DTDs, store them locally, and instruct your applications to look for them locally, not at cXML.org. However, generated cXML documents must point to the DTDs at cXML.org, not the local DTDs.

### 2.3 Audience and Prerequisites

This document is intended for application developers who design cXML-enabled applications.
cXML is an open versatile language for the transaction requirements of:

- E-commerce network hubs
- Electronic product catalogs
- PunchOut catalogs
- Procurement applications
- Buyers
- Suppliers
- E-commerce service providers

Readers should have a working knowledge of e-commerce concepts, the HTTP Internet communication standard, and XML format.

This document does not describe how to use specific procurement applications or network hubs.

### 2.4 Typography

cXML elements and attributes are denoted with a monotype font. cXML element and attribute names are case-sensitive. Both are a combination of lower and uppercase, with elements beginning with an uppercase letter, and attributes beginning with a lowercase letter. For example, MyElement is a cXML element, and myAttribute is a cXML attribute.

The following table describes the typographic conventions used in this book:

<table>
<thead>
<tr>
<th>Typeface or Symbol</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>AaBbCc123</td>
<td>Text you need to change is italicized.</td>
<td><a href="http://server:port/inspector">http://server:port/inspector</a></td>
</tr>
<tr>
<td>AaBbCc123</td>
<td>The names of user interface controls, menus, and menu items</td>
<td>Choose Edit from the File menu.</td>
</tr>
<tr>
<td>AaBbCc123</td>
<td>Files and directory names, parameters, fields in CSV files, command lines, and code examples</td>
<td>A ProfileRequest document is sent from a buyer to the network.</td>
</tr>
<tr>
<td>AaBbCc123</td>
<td>Book titles</td>
<td>For more information, see Acme Configuration Overview.</td>
</tr>
</tbody>
</table>
3  cXML Basics

This section describes the basic protocol and data formats of cXML. It contains information needed to implement all transactions.

   Protocol Specification [page 18]
   Basic Elements [page 42]

3.1  Protocol Specification

There are two communication models for cXML transactions: Request-Response and One-Way. Because these two models strictly specify the operations, they enable simple implementation. Both models are required, because there are situations when one model would not be appropriate.

3.1.1  Request-Response Model

Request-Response transactions can be performed only over an HTTP or HTTPS connection. The following figure illustrates the steps in a Request-Response interaction between parties A and B:

Site A           Site B

  cXML Request (HTTP/HTTPS Post)

  B Performs Request

  cXML Response (HTTP/HTTPS Response)

Figure 1: Request-Response Transaction

This transaction contains the following steps:

1. Site A initiates an HTTP/1.x connection with Site B on a predetermined URL that represents Site B’s address.
2. Site A uses a POST operation to send the cXML document through the HTTP connection. Site A then waits for a response.

3. Site B has an HTTP/1.x-compliant server that dispatches the HTTP Request to the resource specified by the URL used in step 1. This resource can be any valid location known to Site B’s HTTP server, for example, a CGI program or an ASP page.

4. Site B’s resource identified in step 3 reads the cXML document contents and maps the Request to the appropriate handler for that request.

5. Site B’s handler for the cXML Request performs the work that the Request specifies and generates a cXML Response document.

6. Site B sends the cXML Response to Site A through the HTTP connection established in step 1.

7. Site A reads the cXML Response and returns it to the process that initiated the Request.

8. Site A closes the HTTP connection established in step 1.

This process is then repeated for further Request/Response cycles.

To simplify the work in the above steps, cXML documents are divided into two distinct parts:

- **Header**—Contains authentication information and addressing.
- **Request or Response data**—Contains a specific request or response and the information to be passed.

Both of these elements are carried in a parent envelope element. The following example shows the structure of a cXML Request document:

```
<cXML>
  <Header>
    Header information
  </Header>
  <Request>
    Request information
  </Request>
</cXML>
```

The following example shows the structure of a cXML Response document:

```
<cXML>
  <Response>
    Response information
  </Response>
</cXML>
```

The **Response** structure does not use a **Header** element. It is not necessary, because the **Response** always travels in the same HTTP connection as the **Request**.

### 3.1.2 cXML Conventions

cXML uses elements to describe discrete items, which are properties in traditional business documents. Elements also describe information with obvious subdivisions and relationships between those subdivisions, such as an addresses, which are composed of street, city, and country.

cXML also uses attributes, which modify elements or provide context.
Element and attribute names are case-sensitive and use whole words with capitals (not hyphens) separating
the words. Element names begin with an uppercase letter; attribute names begin with a lowercase letter, for
example:

Elements: Sender, Credential, Payment, ItemDetail
Attributes: payloadID, lineNumber, domain

If optional elements have no content (they are null), leave them out entirely. Avoid empty or whitespace
elements, because missing values can affect some parsers.

In DTD files and in this document, symbols are used to indicate how many times an element can occur in a
transaction. A '+' means the element can occur one or more times, a '?' means the element can occur 0 or
once, and a '*' means the element can occur 0 or more times.

3.1.3 cXML Document

The cXML element is the body of a cXML document. A document might begin as follows:

```
<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML lang="en-US"
      payloadID="1234567.4567.5678@buyer.com"
      timestamp="2002-01-09T01:36:05-08:00">
```

The first characters in cXML documents must be <? or <! . Documents must not start with white space or tabs.
For example, the HTML form that contains a PunchOutOrderMessage document must not insert any
character between the opening quote and the left angle bracket.

The second line in cXML documents must contain the DOCTYPE document type declaration. This is the only
external entity that can appear in cXML documents. This line references the cXML DTD.

cXML documents can have any one of the following top-level elements: cXML, Supplier, Contract, and
Index. The cXML element is for “transactional” data. The other elements describe static content.

Related Information

cXML DTDs [page 15]

3.1.4 Wrapping Layers

cXML documents are usually transmitted through HTTP with the HTTP header specifying a MIME
(Multipurpose Internet Mail Extensions) media type of text/xml and a charset parameter matching the
encoding in the cXML document.

Because HTTP is eight-bit clean, any character encoding supported by the receiving parser can be used
without a content-transfer encoding such as base64 or quoted-printable. All XML parsers support the UTF-8
(Universal Transformation Format) encoding, which includes all Unicode characters, including all of US-ASCII. Therefore, applications should use UTF-8 when transmitting cXML documents.

**Note**

According to IETF RFC 2376 “XML Media Types,” the MIME charset parameter overrides any encoding specified in the XML declaration. Further, the default encoding for the text/xml media type is **us-ascii**, not UTF-8 as mentioned in Section 4.3.3 of the XML Specification. For clarity, cXML documents should include an explicit encoding in the XML declaration. MIME envelopes should use a matching charset parameter for the text/xml. You can also use the application/xml media type, which does not override the XML declaration or affect the recipient’s decoding notes, and which does not require the charset parameter.

An HTTP transmission of a cXML document might include the following MIME and HTTP headers:

```
POST /cXML HTTP/1.0
Content-type: text/xml; charset="UTF-8"
Content-length: 1862
Accept: text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
User-Agent: Java1.1
Host: localhost:8080
Connection: Keep-Alive
<?xml version="1.0" encoding="UTF-8"?>
...
```

### 3.1.5 Attachments

The cXML protocol supports the attachment of external files of any type to cXML documents. For example, buyers sometimes need to clarify purchase orders with supporting memos, drawings, or faxes. Another example is the CatalogUploadRequest document, which includes catalog files as attachments.

Files referenced by cXML documents can reside either on a server accessible by the receiver or within an envelope that also includes the cXML documents themselves. To attach external files to a cXML document in a single envelope, use Multipurpose Internet Mail Extensions (MIME). The cXML document contains references to external parts sent within a multipart MIME envelope.

**Including Attachments**

A cXML requirement for this envelope (over the requirements described in IETF RFC 2046 “Multipurpose Internet Mail Extensions Part Two: Media Types”) is the inclusion of Content-ID headers with each attached file.

The contained URL must begin with `cid:`, which is the identifier for the referenced attachment within the larger transmission. The `cid:` identifier must match the Content-ID header of one (and only one) part of the MIME transmission containing the document being forwarded.

The following example shows the required skeleton of a cXML document with an attached JPEG image (without the HTTP headers shown above):

```
POST /cXML HTTP/1.0
```
This skeleton is also all that a receiving MIME parser must be able to process. Applications that make use of the media type described in RFC 2387 “The MIME Multipart/Related Content-type” will get much more information if the skeleton is enhanced:

Receiving MIME parsers that do not understand the multipart/related media type must treat the two examples above identically. Each part of the MIME transmission can additionally have a Content-transfer-encoding and use that encoding. This addition is not necessary for HTTP transmission. Content-description and Content-disposition headers are optional within the cXML protocol, although they provide useful documentation.

Attachment Examples

The following example shows a CatalogUploadRequest with an attached catalog.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML version="1.0" encoding="UTF-8">
  <Header>
    <From>22</From>
    <To></To>
    <Subject></Subject>
    <cXML DID="1">1</cXML DID="1"></Header>
  <Body>
    <CatalogUploadRequest>
      <Catalog>
        <CatalogID>12345666@10.10.83.39</CatalogID>
        <CatalogName>My New Catalog</CatalogName>
        <CatalogDescription>My Description</CatalogDescription>
        <CatalogEntries>
          <Entry>
            <EntryID>1</EntryID>
            <EntryName>Entry 1</EntryName>
            <EntryDescription>Entry 1 Description</EntryDescription>
            <EntryPrice>1.00</EntryPrice>
          </Entry>
          <Entry>
            <EntryID>2</EntryID>
            <EntryName>Entry 2</EntryName>
            <EntryDescription>Entry 2 Description</EntryDescription>
            <EntryPrice>2.00</EntryPrice>
          </Entry>
        </CatalogEntries>
      </Catalog>
    </CatalogUploadRequest>
  </Body>
</cXML>
```
Surround IDs in Content-ID or Content-Type headers with angle brackets (<>), but omit these brackets when referring to IDs in URL elements. Similarly, prepend message IDs with cid: in URL elements, but not in MIME headers.

Special characters in cid URLs must be hex encoded (in %hh format).

Use the Attachment element when attaching text files, PDFs, images, or other such documents to a cXML document. When attaching another cXML document, use cXMLAttachment, regardless of whether that cXML document contains attachments itself. The cXMLAttachment element serves to alert the receiving system that additional cXML processing might be required to handle the attachment.

The following example shows a CopyRequest forwarding a cXML document with attachments using cXMLAttachment.
More Information About MIME

For more information about the MIME standard, see the following websites:

- www.hunnysoft.com/mime
### 3.1.6 cXML Envelope

The `cXML` element is the root of cXML documents, and it contains all other elements. The `cXML` element is present in every cXML transaction. The following example shows a fully specified `cXML` element:

```xml
<cXML xml:lang="en-US"
      payloadID=1234567.4567.5678@buyer.com
      timestamp="1999-03-31T18:39:09-08:00">
```

**cXML** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>version</td>
<td>This attribute was deprecated in cXML 1.2.007; do not use it in new cXML documents. Specifies the version of the cXML protocol. A validating XML parser could also determine the version attribute from the referenced DTD. Because this version number also appears in the SYSTEM identifier in the cXML document, you should omit this attribute.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The locale used for all free text sent within this document. The receiver should reply or display information in the same or a similar locale. For example, a client specifying <code>xml:lang=&quot;en-UK&quot;</code> in a request might receive “en” data in return. Specify the most descriptive and specific locale possible.</td>
</tr>
<tr>
<td>payloadID</td>
<td>A unique number with respect to space and time, used for logging purposes to identify documents that might have been lost or had problems. This value should not change for retry attempts. The recommended implementation is: <code>datetime.process.id.random.number@hostname</code></td>
</tr>
<tr>
<td>timestamp</td>
<td>The date and time the message was sent, in ISO 8601 format. This value should not change for retry attempts. The format is <code>YYYY-MM-DDThh:mm:ss-hh:mm</code> (for example, <code>2015-07-14T19:20:30+01:00</code>).</td>
</tr>
</tbody>
</table>
### Related Information

**cXML Digital Signatures** [page 552]

### 3.1.6.1 Locale Specified by xml:lang

The `xml:lang` attribute also appears with most free text elements (such as `Description` and `Comments`). While the XML specification allows the locale for an element to default to that specified for any parent element, such defaults result in inefficient queries of the document tree. cXML attempts to keep the locale identifiers together with the affected strings. The most descriptive and specific locale known should be specified in this attribute.

The `xml:lang` attributes appearing throughout the cXML protocol have no effect on formatted data such as numbers, dates, and times. As described for the `timestamp` attribute in the following section, for the `timestamp` attribute, such discrete values are formatted according to their data types. Longer strings (and referenced Web pages) not intended for machine processing might contain a locale-specific numeric or date format that matches a nearby `xml:lang` attribute.

### 3.1.6.2 Date, Time, and Other Data Types

The `timestamp` attribute, and all other dates and times in cXML, must be formatted in the restricted subset of ISO 8601. This is described in the Word Wide Web Consortium (W3C) Note entitled “Date and Time Formats” available at [www.w3.org/TR/NOTE-datetime-970915.html](http://www.w3.org/TR/NOTE-datetime-970915.html).

Timestamps should include a complete date plus hours, minutes, and seconds. Fractions of a second are optional. This protocol requires times expressed in local time with a time-zone offset from UTC (Coordinated Universal Time, also known as Greenwich Mean Time). The “Z” time zone designator is not allowed.

For example, **2015-04-14T13:36:00-08:00** corresponds to April 14, 2015, 1:36 p.m., U.S. Pacific Standard Time.

*Note:* Although the `timestamp` attribute is required by the cXML DTD, validation of the value's format depends on your application.
Further references for the date, time, and other data type formats used by cXML are:

- The original XML Data proposal to the Word Wide Web Consortium (W3C), www.w3c.org/TR/1998/NOTE-XML-data-0105

### 3.1.6.3 Special Characters

In cXML, as in XML, not all characters can be typed from the keyboard, such as the registered trademark symbol (®). Others, such as < and &, have special meaning to XML. These characters must be encoded using character entities.

XML defines the following built-in character entities:

<table>
<thead>
<tr>
<th>Entity</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&amp;lt;</code></td>
<td><code>&lt;</code></td>
</tr>
<tr>
<td><code>&amp;gt;</code></td>
<td><code>&gt;</code></td>
</tr>
<tr>
<td><code>&amp;amp;</code></td>
<td><code>&amp;</code></td>
</tr>
<tr>
<td><code>&amp;quot;</code></td>
<td><code>&quot;</code></td>
</tr>
<tr>
<td><code>&amp;apos;</code></td>
<td><code>\</code></td>
</tr>
</tbody>
</table>

For characters outside of the encoding you use, use the Unicode number of the character (decimal or hexadecimal), preceded by pound (#). For example, ® and ® represent a registered trademark symbol, ®.

For example,

```xml
<Description xml:lang="en-US">The best prices for software®</Description>
```

could be encoded as

```xml
<Description xml:lang="en-US">The best prices for software ®</Description>
```

Single (’) or double (”) quotation marks must be escaped only within attribute values that are quoted using that delimiter. It is recommended that you use only single quotes to delimit attributes, unless the content will never contain quotes.

### 3.1.6.4 Handling Special Characters in Documents

1. Use a template that only uses single quotes to delimit attributes.
2. Add values to the template by doing one of the following:
   - If the document is a `PunchOutOrderMessage` to be transmitted by the cxml-urlencoded hidden field, fill the values in the template using US-ASCII encoding. This encoding requires XML character entities for all characters beyond that encoding. For example, as described above, enter the registered trademark symbol, which is not available in US-ASCII, as ®.
Otherwise, fill the values in the document using UTF-8 encoding. UTF-8 should be used for all documents sent by HTTP Post directly, or embedded in a cXML-base64 hidden field. UTF-8 includes all of US-ASCII.

3. XML escape attribute values and element content as you create the cXML document. Characters that must be escaped are &,',< and >. The following steps are required if you are transmitting the document in a PunchOutOrderMessage.

4. Pay attention to all characters that browsers interpret:
   - If you are using a cxml-urlencoded hidden field, convert all double quotes to ".
   - Further (for the cxml-urlencoded field), escape all ampersands that appear in contexts significant to HTML with &. To be safe, you can escape all ampersands. For example, escape & as &amp; and &apos; as &apos;.
   - Otherwise, if you are using a cxml-base64 hidden field, base64 encode the entire cXML document.

5. Embed the document in the HTML form with double quotes around the string value. For example, to send a Money element with an attribute having the value "®®" and containing the value "®®" and escaping the trademark symbol ®:
   - The XML document in the HTML form would look like:

```
<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE Money SYSTEM 'SpecialChars.dtd'>
<Money alternateAmount='"®®"'
			&
			>'
			"®®"
			'&&lt;&gt;'
			"®®"
	">
```

which should be encoded as follows:

```
<!-- Recommendation for cXML-urlencoding: Uses double quotes to delimit the -->
<!-- field value and single quotes for the contained attributes. -->
<Input type="Hidden" name="cXML-urlencoded" value="<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE Money SYSTEM 'SpecialChars.dtd'>
<Money alternateAmount='"®®"'
			&
			>'
			"®®"
			'&&lt;&gt;'
			"®®"
	">
```

The preceding examples illustrate alternatives for encoding the cXML-urlencoded field. They avoid XML escaping a few characters, such as angle brackets, that are not special to XML in all contexts. A direct implementation of the previous steps would result in an HTML field such as:

```
<Input type="Hidden" name="cXML-urlencoded" value="<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE Money SYSTEM 'SpecialChars.dtd'>
<Money alternateAmount='"®®"'
			&
			>'
			"®®"
			'&&lt;&gt;'
			"®®"
	">
```

or the XML document:

```
<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE Money SYSTEM 'SpecialChars.dtd'>
<Money alternateAmount='"®®"'
			&
			>'
			"®®"
			'&&lt;&gt;'
			"®®"
	">
```
3.1.7 Header

The Header element contains addressing and authentication information. The Header element is the same regardless of the specific Request or Response within the body of the cXML message. Applications need the requestor’s identity, but not validation that the information provided for identity is correct.

The following example shows the Header element:

```xml
<Header>
  <From>
    <Credential domain="AribaNetworkUserId">
      <Identity>admin@acme.com</Identity>
    </Credential>
  </From>
  
  <To>
    <Credential domain="DUNS">
      <Identity>012345678</Identity>
    </Credential>
  </To>
  
  <Sender>
    <Credential domain="AribaNetworkUserId">
      <Identity>sysadmin@buyer.com</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Network Hub 1.1</UserAgent>
  </Sender>
</Header>
```

The From and To elements are synonymous with From and To in SMTP mail messages; they are the logical source and destination of the messages. Sender is the party that opens the HTTP connection and sends the cXML document.

Sender contains the Credential element, which allows the receiving party to authenticate the sending party. This credential allows strong authentication without requiring a public-key end-to-end digital certificate infrastructure. Only a user name and password need to be issued by the receiving party to allow the sending party to perform Requests.

When the document is initially sent, Sender and From are the same. However, if the cXML document travels through network hubs, the Sender element changes to indicate current sending party.

3.1.7.1 From

This element identifies the originator of the cXML request.

3.1.7.2 To

This element identifies the destination of the cXML request.
3.1.7.3  Sender

This element allows the receiving party to identify and authenticate the party that opened the HTTP connection. It contains a stronger authentication Credential than the ones in the From or To elements, because the receiving party must authenticate who is asking it to perform work.

3.1.7.4  UserAgent

A textual string representing the UserAgent who is conducting the cXML conversation. This should be a unique per-product string, and ideally, per-version. Analogous to UserAgent for HTTP conversations.

3.1.7.5  Credential

This element contains identification and authentication values.

Credential has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>Specifies the type of credential. This attribute allows documents to contain multiple types of credentials for multiple authentication domains. For messages sent on Ariba Network, for instance, the domain can be AribaNetworkUserId to indicate an email address, DUNS for a D-U-N-S number, or NetworkId for a preassigned ID.</td>
</tr>
<tr>
<td>type</td>
<td>Requests to or from a marketplace identify both the marketplace and the member company in From or To Credential elements. In this case, the credential for the marketplace uses the type attribute, which is set to the value “marketplace”.</td>
</tr>
</tbody>
</table>

Credential contains an Identity element and optionally a SharedSecret or a CredentialMac element. The Identity element states who the Credential represents, while the optional authentication elements verify the identity of the party.

SharedSecret

The SharedSecret element is used when the Sender has a password that the requester recognizes.

**Note**

Do not use authentication elements in documents sent through one-way communication. One-way transport routes through users’ browsers, so users would be able to see the document source, including Credential elements.
**CredentialMac**

The `CredentialMac` element is used for the Message Authentication Code (MAC) authentication method. This authentication method is used in situations where the sender must prove to the receiver that it has been authenticated by shared secret by a trusted third party. For example, a direct PunchOut request can travel directly from a buyer to a supplier without going through a network hub, because it contains a MAC (generated by the network hub) that allows the supplier to authenticate it.

The trusted third party computes the MAC and transfers it to the sender through the Profile transaction. The MAC is opaque to the sender (it is secure and non-reversible). The MAC is transmitted from the trusted third party to the sender with a `ProfileResponse` object.

The receiver computes the MAC using the same inputs as the trusted third party and compares it with the MAC received in the cXML document. If the two values match, the document is authentic.

To learn how to compute the MAC value, see [Message Authentication Code (MAC)](page 544).

`CredentialMac` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>type</strong></td>
<td>Identifies the data being authenticated and the method in which it is formatted for authentication. The only supported value is &quot;FromSenderCredentials&quot;.</td>
</tr>
<tr>
<td><strong>algorithm</strong></td>
<td>Identifies for the MAC algorithm used on the data. The only supported value is &quot;HMAC-SHA1-96&quot;.</td>
</tr>
<tr>
<td><strong>creationDate</strong></td>
<td>Specifies the date and time the MAC was generated.</td>
</tr>
<tr>
<td><strong>expirationDate</strong></td>
<td>Specifies the date and time after which this MAC is no longer valid. Receivers must reject MACs that are received after the expirationDate. Receivers can optionally reject unexpired MACs. For example, a receiver might reject MACs that are scheduled to expire in less than an hour.</td>
</tr>
</tbody>
</table>

The following example shows a `Credential` element that contains a `CredentialMac` element:

```xml
<Sender>
  <Credential domain="NetworkId">
    <Identity>AN9900000100</Identity>
    <CredentialMac type="FromSenderCredentials" algorithm="HMAC-SHA1-96"
      MnXkusp8Jj0lw3mf
    </CredentialMac>
    <UserAgent>Procurement Application 8.1</UserAgent>
  </Credential>
</Sender>
```

**Multiple Credentials**

The `From`, `To`, and `Sender` elements can each optionally contain multiple `Credential` elements. The purpose of supplying multiple credentials is to identify a single organization using different domains. For example, an organization might be identified by including both a DUNS number and a NetworkId number.
The receiver should validate all credentials with domains it recognizes and it should reject the document if any credentials with recognized domains do not match an organization it knows. It should also reject the document if any two credentials in the same From, To, or Sender section appear to refer to different entities.

The receiver should reject the document if there are multiple credentials in a To, From, or Sender section that use different values but use the same domain.

### 3.1.7.6 Correspondent

The From and To elements can each optionally contain a Correspondent element. Correspondent elements are used in cases where a party or a connecting hub does not know the originating or receiving organization. The sender, receiver, or connecting hub can use the information in the Correspondent element to identify the unknown organization.

**Correspondent** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>preferredLanguage</td>
<td>The preferred language of the organization, if it is known.</td>
</tr>
</tbody>
</table>

Identify the unknown organization by using a Contact element.

**Related Information**

[Contact [page 44]]

### 3.1.8 Request

Clients send requests for operations. Only one Request element is allowed for each cXML envelope element, which simplifies the server implementations, because no de-multiplexing needs to occur when reading cXML documents. The Request element can contain virtually any type of XML data.

**Typical Request elements are:**

- OrderRequest
- ProfileRequest
- PunchOutSetupRequest
- StatusUpdateRequest
- GetPendingRequest
- ConfirmationRequest
- ShipNoticeRequest
- ProviderSetupRequest
- PaymentRemittanceRequest
Request has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>deploymentMode</td>
<td>Indicates whether the request is a test request or a production request. Allowed values are “production” (default) or “test”.</td>
</tr>
<tr>
<td>Id</td>
<td>This attribute can be used to call out an element and all its children as a target for a digital signing.</td>
</tr>
</tbody>
</table>

Related Information

cXML Digital Signatures [page 552]

3.1.9 Response

Servers send responses to inform clients of the results of operations. Because the result of some requests might not have any data, the Response element can optionally contain nothing but a Status element. A Response element can also contain any application-level data. During PunchOut for example, the application-level data is contained in a PunchOutSetupResponse element.

The typical Response elements are:
- ProfileResponse
- PunchOutSetupResponse
- GetPendingResponse

Response has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>This attribute can be used to call out an element and all its children as a target for a digital signing.</td>
</tr>
</tbody>
</table>

Related Information

cXML Digital Signatures [page 552]

3.1.9.1 Status

This element conveys the success, transient failure, or permanent failure of a request operation.
**Status** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>The status code of the request. For example, 200 represents a successful request. See the table of codes below.</td>
</tr>
<tr>
<td>text</td>
<td>The text of the status. This text aids user readability in logs, and is a canonical string for the error in English.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language of the data in the <strong>Status</strong> element. Optional for compatibility with cXML 1.0. Might be required in future versions of cXML.</td>
</tr>
</tbody>
</table>

The attributes of the **Status** element indicate what happened to the request. For example:

```
<Status xml:lang="en-US" code="200" text="OK"> </Status>
```

The content of the **Status** element can be any data needed by the requestor and should describe the error. For a cXML 200/OK status code, there might be no data. However, for a cXML 500/Internal Server Error status code, or other similar code, it is strongly recommended that the actual XML parse error or application error be presented. This error allows better one-sided debugging and interoperability testing. For example:

```
<Status code="406" text="Not Acceptable">cXML did not validate. Big Problem!</Status>
```

The following table describes the cXML status code ranges:

<table>
<thead>
<tr>
<th>Range</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>2xx</td>
<td>Success</td>
</tr>
<tr>
<td>4xx</td>
<td>Permanent error. Client should not retry. The error prevents the request from being accepted.</td>
</tr>
<tr>
<td>5xx</td>
<td>Transient error. Typically a transport error. Client should retry. The recommended number of retries is 10, with a frequency of one hour. At a minimum a six hour retry window is recommended. For high priority requests, such as rush orders, you might want to increase the retry frequency.</td>
</tr>
</tbody>
</table>

Servers should not include additional Response elements (for example, a **PunchOutSetupResponse** element) unless the status code is in the cXML 200 range (for example, cXML 200/OK).

Because cXML is layered above HTTP in most cases, many errors (such as HTTP 404/Not Found) are handled by the transport. All transport errors should be treated as transient and the client should retry, as if a cXML 500 range status code had been received. All HTTP replies that don’t include valid cXML content, including HTTP 404/Not found and HTTP 500/Internal Server Error status codes, are considered transport errors. Other common transport problems include timeouts, TCP errors (such as “connection refused”), and DNS errors (such as “host unknown”). Validation errors in parsing a Request document would normally result in a cXML permanent error in the 400 range, preferably 406/Not Acceptable.
The following table includes possible cXML status codes:

<table>
<thead>
<tr>
<th>Status</th>
<th>Text</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>OK</td>
<td>The server was able to execute the request or deliver it to the final recipient. The returned Response might contain application warnings or errors: the cXML Request itself generated no errors or warnings, however, this status does not reflect any errors or warnings that might be generated afterward by the application itself. You will receive no further status updates, unless an error occurs during later processing.</td>
</tr>
<tr>
<td>201</td>
<td>Accepted</td>
<td>The request has been accepted for forwarding by an intermediate hub, or has been accepted by its ultimate destination and not yet been examined. You will receive updates on the status of the request, if a mechanism to deliver them is available. The client should expect later StatusUpdate transactions.</td>
</tr>
<tr>
<td>204</td>
<td>No Content</td>
<td>All Request information was valid and recognized. The server has no Response data of the type requested. In a PunchOutOrderMessage, this status indicates that the PunchOut session ended without change to the shopping cart (or client requisition).</td>
</tr>
<tr>
<td>211</td>
<td>OK</td>
<td>Buyers can use this status code to send a broadcast message to suppliers to inform them about any events they need to know, such as holiday schedules, production facility closure, or completion of certain activities such as planning run completion.</td>
</tr>
<tr>
<td>280</td>
<td></td>
<td>The request has been forwarded by an intermediate hub. You will receive at least one more status update. This status could mean that the request was delivered to another intermediary or to the final recipient with 201 status, or that it was forwarded via a reliable non-cXML transport.</td>
</tr>
<tr>
<td>281</td>
<td></td>
<td>The request has been forwarded by an intermediate hub using an unreliable transport (such as email). You might receive status updates; however, if you do not received status updates, there is not necessarily a problem.</td>
</tr>
<tr>
<td>400</td>
<td>Bad Request</td>
<td>Request unacceptable to the server, although it parsed correctly.</td>
</tr>
<tr>
<td>401</td>
<td>Unauthorized</td>
<td>Credentials provided in the Request (the Sender element) were not recognized by the server.</td>
</tr>
<tr>
<td>402</td>
<td>Payment Required</td>
<td>This Request must include a complete Payment element.</td>
</tr>
<tr>
<td>403</td>
<td>Forbidden</td>
<td>The user has insufficient privileges to execute this Request.</td>
</tr>
<tr>
<td>406</td>
<td>Not Acceptable</td>
<td>Request unacceptable to the server, likely due to a parsing failure.</td>
</tr>
<tr>
<td>409</td>
<td>Conflict</td>
<td>The current state of the server or its internal data prevented the (update) operation request. An identical Request is unlikely to succeed in the future, but only after another operation has executed, if at all.</td>
</tr>
<tr>
<td>412</td>
<td>Precondition Failed</td>
<td>A precondition of the Request (for example, a PunchOut session appropriate for a PunchOutSetupRequest edit) was not met. This status normally implies the client ignored some portion of a previous transmission from a server (for example, the operationAllowed attribute of a PunchOutOrderMessageHeader).</td>
</tr>
</tbody>
</table>
### Status Codes

<table>
<thead>
<tr>
<th>Status</th>
<th>Text</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>417</td>
<td>Expectation Failed</td>
<td>Request implied a resource condition that was not met. One example might be a SupplierDataRequest asking for information about a supplier unknown to the server. This status might imply lost information at the client or server.</td>
</tr>
<tr>
<td>450</td>
<td>Not Implemented</td>
<td>The server does not implement the particular Request. For example, PunchOutSetupRequest or the requested operation might not be supported. This status normally implies the client has ignored the server’s profile.</td>
</tr>
<tr>
<td>475</td>
<td>Signature Required</td>
<td>The receiver is unwilling to accept the document because it does not have a digital signature.</td>
</tr>
<tr>
<td>476</td>
<td>Signature Verification Failed</td>
<td>The receiver is unable to validate the signature, possibly because the document was altered in transit, or the receiver does not support one or more algorithms used in the signature.</td>
</tr>
<tr>
<td>477</td>
<td>Signature Unacceptable</td>
<td>The signature is technically valid, but is not acceptable to the receiver for some other reason. The signature policies or certificate policies may be unacceptable, the type of certificate used may be unacceptable, or there may be some other problem.</td>
</tr>
<tr>
<td>500</td>
<td>Internal Server Error</td>
<td>Server was unable to complete the Request.</td>
</tr>
<tr>
<td>550</td>
<td>Unable to reach cXML server</td>
<td>Unable to reach next cXML server to complete a transaction requiring upstream connections. An intermediate hub can return this code when a supplier site is unreachable. If upstream connections complete, intermediate hubs should return errors directly to the client.</td>
</tr>
<tr>
<td>551</td>
<td>Unable to forward request</td>
<td>Unable to forward request because of supplier misconfiguration. For example, an intermediate hub failed to authenticate itself to a supplier. Clients cannot rectify this error, but this error might be resolved before the client retries.</td>
</tr>
<tr>
<td>560</td>
<td>Temporary server error</td>
<td>For example, a server might be down for maintenance. The client should retry later.</td>
</tr>
</tbody>
</table>

The following table lists possible status codes for catalog-upload requests:

<table>
<thead>
<tr>
<th>Status</th>
<th>Text</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Success</td>
<td>The catalog-upload request succeeded.</td>
</tr>
<tr>
<td>201</td>
<td>Accepted</td>
<td>The catalog-upload request is processing.</td>
</tr>
<tr>
<td>461</td>
<td>Bad Commodity Code</td>
<td>The commodity code you assigned to the catalog is invalid.</td>
</tr>
<tr>
<td>462</td>
<td>Notification Error</td>
<td>No notification method (email or URL) provided.</td>
</tr>
<tr>
<td>463</td>
<td>Bad Catalog Format</td>
<td>The zip file is invalid.</td>
</tr>
<tr>
<td>464</td>
<td>Bad Catalog</td>
<td>No catalog is attached, or more than one is attached.</td>
</tr>
<tr>
<td>465</td>
<td>Duplicate Catalog Name</td>
<td>The name of the catalog exists.</td>
</tr>
<tr>
<td>466</td>
<td>No Catalog to Update</td>
<td>The catalog to be updated does not exist.</td>
</tr>
<tr>
<td>467</td>
<td>Publish Not Allowed</td>
<td>You attempted to publish a catalog that was not previously published.</td>
</tr>
<tr>
<td>468</td>
<td>Catalog Too Large</td>
<td>The size of the uploaded file exceeds the 4 MB limit. Zip the catalog to compress it before uploading it.</td>
</tr>
<tr>
<td>469</td>
<td>Bad Catalog Extension</td>
<td>The file name of the catalog must have .cif, .xml, or .zip extensions.</td>
</tr>
<tr>
<td>470</td>
<td>Catalog Has Errors</td>
<td>The message is the status of the catalog. (HasErrors)</td>
</tr>
</tbody>
</table>
### 3.1.10 One-Way (Asynchronous) Model

Unlike Request-Response transactions, One-Way messages are not restricted to the HTTP transport. One-way messages are for situations when an HTTP channel (a synchronous request-response type operation) is not appropriate. The following figure shows an example of how A and B might communicate with messages instead of the Request-Response transaction.

![Figure 2: One-Way Message (Asynchronous)](image)

In this case, a possible scenario would be:

1. Site A formats and encodes a cXML document in a transport that Site B understands.
2. Site A sends the document using the known transport. Site A does not (and cannot) actively wait for a response to come back from Site B.
3. Site B receives the cXML document and decodes it out of the transport stream.
4. Site B processes the document.

In the One-Way model, Site A and Site B do not have an explicit Request-Response cycle. For example, between One-Way messages, messages from other parties might arrive and other conversations could take place.

To fully specify a one-way transaction, the transport used for the message must also be documented. For the cXML transactions that use the one-way approach, the transport and encoding are specified. A common example of a transaction that uses one-way is the `PunchOutOrderMessage`.

---

<table>
<thead>
<tr>
<th>Status</th>
<th>Text</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>499</td>
<td>Document Size Error</td>
<td>The cXML document is too large.</td>
</tr>
<tr>
<td>561</td>
<td>Too Many Catalogs</td>
<td>You cannot upload more than a specific number of catalogs per hour.</td>
</tr>
<tr>
<td>562</td>
<td>Publish Disabled</td>
<td>Catalog publishing is temporarily unavailable due to scheduled mainte­­nance. It will be back online by the specified date and time.</td>
</tr>
<tr>
<td>563</td>
<td>Catalog Validating</td>
<td>You attempted to update a catalog before validation finished on a previ­ous version of the catalog.</td>
</tr>
</tbody>
</table>
One-way messages have a similar structure to the Request-Response model:

```
<cXML>
  <Header>
    Header information here...
  </Header>
  <Message>
    Message information here...
  </Message>
</cXML>
```

The `Header` element is treated exactly as it is in the Request-Response case. The `cXML` element is also identical to the one described in cXML Envelope [page 25]. The easiest way to tell the difference between a one-way message and a Request-Response message is the presence of a `Message` element (instead of a `Request` or `Response` element). The following section discusses the `Message` element in more detail.

The `Header` element in a one-way message should not contain shared secret information in the sender credential. Authentication is done using the `BuyerCookie`. This is different from Request-Response Header.

### 3.1.11 Message

This element carries all the body level information in a cXML message. It can contain an optional `Status` element, identical to that found in a `Response` element—it would be used in messages that are logical responses to request messages.

`Message` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>deploymentMode</td>
<td>Indicates whether the request is a test request or a production request.</td>
</tr>
<tr>
<td></td>
<td>Allowed values are “production” (default) or “test”.</td>
</tr>
<tr>
<td>inReplyTo</td>
<td>Specifies to which <code>Message</code> this <code>Message</code> responds. The contents of the</td>
</tr>
<tr>
<td></td>
<td><code>inReplyTo</code> attribute would be the <code>payloadID</code> of a <code>Message</code> that was</td>
</tr>
<tr>
<td></td>
<td>received earlier. This would be used to construct a two-way conversation</td>
</tr>
<tr>
<td></td>
<td>with many messages.</td>
</tr>
<tr>
<td>Id</td>
<td>This attribute can be used to call out an element and all its children</td>
</tr>
<tr>
<td></td>
<td>as a target for a digital signing.</td>
</tr>
</tbody>
</table>

The `inReplyTo` attribute can also reference the `payloadID` of an earlier `Request` or `Response` document. When a Request-Response transaction initiates a “conversation” through multiple one-way interactions, the first message can include the `payloadID` of the most recent relevant `Request` or `Response` that went in the other direction. For example, a `Message` containing a PunchOutOrderMessage might include an `inReplyTo` attribute containing the `payloadID` of the PunchOutSetupRequest that started the PunchOut session. The `BuyerCookie` included in the PunchOut documents performs a similar function to that of the `inReplyTo` attribute.

**Related Information**

cXML Digital Signatures [page 552]
3.1.12 Transport Options

There are two commonly used transports for one-way messages: HTTP and URL-Form-Encoding. These are just two of the well-defined transports today; more could become supported in the future.

HTTP

Procurement applications pull information using one-way HTTP communication. The one type of transaction that uses one-way HTTP communication is `GetPendingRequest`.

HTTPS is preferred, because it encrypts transmitted data for security.

URL-Form-Encoding

URL-Form-Encoding enables integration between remote websites and procurement applications. It also serves as a way to avoid requiring a listening server on the buyer’s system that is directly accessible through the Internet. This transport is best understood by examining how the `PunchOutOrderMessage` transaction works.

Remote websites do not directly send cXML `PunchOutOrderMessage` documents to procurement applications; instead, they encode them as hidden HTML Form fields and post them to the URL specified in the `BrowserFormPost` element of the `PunchOutSetupRequest`. When the user clicks a Check Out button on the website after shopping, the website sends the data to the procurement application as an HTML Form Submit. The following diagram illustrates what happens.

![Diagram of Transport Options]

1. **Encode and send** `PunchOutOrderMessage` as hidden HTML fields.
2. User clicks Submit. Form is sent to URL specified by originating system.
3. Form is decoded, cXML message extracted and passed to originating system as a new cXML Request.
The semantics of packing and unpacking are described below.

**Form Packing**

Remote websites assign each PunchOutOrderMessage document to a hidden field on the Form named cXML-urlencoded or cXML-base64. They assign the HTML Form element a METHOD of POST and an ACTION consisting of the URL passed in the BrowserFormPost element of the PunchOutSetupRequest. For example:

```html
<FORM METHOD=POST
   ACTION="http://workchairs.com:1616/punchoutexit">
   <INPUT TYPE=HIDDEN NAME="cXML-urlencoded"
          VALUE="Entire URL-Encoded PunchOutOrderMessage document">
   <INPUT TYPE=SUBMIT VALUE="Proceed">
</FORM>
```

Additional HTML tags on the page might contain the above fragment to describe the contents of the shopping basket in detail.

**i Note**

When Web servers send the cXML-urlencoded field, it is not yet URL encoded. This encoding is required only when the form is submitted by Web browsers (when users click Check Out in the above example). Web browsers themselves meet this requirement. The Web server must HTML-encode only the field value, escaping quotation marks and other special characters, so the form displays properly for the user.

The names cXML-urlencoded and cXML-base64 are case insensitive.

**cXML-urlencoded**

The cXML-urlencoded field is URL encoded (per the HTTP specification) by the Web browser, not by the Web server or the supplier. This is because the encoding is required only when the form is submitted by a Web browser, such as when a user clicks Check Out in the previous example. However, the Web server must HTML-encode the field value, escaping quotation marks and other special characters, so that the form will display correctly.

**i Note**

Suppliers should never URL encode the cXML-urlencoded field. This field is automatically URL-encoded by the web browser.

For cXML-urlencoded data, the receiving parser cannot assume a charset parameter beyond the default for media type text/xml. No character encoding information for the posted data is carried in an HTTP POST. The receiving Web server cannot determine the encoding of the HTML page containing the hidden field. The cXML document forwarded in this fashion must therefore use us-ascii character encoding. Any characters (including those "URI encoded" as "%XX") found in the XML source document must be in the "us-ascii" set. Other Unicode symbols can be encoded using character entities in that source document.
**cXML-Base64**

The `cXML-base64` hidden field supports international documents. cXML documents containing symbols outside of “us-ascii” should use this field instead of the `cXML-urlencoded` hidden field. This alternative has almost identical semantics, but the entire document is base64-encoded throughout transport and not HTML-encoded to the browser or URL-encoded to the receiving Web server. Base64-encoding is described in RFC 2045 “Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies.”

Base64-encoding from the remote website through the browser and to the receiving Web server at the client maintains the original character encoding of a cXML document. Though no `charset` parameter arrives with the posted information, the decoded document (after the transfer encoding is removed) can be treated as the media type `application/xml`. This encoding allows the receiving parser to honor any `encoding` attribute specified in the XML declaration. For this field (as for any `application/xml` documents), the default character encoding is UTF-8.

Either of these hidden fields (`cXML-urlencoded` or `cXML-base64`) must appear in the data posted to the procurement application. Though recipients should first look for `cXML-base64` in the data, it is wasteful to send both fields.

**Form Unpacking and Processing**

The procurement application, which previously provided the appropriate URL, receives an HTML Form POST containing the Form data as described above. The Form POST processor would first look for the `cXML-base64` variable, extract the value and base64-decode its contents. If that field does not exist in the data, the Form POST processor would look for the `cXML-urlencoded` variable, extract the URL-encoded cXML message and URL-decode it. The decoded content of the field is then processed as if it had been received through a normal HTTP Request/Response cycle.

The implied media type of the document after decoding varies, with different possible character encodings:

- The `cXML-urlencoded` variable is of media type `text/xml` with no `charset` attribute. It is thus restricted to the `us-ascii` character encoding. The receiving parser must ignore any encoding attribute in the XML declaration of the cXML document because the browser might have changed the encoding.
- The `cXML-base64` variable is of media type `application/xml` and thus might have any character encoding (indicated by the `encoding` attribute of the contained XML declaration, if any). The default character encoding is UTF-8, as for any `application/xml` documents.

The primary difference between this transaction and a normal Request-Response transaction is that there is no response that can be generated, because there is no HTTP connection through which to send it.

**3.1.13 Service Status Response**

This transaction determines whether a particular service is currently available. When an HTTP `GET` is sent to a service location, the service responds with a valid, dynamically generated cXML `Response` document. A service can be any HTTP URL at which cXML `Request` documents are received.
For example, an HTTP GET sent to https://service.ariba.com/service/transaction/cxml.asp yields the following response:

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE cXML "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2001-01-08T10:47:01-08:00"
payloadID="978979621537--4882920031100014936@206.251.25.169">
  <Response>
    <Status code="200" text="OK">Ping Response Message</Status>
  </Response>
</cXML>
```

**Note**

This combination of transport (HTTP) and protocol (cXML) levels should be used only for the case described above.

### 3.2 Basic Elements

The following entities and elements are used throughout the cXML specification. Most of the definitions listed here are basic vocabulary with which the higher-order business documents are described. The common type entities and the common elements representing low-level objects are defined here.

#### 3.2.1 Type Entities

Most of these definitions are from the XML-Data note submission to the World Wide Web Consortium (W3C). A few higher-level type entities that are also defined here are not from XML-Data.

**isoLangCode**


**isoStateCode**

An ISO 3166-2:2013 country subdivision code that identifies a state or province. It is used in conjunction with the country codes listed in ISO 3166-1.
isoCountryCode


xmlLangCode

A language code as defined by the XML 1.0 Specification (at www.w3.org/TR/1998/REC-xml-19980210.html). In the most common case, this includes an ISO 639 Language Code and (optionally) an ISO 3166 Country Code separated by a hyphen. Unlike the full XML recommendation, IANA or private language codes should not be used in cXML. IANA and private subcodes are allowed, though they should come after a valid ISO 3166 Country Code.

The recommended cXML language code format is xx{-YY[-zzz]*]? where xx is an ISO 639 Language code, YY is an ISO 3166 Country Code and zzz is an IANA or private subcode for the language in question. Again, use of the Country Code is always recommended. By convention, the language code is lowercase and the country code is uppercase. This is not required for correct matching of the codes.

UnitOfMeasure

UnitOfMeasure describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. For a list of UN/CEFACT codes, see www.unetradens.net.

URL

A URL (Uniform Resource Locator) as defined by the HTTP/1.1 standard.

Related Information

cXML Envelope [page 25]

3.2.2 Base Elements

These elements, used throughout the specification, range from generic ones such as Name and Extrinsic to specific ones such as Money.
Money

The Money element has three possible attributes: currency, alternateAmount, alternateCurrency. The attributes currency and alternateCurrency must be a three-letter ISO 4217 currency code. The content of the Money element and of the alternateAmount attribute should be a numeric value. For example:

```xml
<Money currency="USD">12.34</Money>
```

The optional alternateCurrency and alternateAmount attributes are used together to specify an amount in an alternate currency. These can be used to support dual-currency requirements such as the euro. For example:

```xml
<Money currency="USD" alternateCurrency="EUR" alternateAmount="14.28">12.34</Money>
```

i Note
You can optionally use commas as thousands separators. Do not use commas as decimal separators.

Country

Contains the name of the country in a location. Contained by the PostalAddress element.

CountryCode

Contains the International ITU dial code for the country code. It can be entered onto a telephone keypad after the escape code to reach the country. Used by the Phone and Fax elements.

Contact

The Contact element contains information about any contact important to the current transaction. For example:

```xml
<Contact>
  <Name xml:lang="en-US">Mr. Smart E. Pants</Name>
  <Email>sepants@workchairs.com</Email>
  <Phone name="Office">
  </Phone>
</Contact>
```
Related Information

TermReference [page 141]
4 Profile Transaction

The Profile transaction retrieves cXML server capabilities, including the supported cXML version, transactions, and options on those transactions. The ProfileRequest and ProfileResponse documents must be supported by all cXML 1.1 and higher server implementations.

4.1 Introduction to the Profile Transaction

The Profile transaction enables one party to query another for cXML capabilities. These parties include suppliers, buyers, network hubs, service providers, and marketplaces. To inquire about server capabilities, send a ProfileRequest document. The server returns a ProfileResponse document containing the server information.

The Profile transaction is the only transaction that all cXML servers must support. It is intended for backend integration between applications, making the capabilities of cXML servers available to client systems.

The ProfileResponse should list all Requests supported at a particular website, not necessarily all those supported by the organization. Suppliers that can receive OrderRequest documents and send various messages or initiate Request/Response transactions describe their OrderRequest support in the profile transaction. The data returned by a ProfileRequest can be cached and used for a period of time, as determined by the manager of a trading community.

The Profile transaction can also be used to simply “ping” a server within the cXML protocol.

The Profile transaction can also retrieve the locations for follow-up documents. This use replaces the Followup element used in OrderRequest documents. To obtain information about where to send any document, send a ProfileRequest document to the server.

4.2 ProfileRequest

This element has no content. It is simply routed to the appropriate cXML server using the Header. The server responds with a single ProfileResponse as described below. The only dynamic portions of this response are the payloadID and timestamp attributes of the cXML element itself. In this particular case, servers are not required to provide responses in multiple locales.
An example Request of this type is:

```xml
<cxml payloadID="9949494" xml:lang="en-US" timestamp="2000-03-12T18:39:09-08:00">
  <Header>
    Routing, identification, and authentication information.
  </Header>
  <Request>
    <ProfileRequest />
  </Request>
</cxml>
```

ProfileRequest documents should be sent to the “root” URL of a network hub, which should never change. Sending a ProfileRequest to this root URL obtains the URL location for every other cXML Request type. The ProfileResponse from a network hub depends on the To element in the ProfileRequest.

### 4.3 ProfileResponse

This element contains a list of supported transactions, their locations, and any supported options. The following is a possible ProfileResponse:

```xml
<ProfileResponse effectiveDate="2001-03-12T13:14:05:00">
  <Option name="Locale">1</Option>
  ... <Transaction requestName="PunchOutSetupRequest">
    <URL>http://www.workchairs.com/cXML/PunchOut.asp</URL>
    <Option name="operationAllowed">create inspect</Option>
    <Option name="dynamic pricing">0</Option>
  </Transaction>
  ...
</ProfileResponse>
```

A more likely ProfileResponse from a current supplier might be:

```xml
<ProfileResponse effectiveDate="2000-01-01T05:24:29:08:00" lastRefresh="2001-09-08T05:24:29-08:00">
  <Transaction requestName="OrderRequest">
    <URL>http://workchairs.com/cgi/orders.cgi</URL>
    <Option name="service">workchairs.orders</Option>
  </Transaction>
  <Transaction requestName="PunchOutSetupRequest">
    <URL>http://workchairs.com/cgi/PunchOut.cgi</URL>
    <Option name="service">workchairs.signin</Option>
  </Transaction>
</ProfileResponse>
```

ProfileResponse has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>effectiveDate</td>
<td>The date and time when these services became available. Dates should not be in the future.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>lastRefresh</td>
<td>Indicates when the profile cache was last refreshed. When an application receives a ProfileResponse from a profile caching server, it will know the age of the data in the cache.</td>
</tr>
</tbody>
</table>

### 4.3.1 Option Element

The Option element contains the value for a defined option for either the overall service or a specific transaction. Option has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The name of this option. This attribute should not be viewed directly (because the profile is intended for machine consumption). The client system must understand this before receiving a ProfileResponse document. Currently defined values for name are &quot;service&quot;, &quot;attachments&quot;, &quot;changes&quot;, and &quot;requestNames&quot;.</td>
</tr>
</tbody>
</table>

#### 4.3.1.1 MAC Options

If the ProfileResponse document is sent by a trusted third party (such as a network hub) and it lists transactions that rely on MAC authentication, it should contain Option elements that list MAC authentication values. The client will insert these values in a CredentialMac element in documents it sends directly to the server.

For example:

```xml
<ProfileResponse>
  <Option name="CredentialMac.type">FromSenderCredentials</Option>
  <Option name="CredentialMac.algorithm">HMAC-SHA1-96</Option>
  <Option name="CredentialMac.creationDate">2003-01-17T17:39:09-08:00</Option>
  <Option name="CredentialMac.expirationDate">2003-01-17T23:39:09-08:00</Option>
  <Option name="CredentialMac.value">67mURtR6VI6YnIsK</Option>
</ProfileResponse>
```

If the server supports direct PunchOut, additional Option elements should appear for PunchOutSetupRequest in the ProfileResponse.

### Related Information

- [PunchOutSetupRequest Options](#)
- [Message Authentication Code (MAC)](#)
4.3.1.2 Service

The Profile transaction can return multiple variations of a single transaction type.

If a cXML server supports multiple implementations of a particular transaction, ProfileResponse can distinguish them. For example, a marketplace might provide two services within the ProviderSetupRequest transaction: marketplace.signin and marketplace.console. The ProfileResponse must list them in a way that differentiates them:

ProfileResponse can uniquely identify a specific location for each variation of a transaction. In the case of ProviderSetupRequest, the variation is the service name. ProfileResponse uses the Option element to include the service name and value, for example:

```
<Transaction requestName="ProviderSetupRequest">
  <URL>http://service.hub.com/signin</URL>
  <Option name="service">signin</Option>
</Transaction>
<Transaction requestName="ProviderSetupRequest">
  <URL>http://service.hub.com/console</URL>
  <Option name="service">console</Option>
</Transaction>
```

If there is only one location for a particular type of transaction, then the Option element is not needed.

When looking for a particular transaction type and Option name="service" is provided, use the transaction that matches the desired service. If there is no such Option name and option value match, use the first transaction with no option name and value.

Each variation of a transaction must uniquely identify its particular location. In the case of ProviderSetupRequest, the unique identifier is "service". These unique identifiers use the Option element in the Transaction element. The Option element contains the unique identifier's name. The value for the Option element is the unique identifier's value.

4.3.1.3 PunchOutSetupRequest Options

When PunchOutSetupRequest is returned as a supported transaction, three options can be specified to indicate that direct PunchOut is supported. These options inform clients that they can send PunchOutSetupRequest documents directly to servers, without going through network hubs for authentication, and which authentication methods are supported:

- To specify the URL for receiving direct PunchOutSetupRequest documents:

  `<Option name="Direct.URL">https://asp.workchairs.com/directPunchout</Option>`

- To indicate that the server supports Message Authentication Code (MAC) authentication:

  `<Option name="Direct.AuthenticationMethod.CredentialMac">Yes</Option>`

In addition, this option instructs the trusted third party to generate a Message Authentication Code for the server. There are additional Option elements that should appear within the ProfileResponse element for profiles sent by trusted third parties.
To indicate that the server supports the digital certificate authentication method:

```
<Option name="Direct.AuthenticationMethod.Certificate">Yes</Option>
```

This option indicates that the server sends AuthRequest documents to validate PunchOut requests. These options are not used for regular PunchOut.

### Related Information

- MAC Options [page 48]
- Message Authentication Code (MAC) [page 544]
- Auth Transaction [page 548]
- Direct PunchOut [page 95]

### 4.3.1.4 OrderRequest Options

When OrderRequest is returned as a supported transaction, two options must be specified: attachments and changes. The attachments option indicates whether attachments are accepted. The changes option specifies if change and delete orders are accepted. To specify acceptance of attachments:

```
<Option name = "attachments">Yes</Option>
```

To specify acceptance of change orders:

```
<Option name = "changes">Yes</Option>
```

The default for both options is No. Documents with attachments or changes set to No should be handled identically to documents that do not mention the option.

### Related Information

- Wrapping Layers [page 20]

### 4.3.1.5 SessionStatusRequest Options

When SessionStatusRequest is returned as a supported transaction, one option must be specified: requestNames. There is no default. This option informs the client that the server supports session checks and updates when performing any of the transactions specified in the content of the Option element. This content must be a space-separated list from the set "OrderStatusSetupRequest," "ProviderSetupRequest" and "PunchOutSetupRequest." Transaction elements for each of the listed requests must also be included in the ProfileResponse document.
4.3.2 Transaction

The description of a transaction supported by this service. The Profile definition currently indicates the locations to which to send specific requests. Future versions of cXML might add more Option definitions and extend the Profile information to include more information about supported requests.

The Transaction element must contain a URL element.

Transaction has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestName</td>
<td>A specific request that this server accepts at the given URL. Values can be the name of any Request document defined by cXML.</td>
</tr>
</tbody>
</table>

4.4 Scenarios

ProfileRequest documents can be sent by several possible entities to obtain server capabilities and information from suppliers, buyers, network hubs, service providers, and marketplaces. The possible combinations of these parties and the kinds of transaction information that can be returned are described in the following scenarios.

4.4.1 From Buyer to Supplier

A ProfileRequest document is sent from a buyer to a supplier through a network hub. The network hub queries a supplier periodically, and caches the information to use in ProfileResponse documents sent to buyers.

The supplier returns in the ProfileResponse the transactions that it supports. For example:

- OrderRequest
- PunchOutSetupRequest

The ProfileResponse sent to the buyer can include capabilities offered by the network on behalf of that supplier.
4.4.2 From Buyer to the Network

A ProfileRequest document is sent from a buyer to the network.

![Profile Request Diagram](image)

Figure 4: ProfileRequest Document Sent from a Buyer to the Network

The network returns in the ProfileResponse the transactions that it supports. For example:

- SupplierDataRequest
- SubscriptionListRequest
- SubscriptionContentRequest
- GetPendingRequest
- OrderStatusSetupRequest
- SupplierListRequest
- ProviderSetupRequest
- SessionStatusSetupRequest

Example ProfileRequest document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="9949494" xml:lang="en-US" timestamp="2002-02-04T18:39:09-08:00">
  <Header>
    <From>
      <Identity>AN01001010101</Identity> <!-- marketplace's id -->
    </Credential>
  </From>
  <To>
    <Identity>AN0100000001</Identity> <!-- Network -->
  </Credential>
  <Sender>
    <Identity>AN01001010101</Identity> <!-- marketplace's shared secret -->
    <SharedSecret>abracadabra</SharedSecret>
  </Credential>
  <UserAgent>Marketplace 7.5</UserAgent>
  </Sender>
  <ProfileRequest />
</Request>
</cXML>
```

Example ProfileResponse document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="9949494" xml:lang="en-US" timestamp="2002-02-04T18:39:49-08:00"/>
```
4.4.3 From a Network Hub to Supplier

A ProfileRequest is sent from a network hub to a supplier. The network hub queries a supplier periodically, and caches the information to use in ProfileResponse documents sent to buying organizations about a particular supplier.

![Network Hub to Supplier Diagram](image)

Figure 5: ProfileRequest Sent from Network Hub to a Supplier

The supplier returns in the ProfileResponse document the transactions that it supports. For example:

- OrderRequest
- PunchOutSetupRequest

Example ProfileRequest document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="9949494" xml:lang="en-US" timestamp="2002-02-04T18:39:09-08:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
```
Example ProfileResponse document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="9949494" xml:lang="en-US" timestamp="2002-02-04T18:39:49-08:00">
  <Response>
    <Status code="200" text="OK"/>
    <ProfileResponse effectiveDate="2002-01-01T05:24:29-08:00">
      <Transaction requestName="PunchOutSetupRequest">
        <URL>https://www.acme.com/cxml/PunchOutSetup</URL>
      </Transaction>
      <Transaction requestName="OrderRequest">
        <URL>https://www.acme.com/cxml/Order</URL>
        <Option name="attachments">yes</Option>
        <Option name="changes">yes</Option>
      </Transaction>
    </ProfileResponse>
  </Response>
</cXML>
```

### 4.4.4 From a Network Hub to Service Provider

A ProfileRequest is sent from a network hub to service provider partners. Routing service providers need to specify if one or two ProfileReponses will be returned, because profile information can be returned for both the service provider and downstream supplier accounts.
The service provider returns in the **ProfileResponse** document the transactions that it supports. For example:

- ProviderSetupRequest
- SessionStatus
- OrderRequest

### 4.4.5 From a Network Hub to Buyer

A **ProfileRequest** is sent from a network hub to a buyer. The network hub queries a buyer periodically, and caches the information. Later, this information about the buyer is used in **ProfileResponse** documents sent to service providers and suppliers.

![ProfileRequest Sent from a Network Hub to a Buyer](image)

Buyers return in the **ProfileResponse** document the transactions that they support. For example:

- StatusUpdateRequest
- InvoiceDetailRequest

### 4.4.6 From Service Provider to Buyer

A **ProfileRequest** is sent from a service provider to a buyer and routed through a network hub. This scenario is a replacement for the **Followup** element. The network hub queries the buyer periodically, and caches the information. Later, this information about the buyer is used in **ProfileResponse** documents sent to service providers.

![ProfileRequest Sent from a Service Provider to a Buyer](image)

The network hub returns in the **ProfileResponse** document to the service provider the transactions that it supports on behalf of a buyer. For example:

- StatusUpdateRequest
- InvoiceDetailRequest
5 PunchOut Transaction

PunchOut enables users of procurement applications to access supplier contracts for products or services that reside at the supplier’s website. It eliminates the need for the suppliers to send whole catalogs to buying organizations. Instead, suppliers send just short index files that name their storefronts, product categories, or products.

PunchOut Requirements [page 56]
PunchOut Event Sequence [page 59]
PunchOut Documents [page 63]
Modifications to the Supplier’s Web Pages [page 71]
PunchOut Website Suggestions [page 77]
PunchOut Transaction [page 79]
Direct PunchOut [page 95]

5.1 PunchOut Requirements

Before buying organizations configure their procurement applications for PunchOut, or suppliers implement PunchOut websites, both parties must evaluate the benefits and requirements of PunchOut.

5.1.1 Buying Organizations

Setup and testing of cXML-compatible procurement applications with a PunchOut-enabled supplier can be completed in less than one day.

Therefore, PunchOut is a good solution for buying organizations of all sizes and levels of technical expertise. The decision to use PunchOut should be based on the business practices and types of commodities purchased.

5.1.1.1 Business Issues

Buying organizations should consider the following questions when deciding whether to use static catalog content such as an Index or Contract documents, or PunchOut:

- Do requisitioners and approvers have Internet access? If not, would controlled access to the Internet be allowed?
- Does the buying organization want their suppliers to create and maintain catalog content (including pricing)?
Do requisitioners currently procure goods on the Internet? If so, do these goods require a supplier-side configuration tool or contain unique attributes that cannot conform to a static content model?

Does the buying organization use content aggregators for catalogs (for example, Aspect, TPN Register, or Harbinger)?

Does the buying organization currently procure services (for example, consultants, temp services, or maintenance) through the Internet?

Does the buying organization currently conduct online sourcing?

If the answer to any of the above questions is yes, PunchOut might be appropriate for the buying organization.

5.1.1.2 Technical Issues

Buying organizations must meet the following technical requirements:

- **Direct Internet Access**—Users within buying organizations must have direct Internet access. PunchOut relies on regular Web browser sessions where the user interacts with live supplier websites. This communication occurs through regular intranet/Internet infrastructure, not through the procurement application.

- **Reliable Internet Connection**—Internet access must be constantly operational and reliable. If users cannot procure products because of Internet outages, they are likely to make rogue purchases.

- **Contracts with PunchOut Suppliers**—Purchasing agents must have established contracts with PunchOut-enabled suppliers. PunchOut websites allow access only to known, authenticated buying organizations.

5.1.2 Suppliers

The term supplier in the context of PunchOut encompasses more than the traditional definition of the term. The PunchOut protocol was designed as a flexible framework capable of transmitting data about virtually any kind of product or service from any kind of supplier, distributor, aggregator, or manufacturer.

Example products and services include:

- Computers direct from a manufacturer or reseller
- Chemicals and reagents from an aggregator
- Office supplies from a distributor
- Contract services from a temp agency

The supplier might already have a transactive website capable of hosting content and receiving purchase orders. Given this capability, the supplier needs to consider both the supplier’s business practices and technical resources in deciding whether to implement PunchOut.

5.1.2.1 Business Issues

Suppliers should consider the following questions:

- Does the supplier currently sell the supplier’s products or services through the Internet? If so, do they offer customer-specific content (contract pricing) through their website?
• Does the supplier’s products and services fall into one of the PunchOut categories?
  ○ Highly configurable products (such as computers)
  ○ Large number of line items (such as books)
  ○ Unique product attributes (such as chemicals)
  ○ Normalized data (such as MRO Supplies)
  ○ Rapidly changing or expanding items (such as temporary services or books)
• Does the supplier prefer to receive purchase orders and/or payment through their website?

If the answer to any of the above questions is yes, PunchOut might be appropriate for the supplier’s organization.

5.1.2.2 Technical Issues

Suppliers must meet the following technical requirements:

• **Reliable Internet Connection**—The Web server infrastructure and Internet connection must be extremely reliable. If users cannot access remote content, they are likely to go to another supplier.

• **Competent website Administrators**—The PunchOut website and supporting applications will require periodic maintenance and modification. Users’ needs and the supplier’s product offerings will change, so the supplier needs personnel to modify the supplier’s PunchOut infrastructure.

• **Support for Basic Transactions**—PunchOut websites do not need to support all cXML functionality, but they must support the following required transactions:
  ○ Profile Transaction
  ○ PunchOutSetupRequest
  ○ PunchOutSetupResponse
  ○ PunchOutOrderMessage

5.1.2.3 Work Estimate

The following table lists estimates of work required for cXML PunchOut integration based on estimates from suppliers:

<table>
<thead>
<tr>
<th>Level of Pre-existing Infrastructure</th>
<th>Estimated Time for Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>cXML enabled and integrated with network hub</td>
<td>1-2 weeks with in-house IT staff</td>
</tr>
<tr>
<td></td>
<td>2-3 weeks with contractors</td>
</tr>
<tr>
<td>Transactive site with XML infrastructure</td>
<td>3 weeks with in-house IT staff</td>
</tr>
<tr>
<td></td>
<td>3-4 weeks with contractors</td>
</tr>
<tr>
<td>Transactive site without XML infrastructure</td>
<td>4 weeks with in-house IT staff</td>
</tr>
<tr>
<td></td>
<td>4-5 weeks with contractors</td>
</tr>
</tbody>
</table>
5.1.2.4 Understanding XML

The first step to becoming PunchOut enabled is to understand XML. To implement a PunchOut website, the supplier must have a fundamental understanding of how to create, parse, query, receive, and transmit XML data to and from a remote source.

The basic tools to process XML documents are XML parsers. These parsers are freely available from Microsoft and other companies (for example, an XML parser is standard in Microsoft Internet Explorer 5).

Related Information

cXML, an XML Implementation [page 15]

5.2 PunchOut Event Sequence

A PunchOut session is composed of several distinct steps.

5.2.1 Steps 1 & 2: PunchOut Request

Users log in to a procurement application and open new purchase requisitions. They find desired items by searching their local catalogs by commodity, supplier, or product description. When they select a PunchOut item, the procurement application opens a new browser window and logs them into their accounts at the supplier’s website.
The following figure illustrates the PunchOut request steps:

1. Requisitioner selects supplier for punchout. Procurement application makes request to e-commerce network hub.

2. E-commerce network hub authenticates buying organization and opens secure HTTP session with supplier.

How does it work? When a user clicks a PunchOut item, the procurement application sends a cXML PunchOutSetupRequest document to a network hub. Acting as the trusted third party, the hub accepts the request, verifies the buying organization, and passes the request to the supplier’s PunchOut website.

Note

All cXML documents sent through the Internet can travel through SSL (Secure Socket Layer) 3.0-encrypted HTTPS connections.

The purpose of this request is to notify the supplier’s website of the buyer’s identity, and to communicate the operation to be performed. Supported operations include the following:

- **create**—Initiates a new PunchOut session
- **edit**—Re-opens a PunchOut session for editing
- **inspect**—Re-opens a PunchOut session for inspection (no changes can be made to the data)
- **source**—Initiates a PunchOut session for a RFQ (Request for Quote) create/edit session in a sourcing application

After the supplier’s website receives a request, it sends back a PunchOutSetupResponse containing a URL that tells the procurement application where to go to initiate a browsing session on the supplier’s website.

The procurement application opens a new browser window, which displays a session logged into an account on the supplier’s website. This account can be specific to a region, a company, a department, or a user.

Direct PunchOut is an alternative method for initiating PunchOut sessions, where the PunchOut site, not a network hub, authenticates the PunchOut request.
5.2.2 Step 3: Product Selection

Users select items from the supplier’s inventory using all the features and services provided by the supplier’s website:

![Product Selection](image)

Depending on the product or customer, these features might include the following:

- Configurator tools for building customized products (for example, computers, organic compounds, or personalized products)
- Search engines for finding desired products from large catalogs.
- Views of normalized data for comparing products based on price, features, or availability (for example, MRO products)
- Views of attributes unique to a particular commodity (for example, printed materials, chemical and reagents, or services)
- Real-time pricing, inventory, and availability checking
- Automatic tax and freight calculations based on ship-to destination, size, or quantity of items (not necessary to calculate during the PunchOut session)

**How does it work?** After the procurement application directs users to the supplier’s website, the shopping experience is the same as if they had logged on to the supplier’s website directly. Thus, none of the previously listed features and services require modification.

5.2.3 Step 4: Check Out

The supplier’s website calculates the total cost of the user’s selections, including tax, freight, and customer-specific discounts. Users then click the supplier’s website’s “Check Out” button to send the contents of the shopping cart to the their purchase requisitions within the procurement application.
The following figure illustrates the check-out steps:

![Diagram](image)

**How does it work?** When users click the supplier’s “Check Out” button, they submit an HTML form back to their procurement application. One form field consists of a cXML PunchOutOrderMessage containing product details and prices. The supplier can also send hidden supplier cookies, which can later associate items with a specific shopping session.

Effectively, the supplier has provided a quote for the requested items—the supplier has not yet received a purchase order, so the supplier cannot yet book the order.

If users, including approvers, later need to edit any of the items in a purchase requisition, the supplier can allow them to “re-PunchOut” to the supplier’s website. The procurement application sends back the contents of the original shopping cart to the supplier’s website, and users make any changes there. Upon check out, the supplier’s website returns the items to the purchase requisition.

The supplier’s website is the information source for all PunchOut items. Changes to the quantity or the addition of new items to the requisition might alter tax or shipping charges, which would require recalculation at the supplier’s website. Thus, any changes to the original items need to be made at the supplier’s website, not in the procurement application, therefore the need to re-PunchOut. A re-PunchOut is simply a PunchOutSetupRequest with “edit” as its operation.

### 5.2.4 Step 5: Transmittal of Purchase Order

After the contents of the shopping cart have been passed from the supplier’s website to the user’s purchase requisition, the procurement application approval processes take over. When the purchase requisition is approved, the procurement application converts it into a purchase order and sends it back to the supplier’s website for fulfillment. Purchasing card data can be transmitted along with the order, or the supplier can invoice the order separately.
The following figure illustrates purchase order transmittal:

![Diagram of purchase order transmittal process]

5. When request is fully approved, order is sent to supplier through e-commerce network hub.

**How does it work?** The procurement application sends all purchase orders to the network hub in cXML format. The hub then routes them to the supplier, using the supplier’s preferred order-routing method. When the supplier acknowledges the receipt of a purchase order, the supplier has effectively booked the order.

For PunchOut-enabled suppliers, the best order routing method is cXML for the following reasons:

- cXML purchase orders allow embedded supplier cookie information to be transmitted back to the supplier. Because the supplier cookie is of data type “any”, it does not easily map to other order routing methods such as fax, email, or EDI.
- PunchOut-enabled suppliers are cXML-aware, so accepting cXML purchase orders is a small incremental effort.

**Related Information**

Purchase Orders [page 103]

### 5.3 PunchOut Documents

There are four types of cXML documents:

- PunchOut Index Catalog [page 64]
- PunchOutSetupRequest [page 65]
- PunchOutSetupResponse [page 69]
- PunchOutOrderMessage [page 69]
All but the PunchOut Index Catalog are considered PunchOut session documents because they are used to transmit data between a supplier’s PunchOut site and the buyer during a PunchOut session.

## 5.3.1 PunchOut Index Catalog

PunchOut index catalogs are files that list PunchOut items and point to the supplier’s PunchOut website.

The following example shows a PunchOut index catalog:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Index SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.016/cXML.dtd">
<Index>
  <SupplierID domain="DUNS">83528721</SupplierID>
  <IndexItemPunchout>
    <IndexItem>
      <SuplierPartID>5555</SuplierPartID>
      <PunchoutDetail punchoutLevel="shelf">
        <Description xml:lang="en-US">Desk Chairs</Description>
        <Description xml:lang="fr-FR">Chaises de Bureau</Description>
        <URL>http://www.workchairs.com/punchout.asp</URL>
        <Classification domain="UNSPSC">5136030000</Classification>
      </PunchoutDetail>
    </IndexItemPunchout>
  </IndexItem>
</Index>
```

**SupplierID** identifies the supplier organization. The supplier can use any identification domain, but the recommended ones are D-U-N-S (Dun & Bradstreet Universal Naming System) and NetworkId. For more information about D-U-N-S numbers, see [www.dnb.com](http://www.dnb.com).

**punchoutLevel** is an optional attribute that allows suppliers to specify how procurement applications should present the PunchOut item to users. This attribute can have the values store, aisle, shelf, or product. Procurement applications might display PunchOut items differently, depending on how they are tagged by suppliers. For example, they might display store-level items differently than product-level items.

**Description** specifies the text that the procurement application displays in product catalogs. The supplier can provide the description in multiple languages, and the procurement application displays the appropriate one for the user’s locale.

**Classification** specifies the commodity grouping of the line item to the buyer. All the supplier’s products and services must be mapped and standardized to the UNSPSC schema. For PunchOut index catalogs, the Classification determines the location of the PunchOut item within catalogs displayed to users. For a list of UNSPSC codes, see [www.unspsc.org](http://www.unspsc.org).

### 5.3.1.1 Creating and Publishing Index Catalogs

Create these catalogs and publish them on a network hub to the supplier’s customers. The catalog manager within buying organizations downloads them and stores them for use with procurement applications.
Users see the contents of the supplier’s PunchOut index catalogs alongside regular, static catalog items.

### 5.3.1.2 PunchOut Item Granularity

The supplier can create store-level, aisle-level, or product-level catalogs.

- Store-level catalogs list one PunchOut item for all of the supplier’s products and services. Users must search the supplier site to find the desired item.
- Aisle-level catalogs list multiple PunchOut items corresponding to related products and services.
- Product-level catalogs list only one product or service. Users do not need to search.

To determine how broad to make PunchOut items, consider the supplier’s business model, the makeup of the supplier’s product and service offerings, and the structure of the supplier’s PunchOut website.

The more search and configuration tools the supplier has on the supplier’s website, the more broad they can make the PunchOut items in the supplier’s index catalogs.

### 5.3.2 PunchOutSetupRequest

To initiate a PunchOut session, the user selects the supplier’s PunchOut item. The procurement application generates a `PunchOutSetupRequest` document and sends it to a network hub, which forwards it to the supplier’s PunchOut website.

Following is a sample `PunchOutSetupRequest` document:

```xml
<?xml version="1.0"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML xml:lang="en-US" payloadID="933694607118.1869318421@jlee" timestamp="2002-08-15T08:36:47-07:00">
  <Header>
    <!-- Originator (buying organization) -->
    <From>
      <Credential domain="DUNS">
        <Identity>65652314</Identity>
      </Credential>
    </From>
    <!-- Destination (supplier) -->
    <To>
      <Credential domain="DUNS">
        <Identity>83528721</Identity>
      </Credential>
    </To>
    <!-- Previous relaying entity (network hub in this case) -->
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN200001</Identity>
      </Credential>
    </Sender>
  </Header>
  <Request>
    <!-- type of request -->
    <PunchOutSetupRequest operation="create">
      <BuyerCookie>ICXS14843PP2O</BuyerCookie>
    </PunchOutSetupRequest>
  </Request>
</cXML>
```
The payloadID and timestamp attributes near the beginning are used by cXML clients to track documents and to detect duplicate documents.

The From, To, and Sender elements allow receiving systems to identify and authorize parties. The From and To elements in a document do not change. However, as the document travels to its destination, intermediate nodes (such as the Ariba Network) change the Sender element.

Network hubs can change credential domains in the From and To elements, if that change results in more reliable identification. So for example, the From credential domain might change from CustomDomain to DUNS.

### 5.3.2.1 Create, Edit, Inspect, and Source Operations

The operation attribute specifies the type of session the buyer initiates. It can create, edit, inspect, or source.

- **create** sessions generate new shopping carts, which correspond to new purchase requisitions.
- **edit** sessions reopen previously created shopping carts or RFQs for modification. The procurement application sends line-item data as part of the PunchOutSetupRequest. The PunchOut website can use this data to re-instantiate the shopping cart created during the original session.
- **inspect** sessions reopen previously created shopping carts or RFQs for viewing only. As with the edit operation, the procurement application sends line-item data as part of the PunchOutSetupRequest. However, after re-instantiating the shopping cart, the PunchOut website does not allow modification of its contents.
source sessions generate a RFQ for a sourcing application.

The following example lists an edit request:

```xml
<?xml version="1.0"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.0.14/cXML.dtd">
<cXML xml:lang="en-US" payloadID="933695135608.677295401@jlee"
timestamp="2002-08-15T08:45:35-07:00">
  <Header>
    <From>
      <Credential domain="DUNS">
        <Identity>65652314</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="DUNS">
        <Identity>83528721</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN200001</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Procure 2.1</UserAgent>
    </Sender>
  </Header>
  <Request>
    <PunchOutSetupRequest operation="edit">
      <BuyerCookie>1CX3L4843PPZO</BuyerCookie>
      <Extrinsic name="UserEmail">jsmith</Extrinsic>
      <Extrinsic name="UniqueName">John_Smith</Extrinsic>
      <Extrinsic name="CostCenter">610</Extrinsic>
      <BrowserFormPost>
      </BrowserFormPost>
      <SupplierSetup>
        <URL>http://www.workchairs.com/punchout.asp</URL>
      </SupplierSetup>
      <ItemOut quantity="2">
        <ItemID>
          <SupplierPartID>220-6338</SupplierPartID>
          <SupplierPartAuxiliaryID>E000028901</SupplierPartAuxiliaryID>
        </ItemID>
      </ItemOut>
    </PunchOutSetupRequest>
  </Request>
</cXML>
```

If the user initiated the edit session by selecting a catalog item, the PunchOutSetupRequest would contain a SelectedItem element, like a create session.

5.3.2.2 Authentication by a Network Hub

PunchOutSetupRequest documents route through an network hub for authentication and to look up the URL of the supplier’s PunchOut website. The steps are:

1. The hub receives the PunchOutSetupRequest document from the user.
2. The hub verifies the buyer's ID (From and Shared Secret) with that buyer’s e-commerce account. It also identifies the requested supplier (To).
3. The hub looks up the supplier’s shared secret from the supplier’s account and inserts it (Shared Secret) into the Sender element.

4. The hub finds the URL of the supplier’s PunchOut website in the supplier’s account and sends the PunchOutSetupRequest document to it.

5. The supplier’s website receives the cXML document and knows that it is authenticated because it contains the supplier’s own shared secret.

6. The supplier’s website uses information in the From element to identify the requester at the company level (for example, acme.com).

7. The supplier can use the Contact and extrinsic data in the body of the request to uniquely identify the user (for example, John Smith in Finance at acme.com).

The PunchOutSetupRequest and PunchOutSetupResponse documents pass through the network hub for authentication. The PunchOutOrderMessage document (returning the contents of the shopping basket to the procurement application) travels directly between the supplier’s website and the procurement application through standard HTML Form submission.

Direct PunchOut is an alternative method for initiating PunchOut sessions, where the PunchOut site, not a network hub, authenticates the PunchOut request.

Related Information

Direct PunchOut [page 95]

5.3.2.3 Supplier Setup URL and SelectedItem

In previous cXML releases, the SupplierSetup element provided the only way to specify the URL of the supplier’s PunchOut website. Beginning with cXML 1.1, the network hub already knows the URL of the supplier’s PunchOut website.

Also, starting with cXML 1.1, procurement applications can use the SelectedItem element to specify store-, aisle-, or product-level PunchOut.

The SupplierSetup element has been deprecated. However, the supplier’s PunchOut website must handle both methods until all PunchOut websites and procurement applications recognize and send the SelectedItem element.

5.3.2.4 Contact Data and Extrinsic Data for User Identification

The PunchoutSetupRequest document can contain detailed user information in the Contact element that the supplier’s website can use to authenticate and direct users, such as:

- User name and role
In addition, the PunchOutSetupRequest might also contain extrinsic data, data that the supplier can use to further identify users, such as:

- User cost center and subaccount
- Region
- Supervisor
- Default currency

Buying organizations configure their procurement applications to insert contact and extrinsic data. Ask the supplier’s customers what data the supplier can expect to receive.

### 5.3.3 PunchOutSetupResponse

After receiving a PunchOutSetupRequest, the supplier’s website sends a PunchOutSetupResponse. The PunchOutSetupResponse document serves two functions:

- It indicates that the PunchOutSetupRequest was successful.
- It provides the procurement application with a redirect URL to the supplier’s Start Page.

It contains a URL element that specifies the Start Page URL to pass to the user’s Web browser for the interactive browsing session. This URL must contain enough state information to bind to a session context on the supplier’s website, such as the identity of the requester and the contents of the BuyerCookie element. Due to URL length restrictions in many applications, this URL should refer to the state information rather than including it all.

The following example lists a PunchOutSetupResponse document:

```xml
<?xml version="1.0"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML xml:lang="en-US" payloadID="933694607739"
timestamp="2002-08-15T08:46:00-07:00">
  <Response>
    <Status code="200" text="success"></Status>
    <PunchOutSetupResponse>
      <StartPage>
        <URL>
          http://xml.workchairs.com/retrieve?reqUrl=20626;Initial=TRUE
        </URL>
      </StartPage>
    </PunchOutSetupResponse>
  </Response>
</cXML>
```

### 5.3.4 PunchOutOrderMessage

After the user selects items on the supplier’s website, configures them, and clicks the supplier’s “Check Out” button, the supplier’s website sends a PunchOutOrderMessage document to communicate the contents of the shopping basket to the buyer’s procurement application. This document can contain much more data than the other documents, because it needs to be able to fully express the contents of any conceivable shopping
basket. This document does not strictly follow the Request/Response paradigm; its use will be explained in detail.

The following example lists a PunchOutOrderMessage:

```xml
<?xml version="1.0"?><!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd"> <cXML xml:lang="en-US" payloadID="933695160894" timestamp="2002-08-15T08:47:00-07:00"> <Header>    <From>        <Credential domain="DUNS">            <Identity>83528721</Identity>        </Credential>    </From>    <To>        <Credential domain="DUNS">            <Identity>65652314</Identity>        </Credential>    </To>    <Sender>        <Credential domain="workchairs.com">            <Identity>website1</Identity>        </Credential>        <UserAgent>Workchairs cXML Application</UserAgent>    </Sender> </Header> <Message> <PunchOutOrderMessage>     <BuyerCookie>1CX3L4843PPZ0c</BuyerCookie>     <PunchOutOrderMessageHeader operationAllowed="edit">         <Total>             <Money currency="USD">763.20</Money>         </Total>     </PunchOutOrderMessageHeader>     <ItemIn quantity="3">         <ItemID>             <SupplierPartID>5555</SupplierPartID>             <SupplierPartAuxiliaryID>E000028901</SupplierPartAuxiliaryID>         </ItemID>         <ItemDetail>             <UnitPrice>                 <Money currency="USD">763.20</Money>             </UnitPrice>             <Description xml:lang="en">                 <ShortName>Excelsior Desk Chair</ShortName>                 Leather Reclining Desk Chair with Padded Arms             </Description>             <UnitOfMeasure>EA</UnitOfMeasure>             <Classification domain="UNSPSC">5136030000</Classification>             <LeadTime>12</LeadTime>         </ItemDetail>     </ItemIn> </PunchOutOrderMessage> </Message> </cXML>
```

BuyerCookie enables the procurement application to associate a given PunchOutOrderMessage with its originating PunchOutSetupRequest. Therefore, the supplier’s website should return this element whenever it appears. Do not use the BuyerCookie to track PunchOut sessions, because it changes for every session, from create, to inspect, to edit.
SupplierPartAuxiliaryID acts as a supplier cookie. This field allows the supplier to transmit additional data, such as quote number or another cXML document. The procurement application passes it back to the supplier in any subsequent PunchOut edit or inspect sessions, and in the resulting cXML purchase order. The supplier can use the supplier cookie to associate items in a purchase requisition with the corresponding items in a shopping cart at the supplier’s website.

**Note**

Procurement applications might use SupplierPartAuxiliaryID as part of the unique identifier for items, so PunchOut sites should not change this value during PunchOut edit or inspect sessions.

**UnitOfMeasure** describes how the product is packaged or shipped.

**Classification** lists the UNSPSC (United Nations Standard Products and Services Code) commodity code for each selected item. These codes are used by backend systems within buyer and supplier organizations for accounting and report generation. For the list of UNSPSC codes, see [www.unspsc.org](http://www.unspsc.org).

### Related Information

[UnitOfMeasure](#) [page 43]

### 5.4 Modifications to the Supplier’s Web Pages

To receive or send the three cXML PunchOut session documents, *PunchOutSetupRequest*, *PunchOutSetupResponse*, and *PunchOutOrderMessage*, the supplier might need to modify or create four pages on the supplier’s website:

- **Launch Page** [page 71]
- **Start Page** [page 74]
- **Sender Page** [page 74]
- **Order Receiver Page** [page 77]

To illustrate how the supplier might implement these pages, this chapter uses simple Active Server Page (ASP) code samples and the Microsoft Internet Explorer 5 XML Parser. Actual implementation of these pages will vary depending on the supplier development environment (for example, CGI, JavaScript, or WebObjects).

#### 5.4.1 Launch Page

The Launch Page receives all authenticated *PunchOutSetupRequest* documents from the network hub. It reads the HTTP stream sent from the hub and validates the cXML request embedded within that stream.
against the cXML DTD (in the case of ASP, using method calls to the Internet Explorer 5 XML parser). After validation, the supplier’s Launch Page extracts elements from the document in order to:

1. Identify the user and determine where to redirect that user.
2. Compose a PunchOutSetupResponse document and return it to the sender.

The supplier’s Launch Page should store the following data for use by the supplier’s Start Page:

- Identity of the requester (Sender)
- Identity of the language of the user (xml:lang) so the supplier can provide localized content
- Type of the request (create, edit, or inspect)
- Any extrinsic data that further identifies the user and the user location

Following is a sample Launch Page. This code does not use an XML tool to dynamically generate the PunchOutSetupResponse, but instead uses a static XML template into which line item data is filled. This code is intended for illustrative purposes only.

```javascript
<script language=JScript RUNAT=Server>
function elementValue(xml, elem) {
    var begidx;
    var endidx;
    var retStr;
    begidx = xml.indexOf(elem);
    if (begidx > 0) {
        endidx = xml.indexOf('</',begidx);
        if (endidx > 0)
            retStr = xml.slice(begidx+elem.length, endidx);
        return retStr;
    }
    return null;
}

function twoChar( str ) {
    var retStr;
    str = str.toString();
    if ( 1 == str.length ) {
        retStr = "0" + str;
    } else {
        retStr = str;
    }
    return retStr;
}

function timestamp( dt ) {
    var str;
    var milli;
    str = dt.getFullYear() + "-" + twoChar( 1 + dt.getMonth() ) + "-";
    str += twoChar( dt.getDate() ) + "T" + twoChar( dt.getHours() ) + ":";
    str += twoChar( dt.getMinutes() ) + ":" + twoChar( dt.getSeconds() ) + ".";
    milli = dt.getMilliseconds();
    milli = milli.toString();
    if ( 3 == milli.length ) {
        str += milli;
    } else {
        str += "0" + twoChar( milli );
    }
    str += "-08:00";
    return str;
}

function genProlog( cXMLvers, randStr ) {
    var dt;
```
var str;
var vers, sysID;
var nowNum, timeStr;
vers = "1.2.014";
sysID = "http://xml.cXML.org/schemas/cXML/" + vers + "/cXML.dtd";
dt = new Date();
nowNum = dt.getTime();
timeStr = timestamp( dt );
str = '<?xml encoding="UTF-8">\n';
str += '<!DOCTYPE cXML SYSTEM "' + sysID + '">
';
str += '<cXML payloadID="' + nowNum + ">
';
str += randStr + '@' + Request.ServerVariables("LOCAL_ADDR") + 
';
str += '" timestamp="' + timeStr + ">
';
return str;
</script>
<% REM Create data needed in prolog. Randomize randStr = Int( 100000001 * Rnd ) prologStr = genProlog( "1.0", randStr ) Response.ContentType = "text/xml" Response.Charset = "UTF-8" %> <%
REM This receives the PunchOutSetup request coming from the network hub. REM It takes the ORMSURL and buyercookie, attaches them to the Start Page URL, REM and sends the response back to the requester.
REM punchoutredirect.asp?bc=2133hfefe&url="http://workchairs/com/..&redirect=" Dim ret Dim punch Dim statusText Dim statusCode Dim cookie Dim url Dim xmlstr Dim fromUser Dim toUser
cookie = ""
url = ""\nxmlstr = ""
dir = ""
path = Request.ServerVariables("PATH_INFO")
dir = Left(path, InstrRev(path, "/"))
if IsEmpty(dir) then
dir = "/"
end if
REM This command reads the incoming HTTP cXML request xml = Request.BinaryRead(Request.TotalBytes) for i = 1 to Request.TotalBytes xmlstr = xmlstr + String(1,AscB(MidB(xml, i, 1))) Next
cookie = elementValue(xmlstr, "<BuyerCookie>")
url = elementValue(xmlstr, "<URL>")
fromUser = elementValue(xmlstr, "<Identity>")
newXMLStr = Right(xmlstr, Len(xmlstr) - (InStr(xmlstr,"<Identity>") + Len("<Identity>")))
toUser = elementValue(newXMLStr, "<Identity>")
%>
REM This formats the cXML PunchOutSetupReponse <%
if IsEmpty(cookie) then %>
<%=
<Response>
<Status code="400" Text="Bad Request">Invalid Document. Unable to extract BuyerCookie.</Status>
</Response>
</cXML>
<% else %>

The supplier’s Launch Page should return a StartPage URL that is unique for that PunchOut session. In addition, this URL should be valid for only a limited amount of time. By deactivating this URL, the supplier makes it more difficult for unauthorized users to access the supplier’s Start Page.

Remember to implement functionality for subsequent edit and inspect sessions. Users cannot change order details for PunchOut items (such as quantity) within their procurement application. They must re-PunchOut with an edit session. For the greatest benefit to users, inspect sessions that occur after the supplier receives the order should display order status.

5.4.2 Start Page

The supplier’s Start Page logs the requester into an account on the supplier’s website. From the supplier’s Start Page, users begin their shopping experience. This page might already exist at the supplier’s website, so modify it to query user name and password information from the PunchOutSetupRequest document.

Allow only authorized users into the supplier’s Start Page. If the supplier waits until the check-out step to authenticate them, their confidential pricing or terms are not protected.

If the supplier uses HTTP browser cookies to track user preferences and sessions, they should be destroyed after the PunchOutOrderMessage is sent to buyers. Destroying these cookies prevents the possibility of offering privileged features to unauthorized users.

5.4.3 Sender Page

The Sender Page sends the contents of the user’s shopping cart to the user. As described earlier, after users fill their shopping carts, they click the supplier’s “Check Out” button.

Below is a simple ASP implementation of this feature. This code does not use an XML tool to dynamically generate the PunchOutOrderMessage, but instead uses a static XML template into which line item data is filled. This code is intended for illustrative purposes only.

This is a portion of a supplier’s website product page:
Jefferson Memorial - A birdfeeder with a rotunda! This famous American monument will be a unique addition to any garden or yard. It attracts small to medium sized birds and its dimensions are 11" x 9 1/2" x 8" H.

-Jefferson Memorial $139.95

The AddBuyButton function sends the PunchOutOrderMessage back to the user.

The following listing is the include file (punchoutitem.inc) referenced in the previous example:

```asciidoc
<% REM This asp is included in items.asp, which specifies the item parameters, formats REM a cXML document, and allows the user to proceed with a checkout of the item. function CreateCXML(toUser, fromUser, buyerCookie, unitPrice, supPartId, desc) %>
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="<%= Now @ Request.ServerVariables("LOCAL_ADDR") %>">
    <Header>
        <From>
            <Credential domain="hub.com">
                <Identity><%= toUser%></Identity>
            </Credential>
        </From>
        <To>
            <Credential domain="hub.com">
                <Identity><%= fromUser%></Identity>
            </Credential>
        </To>
        <Sender>
            <Credential domain="hub.com">
                <Identity><%= toUser%></Identity>
            </Credential>
            <UserAgent>PunchoutSite</UserAgent>
        </Sender>
    </Header>
    <Message>
        <PunchOutOrderMessage>
            <BuyerCookie><%= buyerCookie%></BuyerCookie>
            <PunchOutOrderMessageHeader operationAllowed="edit">
                <Total>
                    <Money currency="USD"><%= unitPrice%></Money>
                </Total>
            </PunchOutOrderMessageHeader>
            <ItemIn quantity="1">
                <ItemID>
                    <SupplierPartID><%= supPartId%></SupplierPartID>
                    <SupplierPartAuxiliaryID><%= supPartAuxId%></SupplierPartAuxiliaryID>
                </ItemID>
                <ItemDetail>
```
The AddBuyButton function contains the FORM POST that sends the URL-encoded PunchOutOrderMessage back to the user.

### 5.4.3.1 HTTP Form Encoding

To send a PunchOutOrderMessage, the supplier uses HTML form encoding, which is a different transport model from the traditional HTTP request/response model. This different transport facilitates easier integration between the supplier’s website and the procurement application. It also enables buying organizations to receive XML data without requiring them to have a Web server available through a firewall.

Instead of sending a PunchOutOrderMessage directly to the procurement application, the supplier’s website encodes it as a hidden HTML Form field and the user’s browser submits it to the URL specified in the BrowserFormPost element of the PunchOutSetupRequest. The hidden HTML Form field must be named either cxml-urlencoded or cxml-base64, both case insensitive. Taken from the above example, the following code fragment inserts a hidden form field named cxml-urlencoded containing the PunchOutOrderMessage document to be posted:

```html
<FORM METHOD=POST ACTION=<%= url%>>
  <INPUT TYPE=HIDDEN NAME="cxml-urlencoded" VALUE="<% CreateCXML toUser, fromUser, buyerCookie, unitPrice, supPartId, supPartAuxId, desc%>">
  <INPUT TYPE=SUBMIT value=BUY>
</FORM>
```
This encoding permits the supplier to design a checkout Web page that contains the cXML document. When users click the supplier’s “Check Out” button, the supplier’s website presents the data, invisible to users, to the procurement application as an HTML Form Submit.

### 5.4.3.2 Cancelling PunchOut

The supplier might want to add a “Cancel” button to their pages so that users can cancel their PunchOut session. The “Cancel” button sends an empty `PunchOutOrderMessage` that tells the procurement application that no items will be returned, and to delete existing PunchOut items from the requisition. The supplier can also use it to perform any housekeeping needed by the supplier’s website, such as clearing the shopping cart and closing the user session.

### 5.4.4 Order Receiver Page

The Order Receiver Page accepts cXML purchase orders sent by buying organizations. It could be similar to the Launch Page discussed above. For information about receiving purchase orders, see Purchase Orders [page 103]

### 5.5 PunchOut Website Suggestions

This section provides suggestions and information you should consider when planning the implementation of a PunchOut website.

#### 5.5.1 Implementation Guidelines

Follow these guidelines when developing the supplier’s PunchOut website:

- Study the cXML User’s Guide (this document).
- Use an XML parser and validate documents against the cXML DTD.
- Use the `xml:lang` property to identify users’ languages so the supplier can provide localized content.
- Use the `From` credential to identify buying organizations.
- Send a unique, temporary URL for the session on redirect.
- Do not persist browser cookies.
- Do not overburden the supplier’s customers with extrinsic data requirements.
- For each line item, use UNUOM (United Nations Units of Measure) and UNSPSC (United Nations Standard Products and Services Code).
- Provide real value to the supplier’s customers. Display product availability, order status, and special promotions.
• Checkout should be easy and intuitive. Ideally, users should need to click only three buttons to buy.
• Code for subsequent edit and inspect sessions. Users cannot change order details for PunchOut items (such as quantity) within their procurement application. They must re-PunchOut with an edit session.
• For the greatest benefit to users, inspect sessions should display order status.
• Test the supplier’s PunchOut website. Allow time for testing with the supplier’s customers’ procurement applications.
• PunchOut transactions produce quotes, not purchase orders. Implement a cXML purchase-order receiving page to accept orders.

5.5.2 Buyer and Supplier Cookies

The buyer and supplier cookies enable both buyers and suppliers to re-instantiate their own line-item data for their backend systems.

• The supplier should return the BuyerCookie element they receive. It should not be changed.
• Make use of the supplier cookie (SupplierPartAuxiliaryID).

The buyer cookie is analogous to a purchase requisition number; it conveys state information that allows the buying organization’s system to maintain the relationship between a requisition and a shopping basket. Likewise, the supplier cookie is analogous to a quote number; it conveys state information that allows the supplier’s system to maintain a relationship between a shopping basket and the buyer’s requisition and purchase order. Procurement applications pass the supplier cookie back to the supplier in subsequent PunchOut edit or inspect sessions, and in the resulting purchase order. The supplier’s website should take advantage of the supplier cookie to eliminate the need to pass visible, supplier-specific data back to the buyer.

5.5.3 Personalization

The header of the PunchOutSetupRequest always identifies the buying organization, but the request might also contain Contact and Extrinsic data (such as user’s cost center, user’s location, or product category) that the supplier can use to determine the dynamic URL to serve to the user.

Although not all buying organizations send this extrinsic data, it can enable the supplier to customize the supplier’s Web store beyond the simple organization level. For example, the supplier could provide a separate Web store for each cost center within the buying organization (or each product category or each user).

The supplier could also store and display the user’s previous quotes. The supplier could allow users to reuse quotes, check the status of orders, and create reports on past activity. To avoid security problems, store quote history only at the per-user level.

A key consideration during planning is the amount of effort required to implement a highly dynamic and customized PunchOut website. The supplier needs to balance between customization and complexity—a complex website takes longer to implement and maintain, but it could offer more value to users. It is recommended that the supplier start with a simple PunchOut website and enhance it over time.
5.6 PunchOut Transaction

The PunchOut message definitions are request/response messages within the Request and Response elements. All of the following messages must be implemented by suppliers to support PunchOut.

PunchOutSetupRequest and PunchOutSetupResponse are the request/response pair used to set up a PunchOut session to a remote system. The client uses them to identify the procurement application, send setup information, and receive a response indicating where to go to initiate an HTML browsing session on the remote website.

The order of cXML message flow in the PunchOut transaction is shown in the following diagram:

1. PunchOutSetupRequest

   Procurement Application  Network  Supplier

   2. PunchOutSetupResponse

   3. PunchOutOrderMessage

Figure 13: cXML Message Flow in PunchOut Transaction

5.6.1 Sourcing

PunchOut can also be used for sourcing. A user can PunchOut from a procurement application to a sourcing application to initiate a RFQ (Request For Quote) session. The sourcing application will return a PunchOutSetupResponse with the URL of the start page of the sourcing application. With the URL, the end user goes to the sourcing application to provide more configuration information for RFQ.

At the end of each user session, a PunchOutOrderMessage is sent by the sourcing application to the procurement application and contains either a new RFQ, update information for an existing RFQ, or a completed RFQ.

Related Information

PunchOutOrderMessage [page 84]

5.6.2 PunchOutSetupRequest

The PunchOutSetupRequest document contains a Header element and a PunchOutSetupRequest element.
5.6.2.1 Header

The Header element contains addressing and authentication information. Following is a sample Header element in a PunchOutSetupRequest:

```xml
<Header>
  <From>
    <Credential domain="DUNS">
      <Identity>65652314</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="DUNS">
      <Identity>83528721</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="NetworkId">
      <Identity>AN12345</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Procure Software 3.3</UserAgent>
  </Sender>
</Header>
```

**From**

The buying organization originating the PunchOutSetupRequest.

**To**

The supplier destination of the PunchOutSetupRequest.

**Sender**

Authentication details of the buying organization including Identity, SharedSecret (password), and AribaNetworkId, which is specified by Credential domain. The SharedSecret is the supplier’s password or login to the PunchOut site.

**UserAgent**

A unique identifier for the application sending the PunchOutSetupRequest. Consists of the software company name, product name, and version. Version details can appear in parentheses.
5.6.2.2 PunchOutSetupRequest

A PunchOutSetupRequest element is contained within the Request element. The following example shows the element declaration of PunchOutSetupRequest from cXML.dtd:

```xml
<!ELEMENT PunchOutSetupRequest (
    BuyerCookie,
    Extrinsic*,
    BrowserFormPost?,
    Contact*,
    SupplierSetup?,
    ShipTo?,
    SelectedItem?,
    ItemOut*)>
```

The following example shows a PunchOutSetupRequest:

```xml
<PunchOutSetupRequest operation="create">
  <BuyerCookie>34234234ADFSDF234234</BuyerCookie>
  <Extrinsic name="UserEmail">betty</Extrinsic>
  <Extrinsic name="UniqueName">BettyBuyer</Extrinsic>
  <Extrinsic name="CostCenter">Marketing</Extrinsic>
  <BrowserFormPost>
    <URL>http://orms.acme.com:1616/punchoutexit</URL>
  </BrowserFormPost>
  <SelectedItem>
    <ItemID>
      <SupplierPartID>54543</SupplierPartID>
    </ItemID>
  </SelectedItem>
  <SupplierSetup>
    <URL>http://workchairs.com/cxml</URL>
  </SupplierSetup>
  <ShipTo>
    <Address addressID="1000467">
      <Name xml:lang="en">1000467</Name>
      <DeliverTo>Betty Buyer</DeliverTo>
      <Street>123 Main Street</Street>
      <City>Sunnyvale</City>
      <State isoStateCode="US-CA">CA</State>
      <PostalCode>94089</PostalCode>
    </Address>
  </ShipTo>
</PunchOutSetupRequest>
```

PunchOutSetupRequest has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation</td>
<td>Specifies the type of PunchOutSetupRequest: &quot;create&quot;, &quot;inspect&quot;, &quot;edit&quot; or &quot;source&quot;.</td>
</tr>
</tbody>
</table>

This element also contains the following elements: BuyerCookie, Extrinsic, BrowserFormPost, Contact, ShipTo, SelectedItem, SupplierSetup and an ItemOut list. Only the BuyerCookie element is required.

The structure of Extrinsic, Contact, and ShipTo elements is discussed in more detail in OrderRequestHeader Element [page 107]. The ItemOut element is discussed in ItemOut [page 130]. In this context (outside of an OrderRequest), the Distribution and Comments elements and lineNumber, requisitionID, and requestedDeliveryDate attributes of an ItemOut add little or no value and should
not be included. Because PunchOut sessions take place before ordering, this information is not relevant within a PunchOutSetupRequest.

An ItemOut list describes an existing shopping cart (items from a previous PunchOut session). The inspect operation initiates a read-only PunchOut session (enforced by both the client and the server) to view details about the listed items. The edit operation also starts from the previous shopping cart (described using the ItemOut list), but allows changes. Support for the edit operation implies inspect support (see PunchOutOrderMessageHeader [page 85] and Empty Shopping Carts [page 86]). This list can also describe items to be sourced. For more information, see Sourcing [page 79].

The Credential of the supplier is used to obtain the PunchOut location from the network hub where suppliers can store the URLs of their PunchOut websites. Network hubs receive the PunchOutSetupRequest document, read the supplier’s ID, find the URL of the PunchOut website from the supplier’s account information, and send the PunchOutSetupRequest document to that URL. The network hub, not the buyer, specifies the URL of the PunchOut website, which is more flexible. The URL specified in the SupplierSetup element of the PunchOutSetupRequest has been deprecated; cXML servers will ignore this element in the future.

5.6.2.3 BuyerCookie

This element transmits information that is opaque to the remote website, but it must be returned to the originator for all subsequent PunchOut operations. This element allows the procurement application to match multiple outstanding PunchOut requests. BuyerCookie is unique per PunchOut session.

5.6.2.4 BrowserFormPost

This element is the destination for the data in the PunchOutOrderMessage. It contains a URL element whose use will be further explained in the PunchOutOrderMessage definition. If the URL-Form-Encoded method is not being used, this element does not have to be included.

5.6.2.5 Extrinsic

This optional element contains any additional data that the requestor wants to pass to the external website. The cXML specification does not define the content of Extrinsic elements—it is something that each requestor and remote website must agree on and implement.

Extrinsic elements are intended to provide additional machine-readable information. They extend the cXML protocol to support features not required by all implementations. In the following context, the new data further describes the user initiating the PunchOut request.

<Extrinsic name="department">Marketing</Extrinsic>

The following example passes the user initiating the PunchOut and their department.

<Extrinsic name="CostCenter">450</Extrinsic>
With cXML 1.1 and higher, the Contact element obsoletes the “Cost Center” and “User” extrinsics.

The Extrinsic element can also appear in the OrderRequestHeader, ItemDetail, SpendDetail, LaborDetail, and ContractItem elements. These contexts are described further elsewhere in this document.

### 5.6.2.6 SelectedItem

An optional SelectedItem element allows suppliers to specify PunchOut for an entire store or any subset of product offerings. Suppliers can create their catalogs so that SelectedItem leads to store-, aisle-, or product-level PunchOut. Procurement applications can include the SelectedItem element in PunchOutSetupRequest documents, and PunchOut sites can use it to determine which products to display to users. The more specific the item is in the catalog, the less searching users have to do at the supplier’s website. If there is no SelectedItem, suppliers should present their entire (store-level) product offerings.

A SelectedItem contains an ItemID, for example:

```xml
<SelectedItem>
  <ItemID>
    <SupplierPartID>5555</SupplierPartID>
  </ItemID>
</SelectedItem>
```

For the contents of the SelectedItem element, procurement applications use the ItemID(SupplierPartID and SupplierPartAuxiliaryID) from the PunchOut index catalog. No catalog changes are required.

Procurement applications should initially send both the new SelectedItem element and the old PunchOut URL in the PunchOutSetupRequest. E-commerce network hubs use the old URL only for suppliers that have not yet stored their PunchOut URL destinations.

This element is usually present in create operations. Procurement applications that allow users to punch out directly from a supplier listing should leave out SelectedItem in that case.

For edit and inspect operations, SelectedItem should appear only if the user chose to return to the supplier’s website while viewing new information in the local catalog rather than items in an existing requisition. In either case, the current shopping cart must appear in the ItemOut list.

SelectedItem should not be used in a source operation.

### 5.6.2.7 SupplierSetup

This optional element specifies the URL to which to post the PunchOutSetupRequest. This element is not needed if the network hub knows the supplier’s PunchOut URL.
5.6.2.8  ShipTo

This optional element specifies the Ship To address for the item. Suppliers might want to use this information to formulate delivery time or price estimates.

IDReference

An existing element that is now also a child element of ShipTo.

5.6.3  PunchOutSetupResponse

After the remote website has received a PunchOutSetupRequest, it responds with a PunchOutSetupResponse, as shown below:

```xml
<PunchOutSetupResponse>
  <StartPage>
    <URL>
      http://premier.workchairs.com/store?23423SDFSDF23
    </URL>
  </StartPage>
</PunchOutSetupResponse>
```

5.6.3.1  StartPage

This element contains a URL element that specifies the URL to pass to the browser to initiate the PunchOut browsing session requested in the PunchOutSetupRequest. This URL must contain enough state information to bind to a session context on the remote website, such as the requestor identity and the appropriate BuyerCookie element.

At this point, the user who initiated the PunchOutSetupRequest browses the external website, and selects items to be transferred back to the procurement application through a PunchOutOrderMessage.

5.6.4  PunchOutOrderMessage

This element sends the contents of the remote shopping basket or sourcing RFQ to the originator of a PunchOutSetupRequest. It can contain much more data than the other messages because it must be able to fully express the contents of any conceivable shopping basket on the external website. This message does not strictly follow the Request/Response model.
The remote website generates a PunchOutOrderMessage when the user checks out. This message communicates the contents of the remote shopping basket to the procurement application; for example:

```
<PunchOutOrderMessage>
  <BuyerCookie>34234234ADFSDF234234</BuyerCookie>
  <PunchOutOrderMessageHeader operationAllowed="create">
    <Total>
      <Money currency="USD">100.23</Money>
    </Total>
  </PunchOutOrderMessageHeader>
  <ItemIn quantity="1">
    <ItemID>
      <SupplierPartID>1234</SupplierPartID>
      <SupplierPartAuxiliaryID>additional data about this item</SupplierPartAuxiliaryID>
    </ItemID>
    <ItemDetail>
      <UnitPrice>
        <Money currency="USD">10.23</Money>
      </UnitPrice>
      <Description xml:lang="en">Learn ASP in a Week!</Description>
      <UnitOfMeasure>EA</UnitOfMeasure>
      <Classification domain="SPSC">12345</Classification>
      <LeadTime>1</LeadTime>
    </ItemDetail>
  </ItemIn>
</PunchOutOrderMessage>
```

A PunchOutOrderMessage document can be empty, which allows users to end PunchOut shopping sessions without selecting any items. Suppliers can implement a Cancel button that generates an empty PunchOutOrderMessage document. Then, both the PunchOut site and the procurement application know when a user has canceled a shopping session, and they can delete the shopping cart, delete items from the requisition, and perform other housekeeping tasks.

### 5.6.4.1 BuyerCookie

This element is the same element that was passed in the original PunchOutSetupRequest. It must be returned here to allow the procurement application to match the PunchOutOrderMessage with an earlier PunchOutSetupRequest.

### 5.6.4.2 PunchOutOrderMessageHeader

This element contains information about the entire shopping basket contents being transferred. The only required element is Total, which is the overall cost of the items being added to the requisition, excluding tax and shipping charges.

Additional elements that are allowed are Shipping and Tax, which are the amount and description of any shipping or tax charges computed on the remote website.

ShipTo is also optional, and it specifies the Ship-To addressing information the user selected on the remote site or that was passed in the original PunchOutSetupRequest.
All monetary amounts are in a `Money` element that always specifies currency in a standardized format.

The `SourcingStatus` element is optional, and relays updated information about a sourced RFQ. The content of the element could be a textual description of the update, such as the actual status update string displayed to the user.

`PunchOutOrderMessageHeader` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>operationAllowed</td>
<td>Specifies the operations allowed in subsequent <code>PunchOutOrderRequest</code>s: &quot;create&quot;, &quot;inspect&quot;, or &quot;edit&quot;.</td>
</tr>
<tr>
<td>quoteStatus</td>
<td>Optional attribute specifies whether the order is &quot;pending&quot; or &quot;final&quot;. If quoteStatus is &quot;final&quot;, the transaction is complete.</td>
</tr>
</tbody>
</table>

The `operationAllowed` attribute controls whether the user can initiate later PunchOut sessions containing data from this `PunchOutOrderMessage`:

- `operationAllowed="create"`: disallows subsequent PunchOut sessions for these items. Users cannot inspect or edit these items.
- `operationAllowed="inspect"`: allows subsequent PunchOut sessions only to inspect these items. The items cannot be changed.
- `operationAllowed="edit"`: allows subsequent PunchOut sessions to both inspect and change these items.

The `quoteStatus` attribute is used for a sourced RFQ or any other long-running operation. The `PunchOutOrderMessage` will contain the results of an end user session in the sourcing application and contains either status update information for a particular RFQ, a new RFQ, or an update to a completed RFQ.

### 5.6.4.3 Empty Shopping Carts

The `PunchOutOrderMessage` can contain a list of items corresponding to a shopping cart on the supplier website. It always indicates the end of the interactive PunchOut session. The following list describes a few cases when there are no items in the `PunchOutOrderMessage`. These messages allow clients to resume immediately when the user leaves the supplier website.

- If the operation in the original `PunchOutSetupRequest` was `inspect`, the item list of the `PunchOutOrderMessage` must be ignored by the procurement application. The supplier site should return no `ItemIn` elements in this case.
- If a `PunchOutOrderMessage` contains no `ItemIn` elements and the operation was `create`, no items should be added to the requisition because the supplier site or the user has canceled the PunchOut session without creating a shopping cart.
- If the operation was `edit` and the `PunchOutOrderMessage` contains no `ItemIn` elements, existing items from this PunchOut session must be deleted from the requisition in the procurement application.

The Status code “204/No Content” indicates the end of a session without change to the shopping cart. Again, the `PunchOutOrderMessage` (which is always needed for the BuyerCookie) should not contain `ItemIn` elements. This code would be handled identically to the other “empty” cases detailed above unless the operation was `edit`. In that case, the user canceled the session without making any change and no change should be made to the requisition in the procurement application.
### 5.6.4.4 ItemIn

This element adds an item from a shopping basket to a requisition in the procurement application. It can contain a variety of elements, only two of which are required: `ItemID` and `ItemDetail`.

**ItemIn** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>quantity</code></td>
<td>The number of items selected by the user on the remote website. Because the supplier site can enforce rules for partial units, the protocol allows fractional quantities. Should never be negative.</td>
</tr>
<tr>
<td><code>openQuantity</code></td>
<td>The quantity pending to be fulfilled by the supplier to ship to the buyer. Example: If the order quantity is 100 and 40 were delivered, the open quantity is 60. The quantity is recorded as the undelivered quantity by the buyer.</td>
</tr>
<tr>
<td><code>promisedQuantity</code></td>
<td>The quantity that has been promised by the supplier. The promised quantity, also called confirmed quantity, is computed in the supplier’s backend system based on “Available To Promise” (ATP) functionality. ATP is a function that enables buyers’ orders to be confirmed based on available inventory or based on incoming commitments from the suppliers.</td>
</tr>
<tr>
<td><code>lineNumber</code></td>
<td>The position of this item within an order. Because PunchOut sessions normally take place prior to ordering and the server cannot control placement of items within an order in any case, this attribute is not relevant within a PunchOutOrderMessage.</td>
</tr>
<tr>
<td><code>parentLineNumber</code></td>
<td>The line number of the corresponding parent line item. This attribute is applicable only for a line item with <code>itemType=&quot;item&quot;</code>.</td>
</tr>
<tr>
<td><code>itemType</code></td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>● item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>● lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td><code>compositeItemType</code></td>
<td>Specifies whether a parent item uses group-level pricing. Possible values are &quot;groupLevel&quot; or &quot;itemLevel&quot;.</td>
</tr>
<tr>
<td><code>itemClassification</code></td>
<td>Specifies whether the current line item is material or service. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● material</td>
</tr>
<tr>
<td></td>
<td>● service</td>
</tr>
<tr>
<td><code>itemCategory</code></td>
<td>Specifies how a component or material is procured. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● materialUnknown—Refers to procuring a material without specifying the material number.</td>
</tr>
<tr>
<td></td>
<td>● text—Refers to procuring a free-form text item.</td>
</tr>
<tr>
<td></td>
<td>● stockTransfer—Refers to transfer of stock from one plant to another.</td>
</tr>
<tr>
<td></td>
<td>● materialGroup—Refers to procuring a material without specifying the value or quantity.</td>
</tr>
<tr>
<td></td>
<td>● subcontract—Procuring a material by providing component information to a contract manufacturer that makes the finished product.</td>
</tr>
<tr>
<td></td>
<td>● consignment—Managing a material through a special process where the payment to supplier is withheld until the material or service is consumed by the buyer.</td>
</tr>
<tr>
<td></td>
<td>● thirdParty— Procuring a material from a third-party vendor.</td>
</tr>
</tbody>
</table>
**ItemIn** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ItemID</strong> (required)</td>
<td>Provides unique identification of an item. See <a href="#">ItemID</a> [page 90].</td>
</tr>
<tr>
<td><strong>Path</strong></td>
<td>A list of nodes that records the path taken by a user through a punchout chaining scenario. See <a href="#">Path Element</a> [page 183].</td>
</tr>
<tr>
<td><strong>ItemDetail</strong> (required)</td>
<td>Contains descriptive information about the item that procurement applications present to users. See <a href="#">ItemDetail</a> [page 90].</td>
</tr>
</tbody>
</table>
| **SupplierID | SupplierList** | Specify a list of suppliers that can be involved in a sourcing process:  
  - **SupplierID** is the ID of the supplier.  
  - **SupplierList** contains the Name and the list of **SupplierID**s for each supplier.  
  See [SupplierID or SupplierList](#) [page 95]. |
| **ShipTo**               | The ship to address for an item. **ShipTo** contains four elements: **Address**, **CarrierIdentifier**, **TransportInformation**, and **IdReference**. |
| **Shipping**             | Definition of a cXML **Shipping** item. Represents a shipping cost in the shopping basket.                                                   |
| **Tax**                  | Tax information.                                                                                                                             |
| **SpendDetail**          | Captures spend detail information. See [SpendDetail](#) [page 139].                                                                       |
| **Distribution**         | Accounting information generated by the buying organization, such as cost center or general ledger category.                               |
| **Contact**              | The contact information for the supplier. Can specify more than one **Contact** element.                                                   |
| **Comments**             | Contains comments associated with this object.                                                                                            |
| **ScheduleLine**         | Contains information related to delivery schedules for a line item.                                                                         |
| **BillTo**               | The bill to address for an item.                                                                                                            |
| **Batch**                | Captures batch information of the buyer and supplier for this line item.                                                                     |
| **DateInfo**             | Contains dates applicable for this line item.                                                                                            |
| **Extrinsic**            | Contains any additional information related to this line item.                                                                           |

The optional elements are **ShipTo**, **Shipping**, and **Tax**, which are the same elements as those specified in **PunchOutOrderMessage**, above. In addition, **ItemIn** can contain the optional **SpendDetail**, which can contain the optional **TravelDetail**, **FeeDetail**, **LaborDetail**, and **Extrinsic** elements.

**TravelDetail** provides detailed information about travel and expense line items, **FeeDetail** provides
information about fees not defined elsewhere, and LaborDetail provides detailed information about temporary labor line items.

The ItemIn and ItemOut structures match one-to-one, except for the Distribution and Comments elements and requisitionID and requestedDeliveryDate attributes available in the ItemOut element. The procurement application can convert directly between ItemIn and ItemOut lists when initiating an inspect or edit operation. Suppliers can convert one to the other (dropping the listed extensions available in the ItemOut element) when executing an edit operation. The procurement application can perform the direct conversion and add additional shipping and distribution information and comments when initiating an OrderRequest transaction. ItemDetail data (with the possible exception of Extrinsic elements) contained within ItemIn elements must not be removed when converting from ItemIn to ItemOut.

The following example shows an ItemIn:

```xml
<ItemIn quantity="2" openQuantity="2" promisedQuantity="2"
   itemCategory="subcontract">
  <ItemID>
    <SupplierPartID>1234</SupplierPartID>
    <SupplierPartAuxiliaryID>supplier cookie to describe configuration options on this item</SupplierPartAuxiliaryID>
  </ItemID>
  <ItemDetail>
    <UnitPrice>
      <Money currency="USD">10.23</Money>
    </UnitPrice>
    <Description xml:lang="en">UX Design Principles</Description>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Classification domain="SPSC">12345</Classification>
    <ManufacturerPartID>ISBN-23455634</ManufacturerPartID>
    <ManufacturerName>Way Cool Tech Books</ManufacturerName>
    <DateInfo type="confirmedShipmentDate" date="2017-06-25T18:02:53-07:00"/>
    <DateInfo type="confirmedDeliveryDate" date="2017-06-27T18:02:53-07:00"/>
  </ItemDetail>
</ItemIn>
<ItemIn quantity="2" openQuantity="2" promisedQuantity="1"
   itemCategory="subcontract">
  <ItemID>
    <SupplierPartID>4567</SupplierPartID>
  </ItemID>
  <ItemDetail>
    <UnitPrice>
      <Money currency="USD">50</Money>
    </UnitPrice>
    <Description xml:lang="en">Python Deep Dive</Description>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Classification domain="SPSC">12345</Classification>
    <ManufacturerPartID>ISBN-123456</ManufacturerPartID>
    <ManufacturerName>Way Cool Tech Books</ManufacturerName>
    <DateInfo type="confirmedShipmentDate" date="2017-06-25T18:02:53-07:00"/>
    <DateInfo type="confirmedDeliveryDate" date="2017-06-27T18:02:53-07:00"/>
  </ItemDetail>
</ItemIn>
```

Related Information

- TravelDetail [page 145]
- FeeDetail [page 140]
- LaborDetail [page 140]
5.6.4.4.1 ItemID

The ItemID element provides unique identification of an item. For example, this element uniquely identifies the item to a remote website. It is the only element required to return to the remote website to re-identify the item in later PunchOut sessions.

ItemID has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SupplierPartID</td>
<td>SupplierPartID is how the supplier identifies an item.</td>
</tr>
<tr>
<td>SupplierPartAuxiliaryID</td>
<td>If SupplierPartID does not uniquely identify the item, the supplier should use SupplierPartAuxiliaryID to specify an “auxiliary” key that identifies the part uniquely when combined with the SupplierID and SupplierPartID. For example, a supplier might use the same SupplierPartID for an item, but have a different price for units of “EA” and “BOX”. In this case, a reasonable SupplierPartAuxiliaryID for the two items might be “EA” and “BOX.” SupplierPartAuxiliaryID could also be used as a supplier cookie, enabling the supplier to refer to complex configuration or part data. It could contain all the data necessary for the supplier to reconstruct what the item in question is in their computer system (a basket or cookie of data that makes sense only to the supplier). See Buyer and Supplier Cookies [page 78]. SupplierPartAuxiliaryID can help a remote website transport complex configuration or bill-of-goods information to re-identify the item when it is presented to the remote website in the future. If SupplierPartAuxiliaryID contains special characters (for example, if it contains additional XML elements not defined in the cXML protocol), they must be escaped properly. Due to the necessity to pass SupplierPartAuxiliaryID information through applications and back to the originating supplier, an internal subset containing any additional XML elements is insufficient.</td>
</tr>
<tr>
<td>BuyerPartID</td>
<td>Represents an item in buyer system. This identifier is specified by the buyer.</td>
</tr>
<tr>
<td>IdReference</td>
<td>Defines an ID reference. Within an application context (for example, certain pair of buyer and supplier), the (identifier, domain) pair should be unique.</td>
</tr>
</tbody>
</table>

5.6.4.4.2 ItemDetail

This element contains descriptive information about the item that procurement applications present to users. The contents of an ItemDetail element can be quite complex, but the minimum requirements are simple:
UnitPrice, Description, UnitOfMeasure, and Classification. Optional elements include a ManufacturerPartID, a ManufacturerName, a URL, a LeadTime, PriceBasisQuantity, Dimension, and any number of Extrinsic elements.

In the context of an ItemIn element, the Extrinsic elements contained within an ItemDetail function identically to those found within an Index (specifically an IndexItemAdd).

Note that in an IndexItemAdd element, duplicate LeadTime information might come from both ItemDetail, where it is optional, and IndexItemDetail, where it is mandatory. If the LeadTime elements are defined in both cases, then they should be identical.

ItemDetail has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitPrice</td>
<td>Price per unit of the item.</td>
</tr>
</tbody>
</table>
| Description   | Describes the item in a textual form. Because this text might exceed the limits of a short table of line items (or other constrained user interface) and random truncations could occur, the Description element contains an optional ShortName element. The Description element has type as an attribute. A type attribute is added to the description element to contribute to the code that comes along with product descriptions specifying either the consumer or the supplier unit. ShortName is a short (30-character recommended, 50-character maximum) name for the item, which fits product lists presented to users. If provided, clients should present the ShortName instead of a truncation of the Description text in any restricted fields. Clients must continue to truncate the Description text if no ShortName is provided. For example:  

```xml
<Description xml:lang="en-US">
  <ShortName>Big Computer</ShortName>
  This wonder contains three really big disks, four CD-Rom drives, two Zip drives, an ethernet card or two, much more memory than you could ever use, four CPUs on two motherboards. We’ll throw in two monitors, a keyboard and the cheapest mouse we can find lying around.
</Description>
```

The ShortName might appear as “Big Computer” where space is tight, and “Big Computer: This wonder ... lying around.” (or as two separate but complete fields) where there is space to display more text.

Catalog creators should not use ShortName to duplicate the information in Description. Instead, they should use ShortName to name the product, and Description to describe product details.

CIF 3.0 catalog format also supports ShortName. The CIF field name is ShortName.
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OverallLimit</td>
<td>Contains the maximum value that the total of all unplanned services (or the value of the material) covered by this item may not exceed. This limit represents a budget for unplanned services, and it must not be exceeded. This limit can be used in service lines and the items of blanket purchase orders. At service outline level (top-level service item), this field captures limit for the total of all unplanned services (or the value of the material). At service item level, it captures the sub-limits (the budget for that item). For example:  &lt;OverallLimit&gt;  &lt;Money currency=&quot;USD&quot;&gt;1000.00&lt;/Money&gt;  &lt;/OverallLimit&gt;</td>
</tr>
<tr>
<td>ExpectedLimit</td>
<td>Contains a value that the unplanned services (or the material) covered by this item are not expected to exceed. This field captures the planned or expected value and is mainly used for analysis purposes and for determining the total value of the item. The buyer assumes that ExpectedLimit is the final amount payable. ExpectedLimit is specified only for a top-level service item. For example:  &lt;ExpectedLimit&gt;  &lt;Money currency=&quot;USD&quot;&gt;800.00&lt;/Money&gt;  &lt;/ExpectedLimit&gt;</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>(required) Describes how the product is packaged or shipped. It must conform with UN/CEFACT Unit of Measure Common Codes. See UnitOfMeasure [page 43].</td>
</tr>
<tr>
<td>PriceBasisQuantity</td>
<td>Describes the quantity-based pricing for a line item. It has the UnitOfMeasure and Description as elements and quantity and conversionFactor as attributes. See PriceBasisQuantity [page 336].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Classification (required) | Groups items into similar categories. Typically lists the UNSPSC (United Nations Standard Products and Services Code) commodity code for each selected item. These codes are used by backend systems within buyer and supplier organizations for accounting and report generation. For the list of UNSPSC codes, see www.unspsc.org. Classification@domain can also be used to specify product hierarchy and commodity information used by a backend system. For instance, the following domain values are supported by SAP ERP:  
  - MaterialGroup  
  - LineOfBusiness  
  - ProductFamily  
  - ProductSubFamily  
  - InternalProgramCode  
  - ExternalProgramCode  
  - PartCategory  
  - PartType  
  Classification has an optional code attribute, which identifies the commodity by its designated code. |
| ManufacturerPartID      | ID with which the item's manufacturer identifies the item.                                                                                                                                               |
| ManufacturerName        | Name of the item's manufacturer.                                                                                                                                                                         |
| URL                     | Specifies a URL (Uniform Resource Locator) for the PunchOut website.                                                                                                                                         |
| LeadTime                | Specifies the number of days needed for the buyer to receive the product. For example:                                                                                                                    |
|                         | `<LeadTime>14</LeadTime>`                                                                                                                                                                                 |
| Dimension               | Specifies item dimensions. See Dimension [page 176].                                                                                                                                                       |
| ItemDetailIndustry      | Contains the detailed industry-specific information. See ItemDetailIndustry [page 136]                                                                                                                    |
| AttachmentReference     | Contains a reference to a remote attachment. See AttachmentReference [page 94]                                                                                                                           |
| PlannedAcceptanceDays   | Specifies the number of days the buyer schedules for the inspection of goods after receiving them.                                                                                                          |
| Extrinsic               | Contains any additional information related to this object. See Extrinsic [page 82]                                                                                                                        |
5.6.4.4.2.1 AttachmentReference

AttachmentReference contains a reference to a remote attachment. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>length</td>
<td>Contains the length of the attachment in bytes.</td>
</tr>
<tr>
<td>version</td>
<td>Specifies the version of the external source. Examples: &quot;1.0&quot;, &quot;2.4.10&quot; &quot;Beta&quot;, &quot;V-2&quot;.</td>
</tr>
</tbody>
</table>

AttachmentReference has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the attachment.</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the attachment.</td>
</tr>
<tr>
<td>InternalID</td>
<td>The internal ID of the attachment. The domain attribute of InternalID is currently optional. To prevent circular references, the sending application can use a predefined value of &quot;local&quot; for the domain to indicate that the attachment requested is local to the other application.</td>
</tr>
<tr>
<td>URL</td>
<td>A link to a referenced source on the buyer’s system. The URL scheme must conform to RFC 1738 (Uniform Resource Locators). Both https and http transmission protocols are supported, but https with the latest TLS set is recommended.</td>
</tr>
</tbody>
</table>

**iNote**

AttachmentReference can be used inside Extrinsic elements that have a predefined name of "Attachments".

The following example shows an AttachmentReference that references a URL:

```xml
<ItemDetail>
  ...
  <AttachmentReference version="1">
    <Name xml:lang="en">name of remote file</Name>
    <Description xml:lang="en">Description Text</Description>
    <InternalID></InternalID>
    <URL>https://link.to/remote.file</URL>
  </AttachmentReference>
  ...
</ItemDetail>
```
5.6.4.4.3 SupplierID or SupplierList

In a sourced RFQ PunchOutOrderMessage, the ItemOut and ItemIn elements can specify a list of suppliers that can be involved in a sourcing process.

SupplierID is the ID of the supplier. See SupplierID [page 139].

SupplierList contains the Name and the list of SupplierIDS for each supplier. The following ItemOut example shows a SupplierList with two suppliers.

```xml
<ItemOut quantity="6" lineNumber="1">
  <SupplierPartID>unknown</SupplierPartID>
  <ItemID>
    <SupplierPartID>unknown</SupplierPartID>
  </ItemID>
  <ItemDetail>
    <UnitPrice>
      <Money currency="USD">10.23</Money>
    </UnitPrice>
    <Description xml:lang="en">Learn ASP in a Week!</Description>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Classification domain="SPSC">12345</Classification>
    <ManufacturerPartID>ISBN-23455634</ManufacturerPartID>
    <ManufacturerName>O'Reilly</ManufacturerName>
    <URL>URL for more information</URL>
    <LeadTime>7</LeadTime>
  </ItemDetail>
  <SupplierList>
    <Supplier>
      <Name xml:lang="en">Supplier #1</Name>
      <SupplierID domain="duns">0000000</SupplierID>
    </Supplier>
    <Supplier>
      <Name xml:lang="en">Supplier #2</Name>
      <SupplierID domain="duns">1111111</SupplierID>
      <SupplierID domain="duns">2222222</SupplierID>
    </Supplier>
  </SupplierList>
</ItemOut>
```

5.7 Direct PunchOut

Direct PunchOut is a cXML capability that can reduce the time it takes for users to display the first page of a supplier’s PunchOut site.

It offers faster PunchOut session initiation than regular PunchOut by allowing clients to send PunchOutSetupRequest documents directly to PunchOut sites for authentication, without first going through a network hub for authentication and forwarding.

If suppliers indicate (through their cXML profile) that they support direct PunchOut, clients send PunchOut requests directly to them. Clients enable PunchOut sites to authenticate these requests by either including a Message Authentication Code (MAC) generated by a trusted third party, or by making a client digital certificate available.
5.7.1 Authentication Methods

Direct PunchOut is made possible by two alternative authentication methods:

- **MAC Authentication [page 544]**—The server interprets a Message Authentication Code (MAC) in the Sender credential in PunchOutSetupRequest documents.
- **Auth Transaction [page 548]**—The server asks a network hub to authenticate the client’s digital certificate and caches the response for subsequent PunchOut requests.

Servers indicate the authentication method they support through their cXML Profile.

5.7.2 ProfileResponse

PunchOut sites indicate that they support direct PunchOut and specify the authentication methods they support by including the following options for PunchOutSetupRequest in their ProfileResponse documents.

```xml
<Transaction requestName="PunchOutSetupRequest">
    <URL>https://service.bighub.com/cxml</URL>
    <Option name="Direct.URL">https://bigsupplier.com/punchout</Option>
    <Option name="Direct.AuthenticationMethod.CredentialMac">Yes</Option>
    <Option name="Direct.AuthenticationMethod.Certificate">Yes</Option>
</Transaction>
```

Related Information

PunchOutSetupRequest Options [page 49]
6 Purchase Requisitions

A purchase requisition is the first step in a procurement process.

A purchase requisition is a request to purchase an item (or multiple items). Each requisition is assigned a unique ID (such as PR2394) so you can track it as it moves through the purchasing process. A requisition can consist of multiple line items.

A requisition can contain items from any of the following sources:
- The requestor’s company catalog
- A supplier’s catalog (also known as a PunchOut catalog)
- Non-catalog items (from another source)

Purchase Requisition Process [page 97]
PurchaseRequisitionRequest [page 98]

6.1 Purchase Requisition Process

This topic describes a typical purchase requisition process. The process may vary depending on your procurement system.

1. An employee searches for an item and then creates a requisition.
2. After the requisition is submitted, one of the following happens:
   - If approval is required for the item, the requisition is sent to an approver within your organization. When the requisition is approved, a purchase order is sent to the supplier. If the requisition is denied, the requisitioner is notified and can either withdraw the requisition or edit it and re-submit it for approval.
   - If no approval is required for the item, a purchase order is sent directly to the supplier.
3. The supplier receives the purchase order and, if they agree to fulfill the order, they ship the item.
4. The purchasing organization creates a receipt for the item when it arrives. The receipt is sent to the supplier.
5. Upon receiving the receipt, the supplier issues an invoice requesting payment.

**Note**
A purchasing agent typically manages the ordering and receiving of items and sends the items to the person who submitted the requisition.
6.2 PurchaseRequisitionRequest

PurchaseRequisitionRequest defines a purchase requisition, which contains data sent from the buyer to another buyer system. It has no attributes and one element, PurchaseRequisition.

The PurchaseRequisitionRequest element has the following structure:

```xml
<PurchaseRequisitionRequest>
  <PurchaseRequisition>
    <PurchaseRequisitionHeader>
      <Shipping/>
      <Tax/>
      <Total/>
      <ShipTo/>
      <BillTo/>
      <Contact/>
      <Comments/>
      <DocumentReference/>
      <Extrinsic/>
    </PurchaseRequisitionHeader>
    <ItemIn>
      <ItemID/>
      <Path/>
      <ItemDetail/>
      <SupplierID/> | <SupplierList/>
      <ShipTo/>
      <Shipping/>
      <Tax/>
      <SpendDetail/>
      <Distribution/>
      <Contact/>
      <Comments/>
      <BillTo/>
    </ItemIn>
  </PurchaseRequisition>
</PurchaseRequisitionRequest>
```

The following shows an example of a PurchaseRequisitionRequest:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.026/cXML.dtd">
<cXML payloadID="req00001" timestamp="2016-05-26T00:00:00-08:00" xml:lang="en-US">
  <Header>
    <From>
      <!-- Ariba Network buyer account -->
      <Credential domain="NetworkID">
        <Identity>AN71000002012</Identity>
      </Credential>
      <Credential domain="EndPointID">
        <Identity>ERP</Identity>
      </Credential>
    </From>
    <To>
      <!-- Ariba Network buyer account -->
      <Credential domain="NetworkID">
        <Identity>AN71000002012</Identity>
      </Credential>
      <Credential domain="EndPointID">
        <Identity>ERP</Identity>
      </Credential>
    </To>
  </Header>
  <Sender>
    <!-- This document has passed from the ERP -->
  </Sender>
</cXML>
```
to the Ariba Procurement Solution. -->
<Credential domain="NetworkID">
  <Identity>AN71000002012</Identity>
</Credential>
<Credential domain="EndPointID">
  <Identity>ERP</Identity>
  <SharedSecret>welcome3a</SharedSecret>
</Credential>
</Sender>
</Header>
</Request>
<PurchaseRequisitionRequest>
  <PurchaseRequisition>
    <PurchaseRequisitionHeader
      requisitionId="pr123456"
      requisitionDate="2016-05-26T00:00:00-08:00"
      type="new">
      <ShipTo>
        <Address addressID="3000">
          <Name xml:lang="en">New York</Name>
          <PostalAddress>
            <DeliverTo>Joe Smith</DeliverTo>
            <Street>691 Random Ave</Street>
            <City>New York</City>
            <State>NY</State>
            <PostalCode>10001</PostalCode>
            <Country isoCountryCode="US">USA</Country>
          </PostalAddress>
        </Address>
        <BillTo>
          <Address addressID="US006">
            <Name xml:lang="en">New York</Name>
            <PostalAddress>
              <Street>691 Random Ave</Street>
              <City>New York</City>
              <State>NY</State>
              <PostalCode>10001</PostalCode>
              <Country isoCountryCode="US">USA</Country>
            </PostalAddress>
          </Address>
        </BillTo>
        <Contact role="preparer">
          <Name xml:lang="en-US">Jane Doe</Name>
          <PostalAddress>
            <Street>123 Anystreet</Street>
            <City>Sunnyvale</City>
            <State>CA</State>
            <PostalCode>94089</PostalCode>
          </PostalAddress>
        </Contact>
        <Contact role="requester">
          <Name xml:lang="en-US">Jane Doe</Name>
          <PostalAddress>
            <Street>123 Anystreet</Street>
            <City>Sunnyvale</City>
            <State>CA</State>
            <PostalCode>94089</PostalCode>
          </PostalAddress>
        </Contact>
      </PurchaseRequisitionHeader>
      <ItemIn quantity="10.000" lineNumber="00001">
        <ItemID>
...
<SupplierPartID>MON923 6</SupplierPartID>
</ItemID>
<ItemDetail>
  <UnitPrice>
    <Money currency="USD">100.00</Money>
  </UnitPrice>
  <Description xml:lang="en">Optimax-V Monitor Cable DB9M/DB23F</Description>
  <UnitOfMeasure>EA</UnitOfMeasure>
  <Classification domain="UNSPSC">43211800</Classification>
  <Extrinsic name="AccountCategory">K</Extrinsic>
  <Extrinsic name="PurchaseOrg">3000</Extrinsic>
  <Extrinsic name="PurchaseGroup">100</Extrinsic>
  <Extrinsic name="BuyerPartNumber">SSP16446-cXML</Extrinsic>
  <Extrinsic name="Facility">Bangalore</Extrinsic>
  <Extrinsic name="Need-by Date">2016-06-10T00:00:00-08:00</Extrinsic>
</ItemDetail>
<SupplierList>
  <Supplier>
    <Name xml:lang="en">JCN Technologies</Name>
    <SupplierID domain="NetworkID">AN7000000004</SupplierID>
  </Supplier>
</SupplierList>
<Distribution>
  <Accounting name="Default">
    <AccountingSegment id="100">
      <Name xml:lang="en">Percentage</Name>
      <Description xml:lang="en">Percentage</Description>
    </AccountingSegment>
    <AccountingSegment id="02">
      <Name xml:lang="en">Company</Name>
      <Description xml:lang="en">ID</Description>
    </AccountingSegment>
    <AccountingSegment id="5000">
      <Name xml:lang="en">CostCenter</Name>
      <Description xml:lang="en">ID</Description>
    </AccountingSegment>
    <AccountingSegment id="US002">
      <Name xml:lang="en">BusinessUnit</Name>
      <Description xml:lang="en">ID</Description>
    </AccountingSegment>
    <AccountingSegment id="8100">
      <Name xml:lang="en">Account</Name>
      <Description xml:lang="en">ID</Description>
    </AccountingSegment>
    <AccountingSegment id="5009">
      <Name xml:lang="en">SubAccount</Name>
      <Description xml:lang="en">ID</Description>
    </AccountingSegment>
  </Accounting>
  <Charge>
    <Money currency="USD">20000.00</Money>
  </Charge>
</Distribution>
</PurchaseRequisition>
</PurchaseRequisitionRequest>
</Request>
</cXML>
6.2.1 PurchaseRequisition

PurchaseRequisition contains details of the purchase requisition. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PurchaseRequisitionHeader</td>
<td>Header element for the purchase requisition. See PurchaseRequisition-Header [page 101].</td>
</tr>
<tr>
<td>ItemIn</td>
<td>Represents an item added from a shopping basket to a requisition in the procurement application. See ItemIn [page 87].</td>
</tr>
</tbody>
</table>

6.2.1.1 PurchaseRequisitionHeader

PurchaseRequisitionHeader is the header element for the purchase requisition and contains common information for all requisitions. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requisitionID</td>
<td>The buyer system requisition ID for this request.</td>
</tr>
<tr>
<td>requisitionDate</td>
<td>The date and time the requisition request was created.</td>
</tr>
<tr>
<td>type</td>
<td>The type of the requisition request. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new (default)</td>
</tr>
<tr>
<td></td>
<td>● update</td>
</tr>
<tr>
<td></td>
<td>● delete</td>
</tr>
<tr>
<td></td>
<td>Update and delete requisitions must use the DocumentReference element to reference the PurchaseRequisition being changed.</td>
</tr>
<tr>
<td>requisitionVersion</td>
<td>The buyer system requisition version number for this request. The original requisition version number should be 1, and subsequent updates should increment the version number by 1 (for example, 2, 3, 4, and so on).</td>
</tr>
</tbody>
</table>

PurchaseRequisitionHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>Contains shipping costs for the requisition.</td>
</tr>
<tr>
<td>Tax</td>
<td>Contains tax information.</td>
</tr>
<tr>
<td>Total</td>
<td>Contains the total cost for the items in the requisition, excluding any tax and shipping.</td>
</tr>
<tr>
<td>ShipTo</td>
<td>Contain the ShipTo address for the requisition.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BillTo</td>
<td>Contain the BillTo address for the requisition.</td>
</tr>
<tr>
<td>Contact</td>
<td>Contains contact information to follow up on the requisition.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains arbitrary human-readable information associated with this object.</td>
</tr>
<tr>
<td>DocumentReference</td>
<td>Provides a reference to an earlier version of the requisition.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
7 Purchase Orders

This section describes how to set up a website to receive cXML-format purchase orders. It also describes how to send purchase order status messages to buying organizations or marketplaces.

- Purchase Order Process [page 103]
- OrderRequest Documents [page 104]
- Response to an OrderRequest [page 180]
- Accepting Order Attachments [page 180]

7.1 Purchase Order Process

Procurement applications convert approved purchase requisitions into one or more purchase orders. A purchase order is a formal request from a buying organization to a supplier to fulfill a contract.

cXML is just one format for transmitting purchase orders. Other common formats are email, fax, and ANSI X.12 EDI (Electronic Data Interchange). cXML is the best format for purchase orders because it allows you to easily automate order processing. cXML's well-defined structure allows order-processing systems to easily interpret the elements within a purchase order. With little or no human intervention, the appropriate data within purchase orders can be routed to your shipping, billing, and sales departments, as needed.

In addition, the cXML order-routing method allows the transmittal of any supplier cookies (SupplierPartAuxiliaryID) and purchase order attachments.

When you configure your account on a network hub, you specify a URL to which all cXML purchase orders will be sent. Upon receiving a purchase order, you send it to your internal order management system and fulfill it as you normally would. Your website must also return an Order Response document to the network hub, which tells the buyer that you successfully received and parsed the purchase order.

You do not need a PunchOut website in order to receive cXML purchase orders; PunchOut and cXML order-receiving are distinct capabilities. However, the infrastructure and applications required for supporting PunchOut are the same for receiving cXML purchase orders.

There are two types of cXML documents used in the transaction of purchase orders. Procurement applications send OrderRequest documents, and you respond with generic Response documents. These documents pass through the network hub for authentication and routing.
7.2 OrderRequest Documents

The OrderRequest document is analogous to a purchase order. The following example shows the structure of the OrderRequest element:

```xml
<OrderRequest>
  <OrderRequestHeader>
    <Total/>
    <ShipTo/>
    <BillTo/>
    <LegalEntity/>
    <OrganizationUnit/>
    <Shipping/>
    <Tax/>
    <Payment/>
    <PaymentTerm/>
    <Contact/>
    <Comments/>
    <Followup/>
    <ControlKeys/>
    <DocumentReference/>
    <SupplierOrderInfo/>
    <TermsOfDelivery/>
    <DeliveryPeriod/>
    <IdReference/>
    <OrderRequestHeaderIndustry/>
    <Extrinsic/>
  </OrderRequestHeader>
  <ItemOut>
    <ItemID/>
    <Path/>
    <ItemDetail/> | <BlanketItemDetail/>
    <SupplierID/> | <SupplierList/>
    <ShipTo/>
    <Shipping/>
    <Tax/>
    <SpendDetail/>
    <Distribution/>
    <Contact/>
    <TermsOfDelivery/>
    <Comments/>
    <Tolerances/>
    <ControlKeys/>
    <ScheduleLine/>
    <MasterAgreementReference/> | <MasterAgreementIDInfo/>
    <ItemOutIndustry/>
    <Packaging/>
    <ReleaseInfo/>
    <Batch/>
  </ItemOut>
</OrderRequest>
```

**Note**

For information about OrderStatusRequest, see OrderStatusRequest [page 289].

The following example shows an OrderRequest for an item:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML xml:lang="en-US" payloadID="93369535150910.10.57.136" timestamp="2000-08-03T08:49:11+07:00">
  ...
</cXML>
```
<Header>
  <From>
    <Credential domain="AribaNetworkUserId">
      <Identity>admin@acme.com</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="DUNS">
      <Identity>114315195</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="AribaNetworkUserId">
      <Identity>sysadmin@ariba.com</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Network Hub V1.1</UserAgent>
  </Sender>
</Header>

<Request>
  <OrderRequest>
    <OrderRequestHeader orderID="DO102880" orderDate="2012-08-03T08:49:09+07:00" type="new">
      <Total>
        <Money currency="USD">86.50</Money>
      </Total>
      <ShipTo>
        <Address isoCountryCode="US" addressID="1000467">
          <Name xml:lang="en">Acme, Inc.</Name>
          <PostalAddress name="default">
            <DeliverTo>John Q. Smith</DeliverTo>
            <DeliverTo>Buyers Headquarters</DeliverTo>
            <Street>123 Main Street</Street>
            <City>Mountain View</City>
            <State>CA</State>
            <PostalCode>94089</PostalCode>
          </PostalAddress>
          <Email name="default">john_smith@acme.com</Email>
          <Phone name="work">
            <TelephoneNumber>
              <AreaOrCityCode>800</AreaOrCityCode>
              <Number>5555555</Number>
            </TelephoneNumber>
          </Phone>
        </Address>
      </ShipTo>
      <BillTo>
        <Address isoCountryCode="US" addressID="12">
          <Name xml:lang="en">Acme Accounts Payable</Name>
          <PostalAddress name="default">
            <Street>124 Union Street</Street>
            <City>San Francisco</City>
            <State>CA</State>
            <PostalCode>94128</PostalCode>
          </PostalAddress>
          <Phone name="work">
            <TelephoneNumber>
              <AreaOrCityCode>415</AreaOrCityCode>
              <Number>6666666</Number>
            </TelephoneNumber>
          </Phone>
        </Address>
      </BillTo>
    </OrderRequestHeader>
  </OrderRequest>
</Request>
<LegalEntity>
  <IdReference domain="CompanyCode" identifier="CH01">
    <Description>SAP AG</Description>
  </IdReference>
</LegalEntity>

<OrganizationalUnit>
  <IdReference domain="PurchasingOrganization" identifier="SCP">
    <Description> SCPM Purchasing Org </Description>
  </IdReference>
</OrganizationalUnit>

<OrganizationalUnit>
  <IdReference domain="PurchasingGroup" identifier="0001">
    <Description> PGP Buyer </Description>
  </IdReference>
</OrganizationalUnit>

<Shipping>
  <Money currency="USD">10.00</Money>
  <Description xml:lang="en-US">FedEx 2-day</Description>
</Shipping>

<Tax>
  <Money currency="USD">1.5</Money>
  <Description xml:lang="en">CA State Tax</Description>
</Tax>

<Payment>
  <PCard number="1234567890123456" expiration="2015-03-12"/>
</Payment>

<OrderRequestHeader>
  <ItemOut quantity="2" lineNumber="1">
    <ItemID>
      <SupplierPartID>220-3165</SupplierPartID>
      <SupplierPartAuxiliaryID>E000028901</SupplierPartAuxiliaryID>
    </ItemID>
    <ItemDetail>
      <UnitPrice>
        <Money currency="USD">55.00</Money>
        <Modification>
          <OriginalPrice>
            <Money currency="USD">50.00</Money>
          </OriginalPrice>
          <AdditionalCost>
            <Money currency="USD">5</Money>
          </AdditionalCost>
          <ModificationDetail
date="2013-11-30T10:15:00-08:00"name="Royalties">
            <Description xml:lang="en-US">Charge for Royalties</Description>
          </ModificationDetail>
        </Modification>
      </UnitPrice>
      <Description xml:lang="en">Laptop Computer Notebook Pentium® II processor w/AGP, 300 MHz, with 12.1" TFT XGA Display</Description>
    </ItemDetail>
    <Distribution>
      <Accounting name="DistributionCharge">
        <AccountingSegment id="7720">
          <Name xml:lang="en-US">Account</Name>
          <Description xml:lang="en-US">Office Supplies</Description>
        </AccountingSegment>
      </Accounting>
    </Distribution>
  </ItemOut>
</OrderRequestHeader>
7.2.1 OrderRequestHeader

The following example shows an OrderRequestHeader in full detail:

```xml
<OrderRequestHeader
  orderID="DO1234"
  orderDate="2013-06-03T13:30:23+8.00"
  type="new"
  requisitionID="R1234"
  shipComplete="yes">
  <Total>
    <Money currency="USD">65.00</Money>
  </Total>
  <Modifications>
    <Modification>
      <OriginalPrice>
        <Money currency = "USD">40.00</Money>
      </OriginalPrice>
      <AdditionalCost>
        <Money currency = "USD">10</Money>
      </AdditionalCost>
      <ModificationDetail
        endDate = "2013-11-30T10:15:00-08:00"
        name = "Access Charges"
        startDate = "2013-06-03T10:15:00-08:00">
        <Description xml:lang = "en-US">Access Charges</Description>
      </ModificationDetail>
    </Modification>
  </Modifications>
  <ShipTo>
    <Address>
      <Name xml:lang="en">Acme Corporation</Name>
      <PostalAddress name="Headquarters">
        <DeliverTo>Joe Smith</DeliverTo>
        <DeliverTo>Mailstop M-543</DeliverTo>
        <Street>123 Anystreet</Street>
        <City>Sunnyvale</City>
        <State>CA</State>
        <PostalCode>90489</PostalCode>
      </PostalAddress>
    </Address>
    <CarrierIdentifier domain="companyName">UPS</CarrierIdentifier>
    <TransportInformation>
      <Route method="motor"/>
      <ShippingContractNumber>34567</ShippingContractNumber>
      <ShippingInstructions>
```
OrderRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>The identifier for this order. Analogous to the purchase order number.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>orderDate</td>
<td>The date and time this order was placed, in ISO 8601 format.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>orderType</td>
<td>Type of order: regular, release (a release against a master agreement or against a blanket purchase order), or blanket (a blanket purchase order).</td>
</tr>
<tr>
<td>releaseRequired</td>
<td>Used only if orderType is blanket to indicate whether the blanket order requires releases (purchase orders). If &quot;yes&quot; is specified, the blanket order requires separate release orders before the supplier can act. If not specified, the supplier can act on the blanket order itself. The default is unspecified.</td>
</tr>
<tr>
<td>type</td>
<td>Type of request: new (default), update, or delete. Update and delete orders must use the DocumentReference element with the payloadID to refer to the original purchase order. See DocumentReference [page 269].</td>
</tr>
<tr>
<td>orderVersion</td>
<td>Specifies the order version number of change orders, starting with &quot;1&quot; for the original order.</td>
</tr>
<tr>
<td>isInternalVersion</td>
<td>Indicates whether the order includes changes that are relevant only within the buying organization. For example, a minor change was made that does not affect information used by the supplier. Suppliers might not see internal order versions, depending on their customers' configuration.</td>
</tr>
<tr>
<td>agreementID</td>
<td>Used only if orderType is release to indicate the buyer’s identifier for associated master agreement or blanket purchase order.</td>
</tr>
<tr>
<td>agreementPayloadID</td>
<td>Used only if orderType is release to indicate the cXML document payload ID for the associated master agreement or blanket purchase order.</td>
</tr>
<tr>
<td>parentAgreementID</td>
<td>Used only if orderType is blanket to indicate the parent blanket order.</td>
</tr>
<tr>
<td>parentAgreementPayloadID</td>
<td>Used only if orderType is blanket to indicate the document reference identifier for the parent blanket order.</td>
</tr>
<tr>
<td>effectiveDate</td>
<td>Required if orderType is blanket to indicate the date the blanket order becomes effective (the date from which releases can be created or invoices submitted for the blanket order).</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>expirationDate</td>
<td>Used only if orderType is blanket to indicate the date the blanket order expires. Releases cannot be created against the blanket order after this date.</td>
</tr>
<tr>
<td>requisitionID</td>
<td>The buyer’s requisition identifier for this entire order. It might be the same as orderID, and it might not be included at all. Must not be included if requisitionID is specified in any ItemOut elements.</td>
</tr>
<tr>
<td>shipComplete</td>
<td>A preference against partial shipments. The only allowed value is “yes”. By default, items are shipped when available. Because orders might include items with varying ShipTo elements, only groups of items with common shipping locations should be held until complete when shipComplete=&quot;yes&quot;.</td>
</tr>
<tr>
<td>pickUpDate</td>
<td>The date when the order should be ready for pickup and delivery.</td>
</tr>
<tr>
<td>requestedDeliveryDate</td>
<td>Essential date information for the supplier as well as for the freight forwarder. In many cases this reflects the time, or time frame, when the buyer is able and willing to receive the goods.</td>
</tr>
</tbody>
</table>

OrderRequestHeader and ItemOut (when extended with ItemDetail) contain similar information. Where OrderRequestHeader includes overall billing (BillTo) and payment (Payment, PaymentTerm) information. ItemOut describes the individual items (in ItemID, ItemDetail, SpendDetail, and Distribution).

Do not use the information in OrderRequestHeader as the default for item-specific elements. If present, ShipTo, Shipping, Contact, and each named Extrinsic must appear either with every ItemOut or in the OrderRequestHeader. The Comments and Tax elements can appear simultaneously at both levels; however, the header-level Tax element contains a total for the order, whereas the item-level Tax element contains the tax just for the item. Do not include duplicate information in Comments elements at both levels.

The following example shows an OrderRequestHeader for a blanket order:

```xml
<OrderRequestHeader
  parentAgreementPayloadID="1184102133611.205850054.0000000281zVE0KpzNZLO9HTrpqpF27Nebqbi="
  parentAgreementID="BPO31"
  expirationDate="2007-07-31T23:59:59-07:00"
  orderDate="2007-07-10T14:37:31-07:00"
  orderID="BPO36"
  orderVersion="1"
  effectiveDate="2007-07-10T00:00:00-07:00"
  releaseRequired="yes"
  orderType="blanket"
  type="new">
```

### 7.2.1.1 Total

This element contains the total cost for the items in the order, excluding any tax and shipping. It is a container for the Money and Modifications elements.

If the order is of type “blanket,” the Total element is not used to compute the sum of the item level subtotals. Total is then used to indicate the maximum commitment with the supplier. The total will not add up to the individual item level subtotal or MaxAmounts. The sum of the item level MaxAmounts should not exceed the header level total. If the item level MaxAmount is not specified, it is assumed that the item level maximum amount is the same as the total maximum amount of the purchase order.
The `Modifications` element stores any modification to the original price or shipping price of the item. This element can store a set of one or more `Modification` elements. You can add the `Modifications` element to the `Shipping` element.

The `Modification` element contains details of the allowances and charges applicable at the header-level and line-item level. It has one optional attribute, `level`, which represents the level of the modification (in the case of cascading modifications). For example:

- **Charge 1 (Level 1):** Original Price $10 Charge: $1
- **Charge 2 (Level 1):** Original Price $10 Charge: $1
- **Charge 3 (Level 2):** Original Price $8 Charge: $1
- **Charge 4 (Level 3):** Original Price $7 Charge: $1

The following example shows how the `level` attribute is used for an item with several modifications:

```xml
<InvoiceHeaderModifications>
    <Modification level="1">
        <OriginalPrice>5.500</OriginalPrice>
        <AdditionalDeduction>
            <DeductionPercent>2</DeductionPercent>
        </AdditionalDeduction>
    </Modification>

    <Modification level="1">
        <OriginalPrice>5.500</OriginalPrice>
        <AdditionalCost>
            <Money currency="USD">2.00</Money>
        </AdditionalCost>
    </Modification>

    <Modification level="2">
        <OriginalPrice>7.390</OriginalPrice>
        <AdditionalDeduction>
            <DeductionPercent>10</DeductionPercent>
        </AdditionalDeduction>
    </Modification>
</InvoiceHeaderModifications>
```

The `Modification` element has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>OriginalPrice</code></td>
<td>The original price of the item. The allowances and charges are applied on the original price. This element has the <code>Money</code> element. It also contains an optional <code>type</code> attribute. For example, the <code>type</code> value can be the MSRP, ListPrice, Actual, AverageSellingPrice, CalculationGross, BaseCharge, AverageWholesalePrice, ExportPrice, AlternatePrice, ContractPrice, etc.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| AdditionalDeduction  | The details of the deductions available for the item. Used only when allowances are applicable. This element can have any one of the following elements that defines the deduction value:  
- DeductionAmount—This element has the Money element.  
- DeductionPercent—This has a percent attribute.  
- DeductedPrice—This element has the Money element. It contains the final price of the item. This price overrides the price of the item. The AdditionalDeduction element has an optional type attribute. It contains details on the type of deductions available for the item. |
| AdditionalCost       | The details of the additional charges applied on an item. This element can be specified when the AdditionalDeduction element is not specified. It contains the following elements:  
- Money—Enter the money value in the value attribute. This is a mandatory attribute.  
- Percentage—Enter the percentage value in the percent attribute. This is a mandatory attribute. |
| ModificationDetail   | The details of any information for the AdditionalDeduction or AdditionalCost element. ModificationDetail has the following attributes:  
- name (required)—The name of the modification, for example, “Allowance”.  
- startDate—The start date of the modification.  
- endDate—The end date of the modification.  
- code—The service code for the modification.  
ModificationDetail has the following elements:  
- Description  
- Extrinsic |
| Tax                  | This tax for the allowances and charges.  
**i Note**  
The OriginalPrice element is an optional element when added as part of the Modification element. See Tax [page 358]. |

```xml
<OrderRequestHeader
  orderDate = "2012-08-03T10:15:00-08:00"
  orderID = "2482012_5"
  orderType = "regular"
  type = "new">
  <Total>
    <Money currency = "USD">52</Money>
</OrderRequestHeader>
```
<Modifications>
  <Modification>
    <OriginalPrice>
      <Money currency = "USD">100.00</Money>
    </OriginalPrice>
    <AdditionalDeduction>
      <DeductionAmount>
        <Money currency = "USD">50.00</Money>
      </DeductionAmount>
    </AdditionalDeduction>
    <ModificationDetail
      endDate = "2013-11-30T10:15:00-08:00"
      name = "Allowance"
      startDate = "2012-08-03T10:15:00-08:00">
      <Description xml:lang = "en-US">Promotional Allowance</Description>
    </ModificationDetail>
  </Modification>
  <Modification>
    <OriginalPrice>
      <Money currency = "USD">100.00</Money>
    </OriginalPrice>
    <AdditionalCost>
      <Percentage percent = "2"/>
    </AdditionalCost>
    <ModificationDetail
      endDate = "2013-11-30T10:15:00-08:00"
      name = "Export Packing Charges"
      startDate = "2012-08-03T10:15:00-08:00">
      <Description xml:lang = "en-US">Charges for export packing</Description>
    </ModificationDetail>
  </Modification>
</Modifications>

<ShipTo>

7.2.1.2 ShipTo/BillTo

These elements contain the addresses of the ShipTo and BillTo entities on the OrderRequest.

All items must be billed to a single entity. Therefore, the BillTo element appears only in the OrderRequestHeader. Items from an order can be sent to multiple locations. Like the Shipping element (see next section), the ShipTo element can therefore appear either in the OrderRequestHeader or in individual ItemOut elements.

For information about IdReference, see IdReference [page 118].

The Address element contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isoCountryCode</td>
<td>The ISO 3166 2-letter country code for the country containing this location.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| addressID    | Specifies an ID for the address. This attribute is used to support address codes for relationships that require ID references. This value should not be the name of a company or person. It is intended to deepen application-to-application integration. For example, a ShipTo location identifier could be: <Address isoCountryCode="US" addressID="1000487">
| addressIDDomain | Specifies a code that represents the agency or organization responsible for the addressID numbering. For example, DUNS or ILN. This code is required if there is a value in the addressID attribute. |

The Name element contained within an Address element should always specify the company name.

The DeliverTo element is listed twice, the first line specifying the name of the person to receive the goods, and the second specifying their location (building, city, office, mailstop) where the items should be delivered. The location should always be complete enough to be used in a mailing label. For example,

```
<PostalAddress name="Headquarters">
  <DeliverTo>Joe Smith</DeliverTo>
  <DeliverTo>Mailstop M-543</DeliverTo>
  <Street>123 Anystreet</Street>
  <City>Sunnyvale</City>
  <State>CA</State>
  <PostalCode>90489</PostalCode>
</PostalAddress>
```

Country contains a human readable name.

The CarrierIdentifier element contains the carrier name of the shipment. For example:

```
<ShipTo>
  <Address>
    <Name xml:lang="USD">Acme</Name>
    <PostalAddress name="Headquarters">
      <DeliverTo>Joe Smith</DeliverTo>
      <DeliverTo>Mailstop M-543</DeliverTo>
      <Street>123 Anystreet</Street>
      <City>Sunnyvale</City>
      <State>CA</State>
      <PostalCode>90489</PostalCode>
    </PostalAddress>
    <CarrierIdentifier domain="companyName">UPS</CarrierIdentifier>
  </Address>
</ShipTo>
```

The TransportInformation element contains the transport information in a purchase order or ship notice. This element is specified only at the header-level.

The TransportInformation element contains the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td>Shipping method for the shipment. This is required if you select a carrier. See Route [page 302].</td>
</tr>
<tr>
<td>ShippingContractNumber</td>
<td>The shipping contract number specified for the transportation of the shipment.</td>
</tr>
<tr>
<td>ShippingInstructions</td>
<td>Information for the shipment</td>
</tr>
</tbody>
</table>
Here is an example for the `TransportInformation` element:

```xml
<OrderRequestHeader orderDate="2010-03-26T16:40:53" orderID="POw4401" orderType="regular" type="Update">
  <Total>
    <Money currency="USD">1.00</Money>
  </Total>
  <ShipTo>
    <Address>
      <Name xml:lang="USD">Acme</Name>
      <PostalAddress name="default">
        <DeliverTo>Joe Smith</DeliverTo>
        <DeliverTo>Mailstop M-543</DeliverTo>
        <Street>123 Anystreet</Street>
        <City>Sunnyvale</City>
        <State>AL</State>
        <PostalCode>35762</PostalCode>
      </PostalAddress>
      <CarrierIdentifier domain="companyName">UPS</CarrierIdentifier>
      <TransportInformation>
        <Route method="motor"/>
        <ShippingContractNumber>1245</ShippingContractNumber>
        <ShippingInstructions>
          <Description xml:lang="en-US">Contract Instructions</Description>
        </ShippingInstructions>
      </TransportInformation>
    </Address>
  </ShipTo>
</OrderRequestHeader>
```

Avoid empty or whitespace elements because missing values can affect EDI and cXML suppliers.

### 7.2.1.3 LegalEntity

Identifies legal entity in the external system.

### 7.2.1.4 OrganizationalUnit

Identifies purchase unit or purchase group in the external system.

### 7.2.1.5 Shipping

This element describes how to ship line items and the shipping cost. If the `Shipping` element is present in the `OrderRequestHeader`, it must not appear in the `ItemOut` elements. If it is not present in the `OrderRequestHeader`, it must appear in the `ItemOut` elements.
### 7.2.1.6 Tax

This element contains the tax associated with the order. This element is present if the buying organization computes tax. When appearing within the OrderRequestHeader, Tax describes the total tax for an order. Tax elements at the item level can describe line item tax amounts.

The Tax element supports the Extrinsic element for additional tax-related information.

### 7.2.1.7 Payment

Describes the payment instrument used to pay for the items requested. In the above example, the Payment element contains a PCard element, which encodes a standard purchasing card into the cXML document. In the future, other payment instruments might be defined.

### 7.2.1.8 PaymentTerm

Defines the payment term in orders and invoices. Use PaymentTerm instead of the InvoiceDetailPaymentTerm previously defined. PaymentTerm defines either the net term (without discount) or the discount term (with discount). This element is enhanced with the Extrinsic element to include information like DueDate, and ValueDate.

PaymentTerm has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payInNumberOfDays</td>
<td>Indicates the invoice must be paid in a certain number of days after the invoice effective date.</td>
</tr>
</tbody>
</table>

**Discount**

The percentage or amount of the discount term. The discount rate applies if the invoice total is paid within the time specified by payInNumberOfDays. Positive rates denote discounts and negative rates denote penalties. Do not use a percentage sign (%) or divide by 100; for example “2” means 2%.

Do not use the Discount element if the PaymentTerm is a net term.

**Extrinsic**

Any additional information related to the payment term.
### 7.2.1.9 Contact

The supplier uses the **Contact** element information to follow up on an order. This element identifies a person and provides a list of ways to reach that person or entity. The only required element is the **Name** of the contact. Optional and repeating possibilities include **PostalAddress** (not recommended for immediate correction of order problems), **Email**, **Phone**, **Fax**, **URL**, **IdReference**, and **Extrinsic**.

In cXML 1.0, the extrinsics **User** and **CostCenter** elements often provided contact information. With cXML 1.1 and higher, the **Contact** element provides alternatives to these extrinsics.

Buying organizations might use this element to identify the original requestor, the procurement application system administrator, or some other contact who can take responsibility for correcting problems with orders. **Contact** can differ from both **BillTo** and **ShipTo** information for an order.

**Contact** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>The position of this person within the procurement process.</td>
</tr>
<tr>
<td>addressID</td>
<td>An ID for the address. <strong>addressID</strong> supports address codes for relationships that require ID references.</td>
</tr>
<tr>
<td>addressIDDomain</td>
<td>The code that specifies the agency or organization responsible for the address ID numbering. For example, DUNS or ILN. This code is required if there is a value in the <strong>addressID</strong> attribute.</td>
</tr>
</tbody>
</table>

Possible values for the **role** attribute:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>endUser</td>
<td>Contact details about the end user.</td>
</tr>
<tr>
<td>administrator</td>
<td>Contact details about the administrator.</td>
</tr>
<tr>
<td>purchasingAgent</td>
<td>Contact details about the purchasing agent.</td>
</tr>
<tr>
<td>technicalSupport</td>
<td>Technical support contact</td>
</tr>
<tr>
<td>customerService</td>
<td>Customer service contact</td>
</tr>
<tr>
<td>sales</td>
<td>Sales contact</td>
</tr>
<tr>
<td>supplierCorporate</td>
<td>Contact details about the supplier.</td>
</tr>
<tr>
<td>supplierMasterAccount</td>
<td>Contact details about the supplier master account.</td>
</tr>
<tr>
<td>SupplierAccount</td>
<td>Contact details about the supplier account.</td>
</tr>
<tr>
<td>buyerCorporate</td>
<td>Contact details the supplier has about the buying organization.</td>
</tr>
<tr>
<td>buyerMasterAccount</td>
<td>Contact details about the buyer master account.</td>
</tr>
<tr>
<td>buyerAccount</td>
<td>Contact details about the buyer account.</td>
</tr>
<tr>
<td>buyer</td>
<td>Contact details about the buyer.</td>
</tr>
<tr>
<td>subsequentBuyer</td>
<td>Contact details about the subsequent buyer.</td>
</tr>
</tbody>
</table>

The same **Contact role** must not appear at both the header and item levels.
There is no default role, due to the disparate contents of the Contact element. So, cXML applications treat a Contact without a role attribute as an additional role.

**IdReference**

Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier). See IdReference [page 327].

**TelephoneNumber**

The TelephoneNumber element contains the telephone number of the person or department where the goods are to be shipped or billed. For example, a telephone number in the United States:

```xml
<TelephoneNumber>
  <AreaOrCityCode>800</AreaOrCityCode>
  <Number>5551212</Number>
</TelephoneNumber>
```

For international dialing, the CountryCode contains the dial code for a country after any escape codes. England, for example, would be represented as:

```xml
```

The following, therefore, is an example for London:

```xml
<TelephoneNumber>
  <AreaOrCityCode>137</AreaOrCityCode>
  <Number>2801007</Number>
</TelephoneNumber>
```

**Fax**

The Fax element specifies the Fax number of the person or department where goods are to be shipped or billed. This element contains the TelephoneNumber element described above.

**Municipality**

Specifies the name of the municipality for a division of the state in an Address’ location. This is an optional element and added as part of the PostalAddress element.
For example:

```
<PostalAddress>
    <Street>24 Mossy Creek</Street>
    <City>Chihuahua</City>
    <Municipality>Juárez</Municipality>
    <State>Chihuahua</State>
    <PostalCode>94089</PostalCode>
    <Country isoCountryCode = "MX">Mexico</Country>
</PostalAddress>
```

### Extrinsic

Specifies the name of the department or employee. Possible values for the `Extrinsic` element:

<table>
<thead>
<tr>
<th>Extrinsic Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ContactPerson</td>
<td>The name of a contact person. For example:</td>
</tr>
<tr>
<td></td>
<td>&lt;Extrinsic name = &quot;ContactPerson&quot;&gt;JIM SMITH&lt;/Extrinsic&gt;</td>
</tr>
</tbody>
</table>

### 7.2.1.10 Comments

Arbitrary human-readable information buyers can send within purchase orders. This string data is not intended for the automated systems at supplier sites.

The `Comments` element can contain an `Attachment` element for including external files.

#### 7.2.1.10.1 Attachment

Comments can attach external files to augment purchase orders. The `Attachment` element appears within `Comments`, and it contains only a reference to the external MIME part of the attachment.

All attachments should be sent in a single multipart transmission with the `OrderRequest` document. Even if this is not possible, the `contentID` provided by the `Attachment` element must be usable to retrieve the attachment.

For details about the transfer of attached files, see Attachments [page 21].

`Attachment` contains a single URL with scheme “cid:”. An attached file in a cXML document might appear as:

```
<Comments>
    <Attachment>
        <URL>cid: uniqueCID@cxml.org</URL>
    </Attachment>
    Please see attached image for my idea of what this should look like
</Comments>
```
Attachment has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>visibility</td>
<td>Indicates the visibility level of the attachment. Specify the value &quot;internal&quot; to indicate that the attachment is for internal purposes only and should not be visible to suppliers.</td>
</tr>
</tbody>
</table>

The following Attachment is invisible to suppliers:

```xml
<Attachment visibility="internal">
  <URL>cid: uniqueCID@cxml.org</URL>
</Attachment>
```

The Comments element appears in many places within the cXML protocol, but it can contain the Attachment element only within OrderRequest documents.

Use Comments to provide local comments specific to the current document.

### 7.2.1.11 Followup

The use of the Followup element is strongly discouraged. In early implementations, Followup was used to specify the URL to which future StatusUpdateRequest documents should be posted.

All cXML implementations should use the more robust Profile transaction to retrieve and convey information about server capabilities, including supported cXML version, supported transactions, and options to those transactions.

### 7.2.1.12 ControlKeys

Provides elements that allow you to override default business rules for order confirmations, ship notices, service sheets, and invoices.

ControlKeys has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCIInstruction</td>
<td>Indicates whether an order confirmation is allowed for this order or line item, regardless of the default business rules configured in the network hub. See OCIInstruction [page 121].</td>
</tr>
<tr>
<td>ASNInstruction</td>
<td>Indicates whether a ship notice is allowed for this order or line item, regardless of the default business rules configured in the network hub. See ASNInstruction [page 122].</td>
</tr>
<tr>
<td>InvoiceInstruction</td>
<td>Indicates whether an invoice is allowed for this order or line item, regardless of the default business rules configured in the network hub. See InvoiceInstruction [page 122].</td>
</tr>
<tr>
<td>SESInstruction</td>
<td>Indicates whether a service sheet is allowed for this order or line item, regardless of the default business rules configured in the network hub. See SESInstruction [page 124].</td>
</tr>
</tbody>
</table>
Here is an example of the `ControlKeys` element used in the `OrderRequestHeader` element:

```xml
<OrderRequestHeader orderDate="2015-12-31T16:52:15+05:30" orderID="ERS_header_10" orderType="regular" type="new">
  ...
  <ControlKeys>
    <InvoiceInstruction value="isERS"/>
  </ControlKeys>
</OrderRequestHeader>
```

### 7.2.1.12.1 OCInstruction

Indicates whether an order confirmation is allowed for this order or line item, regardless of the default business rules configured in the network hub.

**OCInstruction** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>value</td>
<td>Value that indicates whether an order confirmation is allowed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• allowed—Order confirmation is allowed.</td>
</tr>
<tr>
<td></td>
<td>• notAllowed—Order confirmation is not allowed.</td>
</tr>
<tr>
<td></td>
<td>• requiredBeforeASN—Order confirmation is required before a ship notice.</td>
</tr>
</tbody>
</table>

**OCInstruction** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>Specifies tolerances that define a lower limit.</td>
</tr>
<tr>
<td>Upper</td>
<td>Specifies tolerances that define an upper limit.</td>
</tr>
</tbody>
</table>

Here is an example of **OCInstruction**:

```xml
<ControlKeys>
  <OCInstruction value="requiredBeforeASN">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="90"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="110"/>
        </QuantityTolerance>
      </Tolerances>
    </Upper>
  </OCInstruction>
</ControlKeys>
```
### 7.2.1.12.2 ASNInstruction

Indicates whether a ship notice is allowed for this order or line item, regardless of the default business rules configured in the network hub.

**ASNInstruction** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>value</td>
<td>Value that indicates whether a ship notice is allowed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- allowed—Ship notice is allowed.</td>
</tr>
<tr>
<td></td>
<td>- notAllowed—Ship notice is not allowed.</td>
</tr>
</tbody>
</table>

**ASNInstruction** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>Specifies tolerances that define a lower limit.</td>
</tr>
<tr>
<td>Upper</td>
<td>Specifies tolerances that define an upper limit.</td>
</tr>
</tbody>
</table>

Here is an example of **ASNInstruction**:

```xml
<ControlKeys>
  <ASNInstruction value="allowed">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="90"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="110"/>
        </QuantityTolerance>
      </Tolerances>
    </Upper>
  </ASNInstruction>
</ControlKeys>
```

### 7.2.1.12.3 InvoiceInstruction

Indicates whether an invoice is allowed for this order or line item, regardless of the default business rules configured in the network hub.
InvoiceInstruction has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>value (required)</td>
<td>Value that indicates whether an invoice is allowed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• isERS—The order or line item is flagged for Evaluated Receipt Settlement, indicating that the system will post an invoice for it automatically based on goods receipts.</td>
</tr>
<tr>
<td></td>
<td>• isNotERS—The order or line item is not flagged for Evaluated Receipt Settlement.</td>
</tr>
<tr>
<td></td>
<td>• allowed—Invoice is allowed.</td>
</tr>
<tr>
<td></td>
<td>• notAllowed—Invoice is not allowed.</td>
</tr>
</tbody>
</table>

verificationType | The only supported value is goodsReceipt, which indicates that invoice verification for this item is based on the goods receipt. The invoice item can then be matched up uniquely with the goods receipt item. Goods-receipt-based invoice verification makes sense when you expect a delivery to be made and posted in several parts.

unitPriceEditable | Specifies whether a buyer or supplier is allowed to update the unit price while creating an invoice. Possible values:
|                  | • yes—Buyer or supplier is allowed to edit unit price. The new price must be within price tolerance. |
|                  | • no—The unit price is not editable regardless of transaction rules defined in the network hub. |

If the unitPriceEditable attribute is not present, the system honors the default transaction rules present in the network hub.

InvoiceInstruction has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TemporaryPrice</td>
<td>Indicates if pricing information is temporary or final. It can be set at the order header or item level. It has a required value attribute, which can be set to yes or no. If set to yes at the order item level, pricing for the item is considered temporary and the supplier cannot invoice the line item. If set to yes at the order header level, pricing is considered temporary for the entire purchase order and the supplier cannot invoice against any item on the order.</td>
</tr>
<tr>
<td>Lower</td>
<td>Specifies tolerances that define a lower limit.</td>
</tr>
<tr>
<td>Upper</td>
<td>Specifies tolerances that define an upper limit.</td>
</tr>
</tbody>
</table>

Here is an example of InvoiceInstruction:

```xml
<ControlKeys>
  <InvoiceInstruction value="isNotERS" verificationType="goodsReceipt"
    unitPriceEditable="yes"/>
</ControlKeys>
```

Here is another example of InvoiceInstruction that specifies lower and upper tolerances:

```xml
<ControlKeys>
  <InvoiceInstruction value="allowed">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="5.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
  </InvoiceInstruction>
</ControlKeys>
```
7.2.1.12.4 SESInstruction

Indicates whether a service sheet is allowed for this order or line item, regardless of the default business rules configured in the network hub.

**SESInstruction** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>value (required)</td>
<td>Value that indicates whether a service sheet is allowed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• allowed—Service sheet is allowed.</td>
</tr>
<tr>
<td></td>
<td>• notAllowed—Service sheet is not allowed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>unitPriceEditable</th>
<th>Specifies whether a buyer or supplier is allowed to update the unit price while creating a service sheet. Possible values:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• yes—Buyer or supplier is allowed to edit unit price. The new price must be within price tolerance.</td>
</tr>
<tr>
<td></td>
<td>• no—The unit price is not editable regardless of transaction rules defined in the network hub.</td>
</tr>
</tbody>
</table>

If the `unitPriceEditable` attribute is not present, the system honors the default transaction rules present in the network hub.

**SESInstruction** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>Specifies tolerances that define a lower limit.</td>
</tr>
<tr>
<td>Upper</td>
<td>Specifies tolerances that define an upper limit.</td>
</tr>
</tbody>
</table>

Here is an example of **SESInstruction**:

```xml
<ControlKeys>
  <SESInstruction value="allowed" unitPriceEditable="yes"/>
</ControlKeys>
```

Here is another example of **SESInstruction** that specifies lower and upper tolerances:

```xml
<ControlKeys>
  <SESInstruction value="allowed">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="10.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
  </SESInstruction>
</ControlKeys>
```
7.2.1.13 DocumentReference

This element provides an exact reference to an earlier document (for example, OrderRequest, MasterAgreementRequest, or InvoiceReference). In a StatusUpdateRequest, DocumentReference identifies the purchase order to be updated.

7.2.1.14 SupplierOrderInfo

This element is used in OrderRequestHeader to define supplier sales order information related to the current order. SupplierOrderInfo is used in OrderRequest and InvoiceDetailRequest documents.

When SupplierOrderInfo is used in a PunchOutOrderMessage, it indicates that the supplier has created an order associated with the PunchOut order message. The buyer can later cancel the order by sending an OrderRequest of type "delete" and including the SupplierOrderInfo element in the OrderRequestHeader to refer to the sales order to be deleted.

SupplierOrderInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>Supplier sales order id of this order.</td>
</tr>
<tr>
<td>orderDate</td>
<td>The date an order is sent to a supplier.</td>
</tr>
</tbody>
</table>

7.2.1.15 TermsOfDelivery

This element specifies the terms of delivery in a purchase order or ship notice. The TermsOfDelivery element can appear at the header-level or line-item level. To add at line-item level, include this element to the ItemOut element.
You can also add this element to the `ShipNoticeHeader` to specify terms at the header level. To add at the line-item level, include it to the `ShipNoticeItem` element.

The `TermsOfDelivery` element contains the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TermsOfDeliveryCode</td>
<td>The Standard delivery terms and Incoterms.</td>
</tr>
<tr>
<td>ShippingPaymentMethod</td>
<td>Denotes the mode of shipping payment.</td>
</tr>
<tr>
<td></td>
<td>- Account—When shipping charges are charged to an account.</td>
</tr>
<tr>
<td></td>
<td>- Collect—When the consignee pays the freight charges.</td>
</tr>
<tr>
<td></td>
<td>- Prepaid by Seller—When the seller makes the payment to the carrier for freight charges prior to a shipment.</td>
</tr>
<tr>
<td></td>
<td>- Mixed—When the consignment is partially Collect and partially Prepaid.</td>
</tr>
<tr>
<td></td>
<td>- Other—Any other shipping payment method or the third-party pays the shipment charges. You can enter additional information for the payment method.</td>
</tr>
<tr>
<td>TransportTerms</td>
<td>The terms of transportation. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- Free-Carrier</td>
</tr>
<tr>
<td></td>
<td>- CostAndFreight</td>
</tr>
<tr>
<td></td>
<td>- DeliveredAtFrontier</td>
</tr>
<tr>
<td></td>
<td>- Other—When you specify this option, you can additionally enter a description.</td>
</tr>
</tbody>
</table>

Address

The Deliver To address for the ship notice.

Comments

Additional information for the delivery terms, for example, when "Other" Transport Term is selected.

Here is an example of the `TermsOfDelivery` element:

```xml
<TermsOfDelivery>
  <TermsOfDeliveryCode value="PriceCondition"/>
  <ShippingPaymentMethod value="AdvanceCollect"/>
  <TransportTerms value="Other">Contract Terms</TransportTerms>
  <Address>
    <Name xml:lang="en-US">SN Services</Name>
    <PostalAddress name="default">
      <Street>123 Anystreet</Street>
      <City>Sunnyvale</City>
      <State>AL</State>
      <PostalCode>35762</PostalCode>
    </PostalAddress>
  </Address>
  <Comments xml:lang="en-US" type="Transport">As per the Transport contract</Comments>
  <Comments xml:lang="en-US" type="TermsOfDelivery">Delivery at the doorstep</Comments>
</TermsOfDelivery>
```
7.2.1.16  DeliveryPeriod

Specifies the earliest date and latest date when either the supplier can deliver the goods or when the receiver is able to handle incoming shipments.

**Period**

Contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>Specifies the earliest date that the supplier can deliver the goods, or when the receiver is able to accept incoming shipments.</td>
</tr>
<tr>
<td>endDate</td>
<td>Specifies the latest date that the supplier can deliver the goods, or the date after which the receiver is not able to accept incoming shipments.</td>
</tr>
</tbody>
</table>

7.2.1.17  IdReference

For information about IdReference, see IdReference [page 118].

7.2.1.18  OrderRequestHeaderIndustry

Contains industry-specific information for an order. OrderRequestHeaderIndustry has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Contains information about a referenced document. This is an optional element, and it can occur multiple times. See ReferenceDocumentInfo [page 128].</td>
</tr>
</tbody>
</table>
Priority

Indicates the priority of orders for the suppliers. This is an optional element. It has a Description element, which describes the priority.

Priority has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level</td>
<td>Specifies the priority level, an integer from 1 to 5.</td>
</tr>
<tr>
<td>sequence</td>
<td>A unique secondary order number for prioritizing items with the same priority level. Two items with the same priority level are not allowed to have the same sequence number.</td>
</tr>
<tr>
<td>inventory_level</td>
<td>Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.</td>
</tr>
</tbody>
</table>

ExternalDocumentType

Contains information about a document managed in an external system, such as an ERP. It can be sent with an order to distinguish different business transactions uniquely. It has a required documentType attribute, which specifies the document type from the external system. It also has an optional Description element.

QualityInfo

Represents the quality information for the entire OrderRequest.

AssetInfo

Provides detailed per-unit asset information for a line item. See AssetInfo [page 313].

The following example shows an OrderRequestHeaderIndustry for an OrderRequest that requires certificates at the header level:

```xml
<OrderRequestHeaderIndustry>
  <QualityInfo requiresQualityProcess="yes">
    <IdReference domain="certificateType" identifier="CERT123">
      <Description xml:lang="en-US">Certificate Type description</Description>
    </IdReference>
  </QualityInfo>
</OrderRequestHeaderIndustry>
```

7.2.1.18.1 ReferenceDocumentInfo

Contains information about a referenced document.

ReferenceDocumentInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>Line number of an item in the referenced document.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>scheduleLineNumber</td>
<td>Schedule line number of a schedule item in the referenced lineNumber. If this attribute has a value, the lineNumber attribute is mandatory.</td>
</tr>
<tr>
<td>status</td>
<td>Status used to refer to the referenced document. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• created</td>
</tr>
<tr>
<td></td>
<td>• released</td>
</tr>
<tr>
<td></td>
<td>• open</td>
</tr>
<tr>
<td></td>
<td>• completed</td>
</tr>
<tr>
<td></td>
<td>• closed</td>
</tr>
<tr>
<td></td>
<td>• cancelled</td>
</tr>
</tbody>
</table>

ReferenceDocumentInfo has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentInfo</td>
<td>DocumentInfo identifies an earlier document known to the system. See DocumentInfo [page 274].</td>
</tr>
<tr>
<td>DocumentReference</td>
<td>DocumentReference provides an exact reference to an earlier order being updated. See DocumentReference [page 125].</td>
</tr>
<tr>
<td>DateInfo</td>
<td>Contains date information associated with this document.</td>
</tr>
<tr>
<td>Contact</td>
<td>Contact information for following up on an order. See Contact [page 117].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 7.2.1.19 Extrinsic

This element contains machine-readable information related to the order, but not defined by the cXML protocol. In contrast, the Comments element passes information for human use. Extrinsic elements contain data that is likely to appear in later documents; the Comments element does not. At this level, Extrinsic extends the description of all items contained in the purchase order. Some Extrinsic information might also describe the overall purchase order without affecting the meaning of any contained ItemOut.

Each named Extrinsic can appear only once within the lists associated with the OrderRequestHeader and individual ItemOut elements (within the contained ItemDetail elements). The same name must not appear in both the OrderRequestHeader list and any list associated with the ItemOut elements. If the same Extrinsic name and value is repeated in all ItemOut lists, it should be moved to the OrderRequestHeader.

The Extrinsic element can also appear in the IndexItem, PunchOutSetupRequest, ContractItem, and PostalAddress elements. These contexts are described later in this document. Extrinsic values are case-insensitive.
7.2.2 ItemOut

The following example shows a minimum valid ItemOut element.

```
<ItemOut quantity="1"
  lineNumber="1">
  <ItemID>
    <SupplierPartID>5555</SupplierPartID>
  </ItemID>
</ItemOut>
```

ItemOut has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>The number of items desired. Fractions are allowed for some units of measure. The value might have already been checked by the supplier during a PunchOut session. This value should never be negative.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>Position of the item within an order. This ordinal value increases once per ItemOut in a &quot;new&quot; OrderRequest. Clients should always specify this attribute in an OrderRequest, although it might not be useful in other ItemOut contexts.</td>
</tr>
<tr>
<td>requisitionID</td>
<td>The buyer’s requisition identifier for this line item. Must not be included if requisitionID is specified in the OrderRequestHeader.</td>
</tr>
<tr>
<td>agreementItemNumber</td>
<td>The buyer’s master agreement identifier for the line item.</td>
</tr>
<tr>
<td>requestedDeliveryDate</td>
<td>The date item was requested for delivery, which allows item-level delivery dates in the OrderRequest. It must be in ISO 8601 format.</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Indicates that the item is a non-catalog (ad-hoc) item. Non-catalog purchase orders contain items entered manually by requisitioners, not items selected from electronic catalogs. Often, these items do not have valid part numbers. Non-catalog orders usually require special validation and processing. Users enter non-catalog items to purchase products and services on an ad-hoc basis or because they could not find them in electronic catalogs.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>The line number of the corresponding parent line item. This is a mandatory field and applicable only for a line item with itemType=&quot;item&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>• item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>• lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>requiresServiceEntry</td>
<td>Specifies whether or not the item requires a ServiceEntryRequest service sheet to describe how it was serviced.</td>
</tr>
<tr>
<td>confirmationDueDate</td>
<td>Specifies the date by which the supplier must respond to the buyer confirming receipt of the purchase order.</td>
</tr>
<tr>
<td>compositeItemType</td>
<td>Specifies whether a parent item uses group-level pricing. Possible values are &quot;groupLevel&quot; or &quot;itemLevel&quot;.</td>
</tr>
</tbody>
</table>
Attribute | Description
--- | ---
**itemClassification** | Specifies whether the current line item is material or service. Possible values:
- material
- service

**itemCategory** | Specifies how a component or material is procured. Possible values:
- materialUnknown—Refers to procuring a material without specifying the material number.
- text—Refers to procuring a free-form text item.
- stockTransfer—Refers to transfer of stock from one plant to another.
- materialGroup—Refers to procuring a material without specifying the value or quantity.
- subcontract—Procuring a material by providing component information to a contract manufacturer that makes the finished product.
- consignment—Managing a material through a special process where the payment to supplier is withheld until the material or service is consumed by the buyer.
- thirdParty—Procuring a material from a third-party vendor.

**subcontractingType** | The buyer’s ERP system determines the subcontracting type based on the material provision indicator determined to support the regular subcontracting refurbishments or replacements scenarios. Possible values:
- regular—Standard subcontracting scenario.
- refurbWithoutChange—Refurbishment without changed material.
- refurbWithChange—Refurbishment with changed material.
- replacement—Replacement of the materials.

**requestedShipmentDate** | The ship date requested by the buyer for the item.

**isReturn** | Set to "yes" to indicate that the item is a return item.

**returnAuthorizationNumber** | Return authorization number for a line item.

**isDeliveryCompleted** | Set to yes to indicate that this item is considered closed, and no more deliveries are expected for it. This flag is set by the buyer for informative purposes.

The `lineNumber` attribute remains constant for any item through updates to the order. Deletion of items from an order never changes the `lineNumber` of remaining items. New items have higher numbers than those previously included in the order. A change to an existing item (an increased quantity, for example) does not affect the `lineNumber` of that item.

The following example shows a more complicated `ItemOut`:

```xml
<ItemOut quantity="2" lineNumber="1"
  requestedDeliveryDate="1999-03-12">
  <ItemID>
    <SupplierPartID>1233244</SupplierPartID>
    <SupplierPartAuxiliaryID>ABC</SupplierPartAuxiliaryID>
  </ItemID>
  <ItemDetail>
    <UnitPrice>
      <Money currency="USD">1.34</Money>
    </UnitPrice>
    <Description xml:lang="en">hello</Description>
  </ItemDetail>
</ItemOut>
```
The ItemDetail element allows additional data to be sent to suppliers instead of just the unique identifier for the item represented by the ItemID.

If isAdHoc="yes" exists for some items and not for others, the requisition should be broken into two requisitions: one for catalog items and one for non-catalog items. Suppliers will then be able to automatically
process as many requisition items as possible, instead of having to manually process both catalog and non-catalog items.

The ShipTo, Shipping, Tax, Contact, Comments, and Extrinsic elements (some nested within ItemDetail or SpendDetail) are identical to the ones that can be in the OrderRequestHeader. These elements specify per-item data such as shipping, shipping type, and associated cost. Use these elements either at the OrderRequestHeader level, or at the ItemOut level, but not at both levels. Tax is the only exception, for more information, see Tax [page 116].

The following example shows an ItemOut for a return item:

```xml
<ItemOut quantity="2" isReturn="true" returnAuthorizationNumber="RMA235">
  <ItemDetail>
    ...
  </ItemDetail>
  <Comments>Defective product</Comments>
</ItemOut>
```

The following example shows an item group with group-level pricing type:

```xml
<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderIDInfo orderID=""></OrderIDInfo>
  </InvoiceDetailOrderInfo>
  <InvoiceDetailItem quantity="1" invoiceLineNumber="1" itemType="composite" compositeItemType="groupLevel">
    <UnitOfMeasure></UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">21.00</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>1</SupplierPartID>
      </ItemID>
      <Description xml:lang="en">Parent Item</Description>
    </InvoiceDetailItemReference>
    <TotalAllowances>
      <Money currency="USD">25.00</Money>
    </TotalAllowances>
    <TotalAmountWithoutTax>
      <Money currency="USD">290.00</Money>
    </TotalAmountWithoutTax>
    <NetAmount>
      <Money currency="USD">290.00</Money>
    </NetAmount>
  </InvoiceDetailItem>
  <InvoiceDetailItem invoiceLineNumber="2" quantity="15" parentInvoiceLineNumber="1" itemType="item">
    <UnitOfMeasure>33</UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">21.00</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>1</SupplierPartID>
      </ItemID>
      <Description xml:lang="en">Child Item</Description>
    </InvoiceDetailItemReference>
    <SubtotalAmount>
      <Money currency="USD">315.00</Money>
    </SubtotalAmount>
    <GrossAmount>
      <Money currency="USD">290.00</Money>
    </GrossAmount>
  </InvoiceDetailItem>
</InvoiceDetailOrder>
```
The following example shows an item group with item-level pricing type:

```
<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderIDInfo orderID=""></OrderIDInfo>
  </InvoiceDetailOrderInfo>
  <InvoiceDetailItem quantity="1" invoiceLineNumber="1" itemID="" itemLevel="">
    <UnitOfMeasure></UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">0.00</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>1</SupplierPartID>
        <Description xml:lang="en">Parent Item</Description>
      </ItemID>
    </InvoiceDetailItemReference>
  </InvoiceDetailItem>
  <InvoiceDetailItem invoiceLineNumber="2" quantity="15" itemLevel="">
    <UnitOfMeasure>33</UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">21.00</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>1</SupplierPartID>
        <Description xml:lang="en">Child Item</Description>
      </ItemID>
    </InvoiceDetailItemReference>
  </InvoiceDetailItem>
  <AdditionalDeduction>
    <DeductionAmount>
      <Money currency="USD">47.25</Money>
    </DeductionAmount>
    <DeductionPercent percent="15"/>
  </AdditionalDeduction>
  <TotalAllowances>
    <Money currency="USD">25.00</Money>
  </TotalAllowances>
  <TotalAmountWithoutTax>
    <Money currency="USD">290.00</Money>
  </TotalAmountWithoutTax>
  <NetAmount>
    <Money currency="USD">290.00</Money>
  </NetAmount>
</InvoiceDetailItem>
</InvoiceDetailOrder>
```
The following example shows an ItemOut for a “lean” item (one without a child):

```xml
<ItemOut
    lineNumber="1" quantity="1"
    requestedDeliveryDate="2018-09-20T03:30:00-07:00"
    itemType="lean">
    <ItemID>
        <SupplierPartID>Not Available</SupplierPartID>
    </ItemID>
    <BlanketItemDetail>
        <Description xml:lang="en">Test Service PO / Previous PO Number</Description>
        <UnitPrice>
            <Money alternateAmount="" alternateCurrency=""
                currency="CAD">800.00</Money>
        </UnitPrice>
        <UnitOfMeasure>AU</UnitOfMeasure>
        <Classification domain="ccc">A050</Classification>
        <Extrinsic name="ExpectedUnplanned">
            <Money alternateAmount="" alternateCurrency=""
                currency="CAD">800.00</Money>
        </Extrinsic>
    </BlanketItemDetail>
    <SpendDetail>
        <Extrinsic name="service">service</Extrinsic>
    </SpendDetail>
</ItemOut>
```

### 7.2.2.1 ItemID

The ItemID element provides unique identification of an item. See ItemID [page 90].
7.2.2.2 Path

The basic Path element, which provides node and path information for a document. Path is defined at Path Element [page 183].

7.2.2.3 ItemDetail

The basic ItemDetail element, which contains descriptive information about a line item that procurement applications present to users. See ItemDetail [page 90].

Modifications

The UnitPrice element contained within ItemDetail also stores the Modifications element. The Modification element contains details of the allowances and charges applicable for line items at the line-item level. For more information, see Total [page 110].

7.2.2.3.1 ItemDetailIndustry

ItemDetailIndustry contains the detailed industry-specific information. This is an optional element. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isConfigurableMaterial</td>
<td>Set to &quot;yes&quot; to indicate that the item is defined as a configurable material and therefore has product characteristics.</td>
</tr>
</tbody>
</table>

ItemDetailIndustry has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemDetailRetail</td>
<td>Contains the detailed item-specific information for the retail industry. This is an optional element. See ItemDetailRetail [page 137].</td>
</tr>
</tbody>
</table>

The following example shows ItemDetailIndustry:

```xml
<ItemDetail>
  <ItemDetailIndustry>
    <ItemDetailRetail>
      <EANID>815-12</EANID>
      <EuropeanWasteCatalogID>5-12</EuropeanWasteCatalogID>
    </ItemDetailRetail>
  </ItemDetailIndustry>
</ItemDetail>
```
7.2.2.3.1.1 ItemDetailRetail

ItemDetailRetail contains the detailed item-specific information for the retail industry. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EANID</td>
<td>Specifies an ID assigned to a manufacturer’s product according to the International Article Numbering Association or UPC (Universal Product Code) for an article. This is an optional element.</td>
</tr>
<tr>
<td>EuropeanWasteCatalogID</td>
<td>Specifies a unique ID for articles listed in the EU Waste Catalog (EWC) if it requires special handling. This is an optional element.</td>
</tr>
<tr>
<td>Characteristic</td>
<td>Specifies detailed information about an item that can be used across several different industries. This is an optional element.</td>
</tr>
<tr>
<td></td>
<td>Characteristic has the following attributes:</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>domain (required)</td>
<td>Type of characteristic.</td>
</tr>
<tr>
<td></td>
<td>Examples: size, sizeCode, color, colorCode, quality, qualityCode, grade, gradeCode</td>
</tr>
<tr>
<td>value (required)</td>
<td>Value for the domain.</td>
</tr>
<tr>
<td>code</td>
<td>Code associated with a characteristic, such as a currency code or unit of measure.</td>
</tr>
</tbody>
</table>

7.2.2.4 BlanketItemDetail

Provides supplier and commodity level details specific to blanket orders (orderType="blanket").

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description (required)</td>
<td>Describes the item in a textual form.</td>
</tr>
<tr>
<td>MaxAmount</td>
<td>Defines the maximum amount allowed.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MinAmount</td>
<td>Defines the minimum amount allowed.</td>
</tr>
<tr>
<td>MaxContractAmount</td>
<td>Defines a maximum amount allowed for contract items, as specified by the buyer.</td>
</tr>
<tr>
<td>MaxAdhocAmount</td>
<td>Defines a maximum amount allowed for unplanned items, as specified by the buyer.</td>
</tr>
<tr>
<td>MaxQuantity</td>
<td>Defines the maximum quantity allowed.</td>
</tr>
<tr>
<td>MinQuantity</td>
<td>Defines the minimum quantity allowed.</td>
</tr>
<tr>
<td>UnitPrice</td>
<td>Price per unit of the item.</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>The line item’s unit of measure. See UnitOfMeasure [page 43].</td>
</tr>
<tr>
<td>PriceBasisQuantity</td>
<td>Describes the quantity-based pricing for a line item. It has the UnitOfMeasure and Description as elements and quantity and conversionFactor as attributes. See PriceBasisQuantity [page 336].</td>
</tr>
<tr>
<td>Classification</td>
<td>Groups items into similar categories. Typically lists the UNSPSC (United Nations Standard Products and Services Code) commodity code for each selected item. These codes are used by backend systems within buyer and supplier organizations for accounting and report generation. For the list of UNSPSC codes, see <a href="http://www.unspsc.org">www.unspsc.org</a>. Classification@domain can also be used to specify product hierarchy and commodity information used by a backend system. Classification has an optional code attribute, which identifies the commodity by its designated code.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object. See Extrinsic [page 82].</td>
</tr>
</tbody>
</table>

The following example shows BlanketItemDetail:

```xml
<BlanketItemDetail>
  <Description xml:lang="en">Super Security Consulting Project</Description>
  <MaxAmount>
    <Money currency="USD">70000</Money>
  </MaxAmount>
  <MaxContractAmount>
    <Money currency="USD">50000</Money>
  </MaxContractAmount>
  <MaxAdhocAmount>
    <Money currency="USD">20000</Money>
  </MaxAdhocAmount>
  <UnitPrice>
    <Money currency="USD">5000</Money>
  </UnitPrice>
  <UnitOfMeasure>EA</UnitOfMeasure>
  <Classification domain="ascc">606501</Classification>
  <Extrinsic name="Construction"></Extrinsic>
  <Extrinsic name="ServicePeriod">
    <Period endDate="2013-09-01T23:59:59-00:00" startDate="2012-07-12T00:00:00-00:00"></Period>
  </Extrinsic>
</BlanketItemDetail>
```
7.2.2.5  SupplierID

The ID of the supplier. This is a (domain, value) pair so that suppliers have the flexibility to define their ID’s according to an arbitrary convention, such as D-U-N-S or TaxID.

7.2.2.6  SupplierList

Defines a list of suppliers that might be associated with a quote item in ItemOut. SupplierList has no attributes.

Supplier

The common Supplier element is optional in ItemOut.

7.2.2.7  ShipTo, Shipping, and Tax

The common elements, described elsewhere in this document.

7.2.2.8  SpendDetail

This optional element provides detailed information regarding travel, fee, and labor line items. The following example shows the element declaration of SpendDetail from cXML.dtd:

```xml
<!ELEMENT SpendDetail (TravelDetail | FeeDetail | LaborDetail | Extrinsic)>
```

SpendDetail can be present in ItemIn and ItemOut elements for the following types of messages:

- PunchOutSetupRequest
- PunchOutOrderMessage
- OrderRequest
- ConfirmationRequest

SpendDetail has no attributes.
The basic ItemIn element adds an item from a shopping basket to a requisition in the procurement application during a PunchOut session. ItemIn is defined at ItemIn [page 87].

7.2.2.8.1 FeeDetail

Conveys information about one-time or recurring fees that are not explicitly defined elsewhere in cXML. For example, a one-time fee for furniture rental would not fall into any category defined in TravelDetail or LaborDetail, but could be described in FeeDetail.

FeeDetail has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isRecurring</td>
<td>Indicates that the fee is recurring.</td>
</tr>
</tbody>
</table>

UnitRate

The amount to be paid per unit of time or other measure. In the case of multiple UnitRates, as in a rate schedule, use TermReference elements to distinguish them.

Period

Defines the period covered by the FeeDetail.

7.2.2.8.2 LaborDetail

LaborDetail contains information about an item related to temporary labor. The following example shows the element declaration of LaborDetail from cXML.dtd:

```xml
<!ELEMENT LaborDetail (UnitRate+, Period, Contractor?, JobDescription?, Supervisor?, WorkLocation?, Extrinsic*)>
```

LaborDetail has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>supplierReferenceCode</td>
<td>The supplier’s quote or proposal ID, for cross reference.</td>
</tr>
</tbody>
</table>
**UnitRate**

UnitRate represents the amount to be paid per unit of time (or of some other measure). In the case of multiple UnitRates, use TermReference elements to distinguish them.

**TermReference**

TermReference is a generic base element that identifies the definition of the UnitRate in question. TermReference has these attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>termName</td>
<td>The name of the ID attribute containing the term.</td>
</tr>
<tr>
<td>term</td>
<td>The value of that attribute, that is, the term itself.</td>
</tr>
</tbody>
</table>

Here is a sample UnitRate with a TermReference:

```xml
<UnitRate>
  <Money currency="USD">75</Money>
  <UnitOfMeasure>HUR</UnitOfMeasure>
  <TermReference termName="payCode" term="Overtime"/>
</UnitRate>
```

This TermReference identifies this UnitRate as being the rate for the Overtime payCode.

**Period**

Period specifies the period of time over which the service occurs.

**Contractor**

Contractor identifies the contractor being engaged for temporary labor. The contractor is uniquely identified by a ContractorIdentifier element, which is exchanged between the buyer and supplier prior to sending orders or timecards. For more information about TimeCard transactions, see TimeCard Transaction [page 247]
Contractor has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ContractorIdentifier</td>
<td>Uniquely identifies the contractor for both the buyer and supplier.</td>
</tr>
</tbody>
</table>

ContractorIdentifier has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>The domain in which the contractor's identity is represented.</td>
</tr>
<tr>
<td></td>
<td>This attribute allows the buyer and supplier systems to determine who assigned the identification.</td>
</tr>
<tr>
<td>buyerReferenceID</td>
<td>implies that the identification was generated in the buyer system.</td>
</tr>
<tr>
<td>supplierReferenceID</td>
<td>implies that the identification was generated in the supplier system.</td>
</tr>
</tbody>
</table>

Contact

Contains contact information for the contractor.

JobDescription

JobDescription is a text description of the job or work to be performed.

Supervisor

Supervisor specifies contact information for the person who will supervise the contractor.

WorkLocation

WorkLocation is the address of the place where the work is to be performed.

Extrinsic

This optional element in LaborDetail contains any additional data that the buying organization wants to pass to the supplier. The cXML specification does not define the content of Extrinsic elements—it is something that each buying organization and supplier must agree on and implement.

The following example passes the region in which the work is to be performed.

```xml
<Extrinsic name="region">sfbay</Extrinsic>
```
7.2.2.8.3  Extrinsic

Extrinsic is supported in SpendDetail, enabling buyer-supplier pairs to convey detailed information on spend that does not fit within TravelDetail, FeeDetail, or LaborDetail.

Extrinsic elements are intended to provide additional machine-readable information. They extend the cXML protocol to support features not required by all implementations. The cXML specification does not define the content of Extrinsic elements. Each buyer-supplier pair must agree on and implement their definitions of Extrinsic elements.

Describes detailed information for any undefined spend category. The name attribute of the Extrinsic element should specify the type of spend category, such as print, market research, or project labor.

It is recommend that all Extrinsic elements in a single SpendDetail element be included under a single Extrinsic with the name attribute used to specify the name of the category. This example shows two Extrinsic elements nested under one heading, within a SpendDetail element:

```xml
<SpendDetail>
    <Extrinsic name="MarketResearchDetail">
        <Extrinsic name="ResearchObjectives">test objectives</Extrinsic>
        <Extrinsic name="ProjectNumber">PN3434343</Extrinsic>
    </Extrinsic>
</SpendDetail>
```

The Extrinsic element can also appear in the OrderRequestHeader, ItemDetail, and ContractItem elements. These contexts are described further elsewhere in this document.

7.2.2.9  Distribution

Distribution divides the cost of an item among multiple parties. Suppliers return the Distribution element on invoices to facilitate the buyer’s reconciliation process.

Accounting

The Accounting element groups AccountingSegments to identify who is charged.

Accounting has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name (required)</td>
<td>The name for this accounting combination. The account from which this charge will be paid.</td>
</tr>
</tbody>
</table>
**AccountingSegment**

The `AccountingSegment` element can contain any relevant accounting code used by a buying organization. Examples of possible values are asset number, billing code, cost center, G/L account, and department. For example:

```xml
<AccountingSegment id="456">
    <Name xml:lang="en-US">G/L Account</Name>
    <Description xml:lang="en-US">Travel</Description>
</AccountingSegment>
```

`AccountingSegment` has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>The unique identifier within this AccountingSegment type. This value might be the actual account code if the type were &quot;Cost Center&quot;.</td>
</tr>
</tbody>
</table>

**Name**

An identifying name for this `AccountingSegment` with respect to the others in the `Accounting` element.

**Description**

A description of the accounting entity.

**Charge**

Specifies the amount to be charged to the entity represented by the `Accounting` element.

**Money**

Contains the amount of the Charge at the line item level.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currency (required)</td>
<td>The unique ISO standard three-letter currency code. For example, “USD” = United States Dollar.</td>
</tr>
<tr>
<td>alternateAmount</td>
<td>The amount of money in the alternateCurrency. Optional and used to support dual-currency requirements such as the Euro.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>alternateCurrency</td>
<td>Specifies the currency for the alternateAmount. Must conform to ISO 4217 currency codes.</td>
</tr>
</tbody>
</table>

### 7.2.2.10 Contact

The supplier uses Contact element information to follow up on an order. See Contact [page 117].

### 7.2.2.11 TermsofDelivery

Specifies the terms of delivery for the ship notice. See TermsOfDelivery [page 125].

### 7.2.2.12 TravelDetail

TravelDetail is a child of SpendDetail and describes information about travel line items.

The following example shows the element declaration of TravelDetail from cXML.dtd:

```xml
<!ELEMENT TravelDetail (AirDetail | CarRentalDetail | HotelDetail | RailDetail),
PolicyViolation*,
Comments?,
TermsAndConditions?)>
```

The following example shows the location of SpendDetail and TravelDetail within an OrderRequest document:

```xml
<OrderRequest... >
  <OrderRequestHeader >
    ...
  </OrderRequestHeader >
  <ItemOut>
    <ItemDetail >
      ...
    </ItemDetail>
    <SpendDetail>
      <TravelDetail> 
        ...
      </TravelDetail>
      ...
    </SpendDetail>
    </ItemOut>
  </ItemOut>
</OrderRequest>
```
TravelDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>confirmationNumber</td>
<td>A unique confirmation number that is understood by both the traveler and the vendor who is providing the service for this travel line item. For example, hotel reservation number or e-ticket number from the airline.</td>
</tr>
<tr>
<td>pnrLocator</td>
<td>Passenger Name Record (PNR) locator used by the travel booking provider.</td>
</tr>
<tr>
<td>quoteExpirationTime</td>
<td>Date and time that this quote will expire. This value is normally supplied in the PunchoutOrderMessage. If no value is supplied, it is assumed that this quote will not expire.</td>
</tr>
</tbody>
</table>

7.2.2.13 TravelDetail Common Elements

Several common elements are used throughout TravelDetail.

Date and Time in cXML

Dates and times in cXML must be formatted in the restricted subset of ISO 8601. This is described in the Word Wide Web Consortium (W3C) Note entitled “Date and Time Formats” available at www.w3.org/TR/NOTE-datetime-970915.html. See Date, Time, and Other Data Types [page 26] for more information.

Vendor

The common Vendor element. When used in TravelDetail, Vendor provides information about a vendor of a service. Vendor can be used in AirLeg, CarRentalDetail, HotelDetail, and RailLeg.

Vendor has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>preferred</td>
<td>Is this a preferred vendor?</td>
</tr>
<tr>
<td>(required)</td>
<td>yes</td>
</tr>
</tbody>
</table>
Vendor has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
</table>
| Address | The basic Address element provides the physical address of the vendor. Typically, this is the address the vendor’s a business location or headquarters. Address is described further in cXML Conventions [page 19]. The Address element contains an addressIDDomain attribute which specifies a code that represents the agency or organization responsible for the addressID numbering. For example, DUNS or ILN. This code is required if there is a value in the addressID field. Address has the following element:
  - SupplierID
  
  SupplierID for this vendor. This is a (domain, value) pair so that travel booking providers can define their SupplierID elements according to the convention they prefer, such as D-U-N-S or TaxID. SupplierID has one required attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain (required)</td>
<td>Domain of the supplier ID.</td>
</tr>
</tbody>
</table>

Each travel booking provider can specify multiple SupplierID values. This capability enables a provider to use a single implementation to coordinate with various enterprise implementations that use different SupplierID domains. |

TermsAndConditions

Text descriptions of terms and conditions associated with a travel line item. For example, a car rental TermsAndConditions normally includes boundary limit, additional mileage charges, gasoline charges, and other restriction information. Multiple TermsAndConditions can be included in a single travel line item. TermsAndConditions has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Text description of terms and conditions. If TermsAndConditions is present, Description is required.</td>
</tr>
</tbody>
</table>

PolicyViolation

Line-item level policy violation that results from the user selecting this particular travel item. Policy violations are not associated at the header level to ensure clear identification of a violation with the appropriate line item.
**PolicyViolation** has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level</td>
<td>The level of the PolicyViolation: warning</td>
</tr>
<tr>
<td></td>
<td>warning - a non-serious violation</td>
</tr>
</tbody>
</table>

**PolicyViolation** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Description is a common free-text element, which provides a textual description of an element, such as PolicyViolation.</td>
</tr>
<tr>
<td>PolicyViolationJustification</td>
<td>Justification for this PolicyViolation. Typically, the user selects a PolicyViolationJustification from a standard list of justifications at the travel booking provider’s web site.</td>
</tr>
<tr>
<td>Comments</td>
<td>Additional comments to further clarify the PolicyViolationJustification, given by the user.</td>
</tr>
</tbody>
</table>

**Penalty**

Penalty (if any) for this travel segment. **Penalty** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>The penalty amount.</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description of the cause of the penalty. For example, a change fee associated with an air ticket.</td>
</tr>
</tbody>
</table>

**AvailablePrice**

The common **AvailablePrice** element describes other available prices that the user did not select.

**AvailablePrice** has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Description of the level of compliance with company policy.</td>
</tr>
</tbody>
</table>
Possible values for the `type` attribute of `AvailablePrice`:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lowest</td>
<td>Lowest price available regardless of the travel policies</td>
</tr>
<tr>
<td>lowestCompliant</td>
<td>Lowest price available that is compliant with travel policies</td>
</tr>
<tr>
<td>highestCompliant</td>
<td>Highest price available that is compliant with travel policies</td>
</tr>
<tr>
<td>highest</td>
<td>Highest price available regardless of the travel policies</td>
</tr>
<tr>
<td>other</td>
<td>Other, specify in the Description</td>
</tr>
</tbody>
</table>

`AvailablePrice` has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>The amount of an available price.</td>
</tr>
<tr>
<td>Description</td>
<td>A text description of an available price, including information on how the price was found or particular requirements for the price.</td>
</tr>
</tbody>
</table>

Rate

Defines the rate for a travel item. The following example shows a `Rate` element for a `CarRentalFee`:

```xml
<CarRentalFee type="baseRate">
  <Total>
    <Money currency="USD">215.99</Money>
  </Total>
  <Rate quantity="4">
    <Total>
      <Money currency="USD">119.96</Money>
    </Total>
    <UnitRate>
      <Money currency="USD">215.99</Money>
      <UnitOfMeasure>WEE</UnitOfMeasure>
    </UnitRate>
  </Rate>
</CarRentalFee type="baseRate">
```

Rate has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>The quantity for the rate. For example, a four-night stay at a hotel would be expressed as:</td>
</tr>
<tr>
<td></td>
<td><code>quantity = 4</code> UnitOfMeasure in UnitRate = DAY</td>
</tr>
</tbody>
</table>
Rate has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>The total amount for the rate. The total amount must equal to quantity x UnitRate. All Rate amounts for a line item must add up to the Total for that line item.</td>
</tr>
<tr>
<td>UnitRate</td>
<td>UnitRate defines the rate for a single unit according to the unit of measure. For example, a single nightly rate for a hotel room can be expressed with Money equal to the nightly rate amount and the UnitOfMeasure equal to DAY. The amount to be paid per unit (of time or other measure). In the case of multiple UnitRates (a rate schedule), use TermReference elements to distinguish them.</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description for the rate. For a hotel stay, the Description could contain “hotel nightly rate.”</td>
</tr>
</tbody>
</table>

**BookingClassCode**

BookingClassCode is a common element. When used in a travel line item, it indicates the class of the line item. For example, BookingClassCode is commonly used to convey frequent flyer information for air travel reservations.

Each buyer-travel booking provider pair can use any industry standard they choose. The following example shows a minimal BookingClassCode element:

```xml
<BookingClassCode code="W">  
  <Description xml:lang="en">Coach class</Description>  
</BookingClassCode>
```

For information on car rental codes, see “CarRentalDetail” [page 156].

BookingClassCode has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>The domain for this code, for example, IATA.</td>
</tr>
<tr>
<td>code</td>
<td>An industry standard code, or per agreement of buyer-travel booking provider pair.</td>
</tr>
</tbody>
</table>

BookingClassCode has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Contains a text description of the code.</td>
</tr>
</tbody>
</table>
**Airport**

The common **Airport** element, which contains the three-letter IATA airport code, is used in `AirLegOrigin`, `AirLegDestination`, `CarRentalPickup`, `CarRentalDropoff`, `HotelDetail`, `RailLegOrigin` and `RailLegDestination`.

**Airport** has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>airportCode</td>
<td>The three-letter IATA airport code.</td>
</tr>
<tr>
<td>(required)</td>
<td>For information on the International Air Transport Association (IATA) standard, see:</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.iata.org/hr/rdonlyres/3346f400-3450-48a6-a543-86a3921c23f7/0/xml_fuel_transaction_v202.pdf.">www.iata.org/hr/rdonlyres/3346f400-3450-48a6-a543-86a3921c23f7/0/xml_fuel_transaction_v202.pdf.</a></td>
</tr>
</tbody>
</table>

**Airport** has the following optional element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Provides the physical address of the airport.</td>
</tr>
</tbody>
</table>

**Meal**

The **Meal** element of an **AirLeg** can contain two optional, common elements: `BookingClassCode` and `Description`. The following example represents a heated vegetarian dinner for an **AirLeg**.

```
<Meal>
  <Description xml:lang="en">vegetarian dinner</Description>
  <BookingClassCode code="H"></BookingClassCode>
</Meal>
```

**Meal** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A text description of the meal, including any special needs such as vegetarian, gluten-free, or dairy-free.</td>
</tr>
</tbody>
</table>
The common **BookingClassCode** element is defined at [BookingClassCode](#page-150). Defines the code for the meal. For example, airlines typically use the following meal codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Breakfast</td>
</tr>
<tr>
<td>C</td>
<td>Complimentary liquor</td>
</tr>
<tr>
<td>D</td>
<td>Dinner</td>
</tr>
<tr>
<td>F</td>
<td>Food for purchase</td>
</tr>
<tr>
<td>G</td>
<td>Food and beverage for purchase</td>
</tr>
<tr>
<td>H</td>
<td>Hot meal</td>
</tr>
<tr>
<td>K</td>
<td>Continental breakfast</td>
</tr>
<tr>
<td>L</td>
<td>Lunch</td>
</tr>
<tr>
<td>M</td>
<td>Meal</td>
</tr>
<tr>
<td>N</td>
<td>No meal service</td>
</tr>
<tr>
<td>O</td>
<td>Cold meal</td>
</tr>
<tr>
<td>P</td>
<td>Liquor for purchase</td>
</tr>
<tr>
<td>R</td>
<td>Refreshments</td>
</tr>
<tr>
<td>S</td>
<td>Snack or brunch</td>
</tr>
<tr>
<td>V</td>
<td>Refreshments for purchase</td>
</tr>
</tbody>
</table>

### 7.2.2.13.1 AirDetail

The **AirDetail** element is a child of TravelDetail and provides information about an air trip. The following example shows the element declaration of **AirDetail** from `cXML.dtd`:

```xml
<!ELEMENT AirDetail (TripType, AirLeg+, AvailablePrice*, Penalty?)>
```

**AirDetail** has no attributes.

### TripType

**TripType** is a container for the `type` attribute, which is required in both **AirDetail** and **RailDetail** to indicate a round trip, one way, or multi-leg trip.
For example, a TripType for a round trip would appear as:

```
<TripType type="round"></TripType>
```

The TripType element has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>round: round trip</td>
</tr>
<tr>
<td></td>
<td>oneWay: one-way trip</td>
</tr>
<tr>
<td></td>
<td>multiLeg: multi-leg or open-jaw trip</td>
</tr>
</tbody>
</table>

**AirLeg**

Each AirDetail must include at least one AirLeg element.

The following example shows the element declaration of AirLeg from cXML.dtd:

```
<!ELEMENT AirLeg (Vendor, AirLegOrigin, AirLegDestination, BookingClassCode?, Rate?, Meal*)>
```

The AirLeg element provides detailed information about a trip that includes one or more airplane flights. The following example shows an AirLeg element for a one-way flight:

```
<AirLeg travelSegment="1"
  departureTime="2004-12-01T16:10:00-08:00"
  arrivalTime="2004-12-01T17:10:00-08:00"
  flightNumber="SW 990"
  seatNumber="20F"
  seatType="aisle"
  stops="0"
  equipment="Boeing 737">
  <Vendor preferred="no">
    <Address>
      ...
    </Address>
  </Vendor>
  <AirLegOrigin>
    <Airport airportCode="SFO">
      <Address>
        ...
      </Address>
    </Airport>
  </AirLegOrigin>
  <AirLegDestination>
    <Airport airportCode="BUR">
      <Address>
        ...
      </Address>
    </Airport>
  </AirLegDestination>
  <BookingClassCode code="W">
    <Description xml:lang="en">Coach class</Description>
  </BookingClassCode>
```
<Meal type="snack">
  <Description xml:lang="en">Vegetarian snack</Description>
</Meal>

AirLeg has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>travelSegment</td>
<td>Text description to identify this travel segment. This information is specific to the travel booking provider.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>departureTime</td>
<td>Local departure date and time for this air leg.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>arrivalTime</td>
<td>Local arrival date and time for this air leg.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>flightNumber</td>
<td>Flight number for this air leg.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>seatNumber</td>
<td>Seat number for this air leg.</td>
</tr>
<tr>
<td>seatType</td>
<td>Seat type: window, aisle, or middle</td>
</tr>
<tr>
<td>upgrade</td>
<td>Is this ticket an upgrade:</td>
</tr>
<tr>
<td>(required)</td>
<td>no (default), or yes</td>
</tr>
<tr>
<td>stops</td>
<td>The number of stop for this air leg. Use a numeral for the number of stops, or '0' (zero) for a direct flight. If no numeral is entered, '0' (zero) is implied.</td>
</tr>
<tr>
<td>equipment</td>
<td>The plane equipment information for this air leg. For example, the model of airplane used.</td>
</tr>
</tbody>
</table>

AirLeg has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor</td>
<td>The common Vendor element, which provides information about the vendor of a service, is defined at Vendor [page 146].</td>
</tr>
</tbody>
</table>
AirLegOrigin and AirLegDestination have the following child element:

- **Airport**
  The common Airport element, which contains the three-letter IATA airport code in the airportCode attribute, and an optional Address element, is defined at Airport [page 151].
  For information on the International Air Transport Association (IATA) standard, see: www.iata.org/codes.

  The following example shows a detailed AirLeg for a flight from San Francisco to Miami.

  ```xml
  <AirLegOrigin>
    <Airport airportCode="SFO">
      <Address>
        <Name xml:lang="en">San Francisco International Airport</Name>
        <PostalAddress>
          <Street>San Francisco International Airport</Street>
          <City>San Francisco</City>
          <State>CA</State>
          <PostalCode>94128</PostalCode>
          <Country>
        </PostalAddress>
      </Address>
    </Airport>
  </AirLegOrigin>
  <AirLegDestination>
    <Airport airportCode="MIA">
      <Address>
        <Name xml:lang="en">Miami International Airport</Name>
        <PostalAddress>
          <Street>4200 NW 21 Street</Street>
          <City>Miami</City>
          <State>FL</State>
          <PostalCode>33122</PostalCode>
          <Country>
        </PostalAddress>
      </Address>
    </Airport>
  </AirLegDestination>
  ```

- **BookingClassCode**
  The common BookingClassCode element is defined at BookingClassCode [page 150]. The BookingClassCode element of an AirLeg defines the class of travel for the AirLeg according to the de-facto airline standard. The following table shows sample IATA codes:

<table>
<thead>
<tr>
<th>IATA Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F, FN, P, R, A</td>
<td>first class</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>IATA Codes</td>
<td>Description</td>
</tr>
<tr>
<td>C, CN, D, J, I, Z</td>
<td>business class</td>
</tr>
<tr>
<td>Y, YN, B, BN, M, H, V, VN, O, Q, QN, S, K, KN, L, U, T, W</td>
<td>coach class</td>
</tr>
</tbody>
</table>

The sample codes are not guaranteed to be accurate or current. For information on the International Air Transport Association (IATA) standard, see: [www.iata.org/codes](http://www.iata.org/codes).

**BookingClassCode** has the following elements:
- **Rate**
  The common Rate element is defined at [Rate](page 149). The total of all specified AirLeg rates must equal the line item total.
- **Meal**
  The common Meal element, which describes one meal in a travel line item, is defined at [Meal](page 151).

**AvailablePrice**

The optional, common AvailablePrice element, which defines available prices that the user did not select, is defined at [AvailablePrice](page 148). The AvailablePrice element of AirDetail defines available price information for a single-leg, multi-leg, or round trip.

**Penalty**

The common Penalty element, which describes extra charges assessed by vendors for user changes to travel line items, is defined at [Penalty](page 148). The Penalty element of an AirLeg describes extra charges for changes to, or cancellation of, an air travel reservation.

**7.2.2.13.2 CarRentalDetail**

CarRentalDetail is a child of TravelDetail and provides information about a single car rental event.

The following example shows the element declaration of CarRentalDetail from cXML.dtd:

```xml
<!ELEMENT CarRentalDetail (Vendor, CarRentalPickup, CarRentalDropoff, BookingClassCode?, CarRentalFee+, LimitedMileage?,)
```
CarRentalDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>travelSegment</td>
<td>Text description used to identify this travel segment. The description is specific to the travel booking provider.</td>
</tr>
<tr>
<td>pickupTime</td>
<td>Intended local pickup date and time.</td>
</tr>
<tr>
<td>dropoffTime</td>
<td>Intended local drop-off date and time.</td>
</tr>
</tbody>
</table>

Vendor

The common Vendor element, which provides information about the vendor of a service, is defined at Vendor [page 146].

CarRentalPickup / CarRentalDropoff

These elements contain the addresses of the CarRentalPickup and CarRentalDropoff entities on the CarRentalDetail. Both CarRentalPickup and CarRentalDropoff require the common Airport element, which specifies the airport location.

BookingClassCode

A four-letter code, which indicates the rental car class. Each buyer-travel booking provider pair can use the standard they choose. For example, a common U.S. standard for car rental:

<table>
<thead>
<tr>
<th>1st Letter</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>(Mini)</td>
</tr>
<tr>
<td>E</td>
<td>(Economy)</td>
</tr>
<tr>
<td>C</td>
<td>(Compact)</td>
</tr>
<tr>
<td>S</td>
<td>(Standard)</td>
</tr>
<tr>
<td>I</td>
<td>(Intermediate)</td>
</tr>
<tr>
<td>F</td>
<td>(Full size)</td>
</tr>
<tr>
<td>P</td>
<td>(Premium)</td>
</tr>
<tr>
<td>L</td>
<td>(Luxury)</td>
</tr>
<tr>
<td>V</td>
<td>(MiniVan)</td>
</tr>
<tr>
<td>X</td>
<td>(Special)</td>
</tr>
</tbody>
</table>
CarRentalFee

CarRentalFee defines the actual charges and fees that apply to this car rental. To capture the breakdown of various fees, use multiple CarRentalFee elements within one CarRentalDetail element. The total of these fees must add up to the total at the line item level.

**Note**
Use TermsAndConditions text to specify conditional charges for items such as extra mileage that are over the mileage limit.

CarRentalFee has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>The type of fee, expressed in the form “baseRate”.</td>
</tr>
</tbody>
</table>

Possible values for the type of a CarRentalFee are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>additionalDriver</td>
<td>Additional driver fee</td>
</tr>
<tr>
<td>airportAccessFee</td>
<td>Airport access fee</td>
</tr>
<tr>
<td>baseRate</td>
<td>Base rental rate</td>
</tr>
<tr>
<td>childSeat</td>
<td>Child seat charge</td>
</tr>
<tr>
<td>collisionDamageInsurance</td>
<td>Collision damage insurance</td>
</tr>
<tr>
<td>dropOffCharge</td>
<td>Drop off charge</td>
</tr>
<tr>
<td>liabilityInsurance</td>
<td>Liability insurance</td>
</tr>
<tr>
<td>luggageRack</td>
<td>Luggage rack charge</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>mobilePhone</td>
<td>Mobile phone base charge</td>
</tr>
<tr>
<td>navigationSystem</td>
<td>Navigation system</td>
</tr>
<tr>
<td>other</td>
<td>Other charges</td>
</tr>
<tr>
<td>prepaidGasoline</td>
<td>Prepaid gasoline charge</td>
</tr>
<tr>
<td>touristTax</td>
<td>Tourist tax</td>
</tr>
<tr>
<td>vehicleLicensingFee</td>
<td>Vehicle licensing fee</td>
</tr>
</tbody>
</table>

CarRentalFee has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total amount for this CarRentalFee. All Rate amounts for a line item must add up to the Total for that line item.</td>
</tr>
<tr>
<td>Rate</td>
<td>Fee information for individual charges for this CarRentalFee.</td>
</tr>
</tbody>
</table>

**LimitedMileage**

LimitedMileage specifies the quantity and unit of measure of the mileage limit.

**LimitedMileage** has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>The mileage limit amount, expressed as a numeral.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

**LimitedMileage** has one element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>Unit of measure, expressed in miles or kilometers. See UnitOfMeasure [page 43].</td>
</tr>
</tbody>
</table>

**AvailablePrice**

The optional, common AvailablePrice element, which defines available prices that the user did not select, is defined at AvailablePrice [page 148].
### 7.2.2.13.3 HotelDetail

HotelDetail is a child of TravelDetail. The following example shows the element declaration of HotelDetail from cXML.dtd:

```xml
<!ELEMENT HotelDetail (Vendor, Address, RoomType, BookingClassCode?, Meal*, Rate*, AvailablePrice*)>
```

HotelDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>travelSegment</code></td>
<td>Text information to identify this travel segment. This information is specific to the travel booking provider.</td>
</tr>
<tr>
<td><code>arrivalTime</code></td>
<td>Local date and time of arrival at the hotel. This is used as an advisory to the hotel vendor for the arrival time.</td>
</tr>
<tr>
<td><code>departureTime</code></td>
<td>Local date and time of departure from the hotel. This is an advisory to the hotel vendor for the departure time.</td>
</tr>
<tr>
<td><code>checkinTime</code></td>
<td>Local official hotel checkin time.</td>
</tr>
<tr>
<td><code>checkoutTime</code></td>
<td>Local official hotel checkout time.</td>
</tr>
<tr>
<td><code>earlyCheckinAllowed</code></td>
<td>Does the hotel allow early checkin?</td>
</tr>
<tr>
<td></td>
<td>no, or yes (default).</td>
</tr>
<tr>
<td><code>lateCheckoutAllowed</code></td>
<td>Does the hotel allow late checkout?</td>
</tr>
<tr>
<td></td>
<td>no, or yes (default)</td>
</tr>
</tbody>
</table>

### Vendor

The common `Vendor` element, which provides information about the vendor of a service, is defined at `Vendor` [page 146]. For HotelDetail, the `Vendor` element defines the hotel provider.

### Address

Physical address of the hotel. This might be different from the address specified in the `Vendor` field. The `Address` in `Vendor` might be the address of the hotel’s corporate headquarters, for example, while the `Address` in `HotelDetail` would be the address of the individual hotel.
**RoomType**

Information about the type of hotel room reserved.

**RoomType** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>smoking</td>
<td>Smoking or non-smoking room: yes</td>
</tr>
<tr>
<td>numberOfBed</td>
<td>The number of beds in the room.</td>
</tr>
<tr>
<td>bedType</td>
<td>The type of bed in the room: king</td>
</tr>
</tbody>
</table>

**RoomType** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Text description of the hotel room.</td>
</tr>
<tr>
<td>Amenities</td>
<td>Text description of amenities. For example, DSL connection, two telephone lines, and other information about a hotel room. Amenities has no attributes. It has one element:</td>
</tr>
<tr>
<td></td>
<td>• Description</td>
</tr>
<tr>
<td></td>
<td>• Text description of the amenities. For example, DSL connection, two telephone lines, and other information about the hotel room.</td>
</tr>
</tbody>
</table>

**BookingClassCode**

The common **BookingClassCode** element is defined at [BookingClassCode][150]. Each buyer-travel booking provider pair can use any standard they choose.

**Meal**

The common **Meal** element is defined at [Meal][151]. The Meal element of HotelDetail defines any complimentary meals that are included with the room, such as complimentary continental breakfast.

**Rate**

The common **Rate** element is defined at [Rate][149]. The Rate element of HotelDetail defines one or more rates for the hotel stay. For example, the nightly rate or valet parking rate.
AvailablePrice

The common AvailablePrice element is defined at AvailablePrice [page 148]. The AvailablePrice element of HotelDetail defines other available prices that the user did not pick. Available prices can be from the same vendor or another vendor.

### 7.2.2.13.4 RailDetail

The following example shows the element declaration of RailDetail from cXML.dtd:

```xml
<!ELEMENT RailDetail (TripType, RailLeg+, AvailablePrice*, Penalty?)>
```

RailDetail has no attributes.

### TripType

TripType is a container for the type attribute, which is required in both AirDetail and RailDetail. The TripType element defines a round trip, one way, or multi-leg trip.

For example, a TripType for a round trip would appear as:

```xml
<TripType type="round"></TripType>
```

Possible values for the type attribute of TripType:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>round</td>
<td>round trip</td>
</tr>
<tr>
<td>oneWay</td>
<td>one-way trip</td>
</tr>
<tr>
<td>multiLeg</td>
<td>multi-leg or open-jaw trip</td>
</tr>
</tbody>
</table>

### RailLeg

One or more RailLeg elements that make up this RailDetail. Each RailDetail must include at least one RailLeg.

The following example shows the element declaration of RailLeg from the DTD:

```xml
<!ELEMENT RailLeg (Vendor, RailLegOrigin, RailLegDestination, 
```

```xml
```
RailLeg has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>travelSegment</td>
<td>Text information to identify this travel segment. This information is specific to the travel booking provider.</td>
</tr>
<tr>
<td>departureTime</td>
<td>Local date and time of departure from the originating location.</td>
</tr>
<tr>
<td>arrivalTime</td>
<td>Local date and time of arrival at the destination location.</td>
</tr>
<tr>
<td>trainNumber</td>
<td>Train number.</td>
</tr>
<tr>
<td>seatNumber</td>
<td>Seat number.</td>
</tr>
<tr>
<td>carType</td>
<td>The type of the rail car.</td>
</tr>
</tbody>
</table>

**Vendor**

The common Vendor element, which provides information about the vendor of a service, is defined at Vendor [page 146]. For RailLeg, the Vendor element defines the rail travel provider, such as Amtrak.

**RailLegOrigin / RailLegDestination**

RailLegOrigin and RailLegDestination have two possible elements, of which exactly one must be included:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport</td>
<td>The common Airport element, which contains the three-letter IATA airport code in the airportCode attribute, and an optional Address element, is defined at Airport [page 151]. For information on the International Air Transport Association (IATA) standard, see: <a href="http://www.iata.org/codes">www.iata.org/codes</a>.</td>
</tr>
<tr>
<td>Address</td>
<td>The physical address of the rail station.</td>
</tr>
</tbody>
</table>

Neither RailLegOrigin nor RailLegDestination has any attributes.
**BookingClassCode**

The common BookingClassCode element is defined at BookingClassCode [page 150]. The BookingClassCode element of a RailLeg element defines the class of travel for the RailLeg according to a rail standard agreed upon by the buyer-travel booking provider pair.

**Rate**

The common Rate element is defined at Rate [page 149]. Rate information for this rail leg. If specified, all the rates in all rail legs must add up to the total at the travel line item level.

**Meal**

The common Meal element is defined at Meal [page 151]. The Meal element of HotelDetail defines any complimentary meals that are included with the room, such as complimentary continental breakfast.

**AvailablePrice**

The common AvailablePrice element is defined at AvailablePrice [page 148]. The AvailablePrice element of RailDetail defines other available prices that the user did not pick. Available prices can be from the same vendor or another vendor.

**Penalty**

The common Penalty element, which describes extra charges assessed by vendors for user changes to travel line items, is defined at Penalty [page 148]. The Penalty element of RailLeg defines extra charges for changes to, or cancellation of, a rail travel reservation.

### 7.2.2.14 Tolerances

This is an optional element and allows buyers to specify line item quantity tolerance for individual purchase orders or different line items in a purchase order they send from their order management system. The tolerances specified in the purchase order are applied when a supplier creates ship notices and invoices against the purchase order.
**QuantityTolerance**

The quantity tolerance for a line item. This element has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>The percentage for the quantity tolerance.</td>
</tr>
<tr>
<td>Value</td>
<td>The quantity number for the quantity tolerance. You can specify one these elements in the QuantityTolerance element.</td>
</tr>
</tbody>
</table>

**PriceTolerance**

The price tolerance for a line item. This element has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>The percentage for the price tolerance.</td>
</tr>
<tr>
<td>Money</td>
<td>The amount and currency for the price tolerance. You can specify one these elements in the PriceTolerance element.</td>
</tr>
</tbody>
</table>

**TimeTolerance**

The time tolerance for a line item. It defines a certain amount of time used to check if a concrete delivery date is within the tolerance regarding the requested delivery date. TimeTolerance has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>limit</td>
<td>Specifies the time tolerance limit. (required)</td>
</tr>
<tr>
<td>type</td>
<td>Specifies the type of time limit. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• minutes</td>
</tr>
<tr>
<td></td>
<td>• hours</td>
</tr>
<tr>
<td></td>
<td>• days (default)</td>
</tr>
<tr>
<td></td>
<td>• weeks</td>
</tr>
</tbody>
</table>

**7.2.2.15 ControlKeys**

Provides elements that allow you to override default business rules for order confirmations, ship notices, service sheets, and invoices. See ControlKeys [page 120].
Here is an example of the ControlKeys element used in the ItemOut element:

```xml
<ItemOut lineNumber="1" quantity="2" requestedDeliveryDate="2015-12-31">
  ...
  <ControlKeys>
    <InvoiceInstruction value="notAllowed"/>
    <SESInstruction value="notAllowed"/>
  </ControlKeys>
</ItemOut>
```

7.2.2.16 ScheduleLine

ScheduleLine contains information related to delivery schedules for a line item. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Quantity of items to be shipped.</td>
</tr>
<tr>
<td>requestedDeliveryDate (required)</td>
<td>Date that the specified quantity is expected to be delivered.</td>
</tr>
<tr>
<td>deliveryWindow</td>
<td>Duration of time in which the quantity is expected to be delivered.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>A line number can be added as a line identifier for a specific schedule line.</td>
</tr>
<tr>
<td>requestedShipmentDate</td>
<td>The ship date requested by the buyer for the item.</td>
</tr>
<tr>
<td>originalRequestedDeliveryDate</td>
<td>The original date that the specified quantity is expected to be delivered.</td>
</tr>
<tr>
<td></td>
<td>This date is not subject to changes.</td>
</tr>
</tbody>
</table>

ScheduleLine has the following elements:

**UnitOfMeasure**

The UnitOfMeasure for the specified quantity of the line item.

**ScheduleLineReleaseInfo**

The ScheduleLineReleaseInfo element stores details about a specific release of items or materials for a schedule line.
ScheduleLineReleaseInfo contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| commitmentCode (required)      | A string value to identify the type of the delivery. Possible values:
|                                | - *firm*—Go-ahead for production. Vendor can ship against the schedule line. Customer is responsible for cost of production as well as cost of material procurement. |
|                                | - *tradeoff*—Go-ahead for material procurement. Vendor can ship against the schedule line if rule is enabled. Buyer is responsible for cost of material procurement. |
|                                | - *forecast*—Informational. Customer can change the schedule line without incurring any liabilities with the vendor. |
| cumulativeScheduledQuantity    | Total quantity to be shipped for a particular line item up through the schedule line.                |
| (required)                     |                                                                                                       |
| receivedQuantity               | Quantity received against the Schedule line of the order or the Scheduling Agreement line item based on the Goods Receipt posted in an external system, such as an ERP. The quantity is informational only and is used as visibility for suppliers. It is not validated for invoice or shipment processing. |

SubcontractingComponent

Contains detailed information about a subcontracting component, which is used to manufacture the finished goods. For example, it could contain an ID, a description, a buyer’s product ID, a quantity, or the date required.

SubcontractingComponent has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Quantity of the subcontracting component required to produce the finished goods in a unit of measurement.</td>
</tr>
<tr>
<td>requirementDate</td>
<td>The date on which the requested quantity of subcontracting component is required.</td>
</tr>
<tr>
<td>materialProvisionIndicator</td>
<td>The material provision indicator used to identify the subcontracting type of a part for the components. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>- <em>reworkTo</em>—Rework material to subcontractor.</td>
</tr>
<tr>
<td></td>
<td>- <em>reworkFrom</em>—Rework material from subcontractor.</td>
</tr>
<tr>
<td></td>
<td>- <em>regular</em>—Vendor provides stock.</td>
</tr>
</tbody>
</table>

SubcontractingComponent has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ComponentID</td>
<td>An identifier for a subcontracting component within the procurement process.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>Unit of measure code.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of subcontracting component</td>
</tr>
<tr>
<td>Product</td>
<td>Information about the subcontracting component, such as buyer product ID, supplier product ID, standard product ID, or internal product ID.</td>
</tr>
<tr>
<td>ProductRevisionID</td>
<td>An identifier that is assigned when changes are made to component.</td>
</tr>
<tr>
<td>Batch</td>
<td>An element carrying a batch information for material or goods produced in a single manufacturing run, such as buyer/supplier batch ID, production date, and property valuation.</td>
</tr>
</tbody>
</table>

**ShipTo**

The ship to address for the line item.

**Extrinsic**

Alternately, use the Extrinsic element list to insert additional data about the ScheduleLine element.

**7.2.2.17 MasterAgreementReference**

An optional field. Can contain a reference to the master agreement from which the release is derived.

**7.2.2.18 MasterAgreementIDInfo**

An optional field. Can contain the ID of the master agreement from which the release is derived.
7.2.2.19 ItemOutIndustry

This element contains the industry-specific information. This is an optional element, and it has the following optional attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>planningType</td>
<td>Specifies the planning strategy. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>● MTO—Make to Order</td>
</tr>
<tr>
<td></td>
<td>● MTS—Make to Stock</td>
</tr>
<tr>
<td></td>
<td>● ATO—Assemble to Order</td>
</tr>
<tr>
<td></td>
<td>● CTO—Configure to Order</td>
</tr>
<tr>
<td>requiresRealTimeConsumption</td>
<td>Set to yes to indicate that real time consumption is required for this item.</td>
</tr>
<tr>
<td>isHUMandatory</td>
<td>Set to yes to indicate that a handling unit is required for this item. A handling unit is a physical unit consisting of packaging materials (load carriers/packing material) and the goods contained on or in it.</td>
</tr>
</tbody>
</table>

ItemOutIndustry has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemOutRetail</td>
<td>Contains the retail industry item-specific information. This is an optional element.</td>
</tr>
<tr>
<td></td>
<td>ItemOutRetail has the following elements:</td>
</tr>
<tr>
<td></td>
<td>● PromotionVariantID</td>
</tr>
<tr>
<td></td>
<td>Specifies a specific ID if only one or some variants of an article are promoted.</td>
</tr>
<tr>
<td></td>
<td>Product variant is a specific code that specifies the characteristic of a product (color, shape, and so on). This is an optional element.</td>
</tr>
<tr>
<td></td>
<td>● PromotionalDealID</td>
</tr>
<tr>
<td></td>
<td>Specifies an ID assigned by a supplier related to a promotional activity. Promotions affect the forward planning/ordering process (and the related pricing). This is an optional element.</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Contains information about a referenced document. This is an optional element, and it can occur multiple times. See ReferenceDocumentInfo [page 128].</td>
</tr>
</tbody>
</table>
**Priority**

Indicates the priority of orders for the suppliers. This is an optional element. It has a Description element, which describes the priority.

**Priority** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level</td>
<td>Specifies the priority level, an integer from 1 to 5. (required)</td>
</tr>
<tr>
<td>sequence</td>
<td>A unique secondary order number for prioritizing items with the same priority level. Two items with the same priority level are not allowed to have the same sequence number.</td>
</tr>
<tr>
<td>inventory_level</td>
<td>Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.</td>
</tr>
</tbody>
</table>

**QualityInfo**

Represents the quality information requirements for a line item. See [QualityInfo](page 171).

**SerialNumberInfo**

Represents the serial number information of a line item. See [SerialNumberInfo](page 172).

**BatchInfo**

Controls whether batch information is required or not for an item when a supplier creates an order response. See [BatchInfo](page 174).

**AssetInfo**

Provides detailed per-unit asset information for a line item. See [AssetInfo](page 313).

The following example shows an ItemOutIndustry element:

```xml
<ItemOutIndustry planningType="MTO" requiresRealTimeConsumption="yes" isHUMandatory="yes">
  <QualityInfo requiresQualityProcess="yes">
    <IdReference identifier="001" domain="controlCode">
      <Description xml:lang="en-US">Control Code description</Description>
    </IdReference>
    <IdReference identifier="CERT123" domain="certificateType">
      <Description xml:lang="en-US">Certificate Type description</Description>
    </IdReference>
  </QualityInfo>
  <SerialNumberInfo requiresSerialNumber="yes" type="list">
    <SerialNumber>3482918</SerialNumber>
    <SerialNumber>3123333</SerialNumber>
    <SerialNumber>5423325</SerialNumber>
  </SerialNumberInfo>
  <AssetInfo isReferencedAsset="no" equipmentId="SU234234234" location="Sunnyvale" serialNumber="SER12345" tagNumber="TAG67890">
  </AssetInfo>
</ItemOutIndustry>
```
### 7.2.2.19.1 QualityInfo

The `QualityInfo` element represents the quality information requirements for a line item.

**QualityInfo** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requiresQualityProcess</td>
<td>Set to <code>yes</code> to indicate that this item requires a quality process.</td>
</tr>
</tbody>
</table>

**QualityInfo** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>IdReference contains quality material control code and inspection certificate type information for the line item. For quality material control code, the domain is &quot;controlCode&quot;. For inspection certificate type, the domain is &quot;certificateType&quot;. Use <code>CertificateInfo</code> to send certificate information. Here you can declare a certificate as optional or mandatory. Each element supports one certificate.</td>
</tr>
</tbody>
</table>
| CertificateInfo| **Mandatory certificate** -->
|               | <CertificateInfo isRequired="yes">                                                                                                         |
|               |   <IdReference domain="certificateType" identifier="CERT123">                                                                           |
|               |     <Description xml:lang="en-US">Certificate Type description CERT123</Description>                                                   |
|               | </IdReference>                                                                                                                             |
|               | **Optional certificate** -->                                                                                                             |
|               | <CertificateInfo>                                                                                                                         |
|               |   <IdReference domain="certificateType" identifier="CERT456">                                                                           |
|               |     <Description xml:lang="en-US">Certificate Type description CERT456</Description>                                                    |
|               | </IdReference>                                                                                                                             |

The following example shows a `QualityInfo` element using an `IdReference`:

```xml
<ItemOutIndustry>
  <QualityInfo requiresQualityProcess="yes">
    <IdReference identifier="001" domain="controlCode">
      <Description xml:lang="en-US">Control Code description</Description>
    </IdReference>
    <IdReference identifier="CERT123" domain="certificateType">
      <Description xml:lang="en-US">Certificate Type description</Description>
    </IdReference>
  </QualityInfo>
</ItemOutIndustry>
```

Here is another example showing a `QualityInfo` element with one required certificate and one optional certificate:

```xml
<ItemOutIndustry>
  <QualityInfo requiresQualityProcess="yes">
    <!-- Mandatory certificate -->
    <CertificateInfo isRequired="yes">
      <IdReference domain="certificateType" identifier="CERT123">
        <Description xml:lang="en-US">Certificate Type description CERT123</Description>
      </IdReference>
    </CertificateInfo>
    <!-- Optional certificate -->
    <CertificateInfo>
      <IdReference domain="certificateType" identifier="CERT456">
        <Description xml:lang="en-US">Certificate Type description CERT456</Description>
      </IdReference>
    </CertificateInfo>
  </QualityInfo>
</ItemOutIndustry>
```
7.2.2.19.1.1 CertificateInfo

The CertificateInfo element represents certificate information. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isRequired</td>
<td>Indicates whether the certificate is required.</td>
</tr>
</tbody>
</table>

CertificateInfo has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>Use this element to send Quality Material Control Code and Inspection Certificate type information. For Quality Material Control Code, the domain is &quot;controlCode&quot;. For Inspection Certificate type, the domain is &quot;certificateType&quot;.</td>
</tr>
</tbody>
</table>

7.2.2.19.2 SerialNumberInfo

Represents the serial number information of a line item.

SerialNumberInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requiresSerialNumber</td>
<td>Indicates whether this item requires a serial number to be provided by the supplier in AssetInfo tags in ShipNoticeItem element of the corresponding ship notice.</td>
</tr>
<tr>
<td>type</td>
<td>Specifies the type of serial number number. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• list—A list of acceptable serial numbers.</td>
</tr>
<tr>
<td></td>
<td>• range—A range of acceptable serial numbers, only valid for numeric ranges.</td>
</tr>
<tr>
<td></td>
<td>• profile—A format of acceptable serial numbers.</td>
</tr>
</tbody>
</table>

SerialNumberInfo has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SerialNumber</td>
<td>List of serial numbers. Required when SerialNumberInfo@type is &quot;list&quot;.</td>
</tr>
</tbody>
</table>
When SerialNumberInfo@type is "range", minimum and maximum acceptable limits should be provided in the PropertyValue element. In this case, PropertyValue@name should be "range" and PropertyValue@Characteristic should provide the minimum and maximum values in the Characteristic@value attribute with "minimum" and "maximum" as domains in the Characteristic@domain attribute.

When SerialNumberInfo@type is "profile", a serial number format should be provided in the PropertyValue element. In this case, PropertyValue@name should be "profile" and PropertyValue@Characteristic should provide the format. Characteristic@domain supports "type", "minLength", and "maxLength" as domains to provide these values in Characteristic@value attribute.

When Characteristic@domain is "type", Characteristic@value supports "numeric", "text", and "numericAndText" to provide the serial number format.

When Characteristic@domain is "minLength", Characteristic@value provides the minimum acceptable length of the serial number.

When Characteristic@domain is "maxLength", Characteristic@value provides the maximum acceptable length of the serial number.

The following example shows serial numbers specified as a list:

```xml
<SerialNumberInfo requiresSerialNumber="yes" type="list">
  <SerialNumber>3482918</SerialNumber>
  <SerialNumber>3123333</SerialNumber>
  <SerialNumber>5423325</SerialNumber>
</SerialNumberInfo>
```

The following example shows serial numbers specified as a range (from 100,000 to 200,000):

```xml
<SerialNumberInfo requiresSerialNumber="yes" type="range">
  <PropertyValue name="range">
    <Characteristic domain = "minimum" value="100000"/>
    <Characteristic domain = "maximum" value="200000"/>
  </PropertyValue>
</SerialNumberInfo>
```

The following example shows serial numbers specified as a profile (3 to 10 numeric characters):

```xml
<SerialNumberInfo requiresSerialNumber="yes" type="profile">
  <PropertyValue name="profile">
    <Characteristic domain = "type" value="numeric"/>
    <Characteristic domain = "minLength" value="3"/>
    <Characteristic domain = "maxLength" value="10"/>
  </PropertyValue>
</SerialNumberInfo>
```
### 7.2.2.19.3 BatchInfo

Controls whether batch information is required or not for an item when a supplier creates an order response. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requiresBatch</td>
<td>Set to yes to indicate that this item requires a batch number to be provided by the supplier in the Batch element in the ShipNoticeItem/ConfirmationStatus element of the corresponding ShipNoticeRequest/ConfirmationRequest documents.</td>
</tr>
</tbody>
</table>

### 7.2.2.20 Packaging

Specifies the details about the packaging of the line item.

Packaging has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PackagingCode, Dimension (required)</td>
<td>PackagingCode specifies the unique ID of packaging material (box, container, pallet, rack). See PackagingCode [page 176].</td>
</tr>
<tr>
<td>Dimension</td>
<td>Dimension specifies a single dimension for the packaging of the item. See Dimension [page 176].</td>
</tr>
<tr>
<td>Description</td>
<td>Provides a description of the package.</td>
</tr>
<tr>
<td>PackagingLevelCode</td>
<td>Specifies the level for packages (for example, inner, outer, intermediate). This qualifies the packing level within the packing hierarchy, and is of particular importance for the buyer side in order to plan unloading and storage accordingly.</td>
</tr>
<tr>
<td>PackageTypeCode-IdentifierCode</td>
<td>Specifies the unique ID of packaging material (box, container, pallet, rack). This field describes the type of packaging and is relevant to the receiver (buyer) during unloading and storage. The package type in many cases also defines the maximum load or weight of articles.</td>
</tr>
<tr>
<td>ShippingContainer-SerialCode</td>
<td>The serial number of a package that helps to identify a package during transportation and inventory.</td>
</tr>
<tr>
<td>ShippingContainer-SerialCodeReference</td>
<td>Contains the reference from a package shipping code to the shipping code of the next higher package level.</td>
</tr>
<tr>
<td>PackageID</td>
<td>Contains package-related IDs. See PackageID [page 177].</td>
</tr>
<tr>
<td>ShippingMark</td>
<td>Specifies the shipping marks. This field is often used in industries where packaging proposals and packaging hierarchy are driven from the logistic backend system. This field is typically used to specify special signing or handling instructions.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>OrderedQuantity</td>
<td>Specifies the number of items/products for a given line item in a purchase order. See OrderedQuantity [page 177].</td>
</tr>
<tr>
<td>DispatchQuantity</td>
<td>Specifies the delivered quantity (compared to the ordered quantity). See DispatchQuantity [page 178].</td>
</tr>
<tr>
<td>FreeGoodsQuantity</td>
<td>Specifies the quantity that will be delivered without any cost to the buyer. See FreeGoodsQuantity [page 178].</td>
</tr>
<tr>
<td>QuantityVarianceNote</td>
<td>Specifies detailed information about partial delivery. This element can be used to specify a line item having different measurements. For example, 1 lot = 500 pieces.</td>
</tr>
<tr>
<td>BestBeforeDate</td>
<td>Specifies the date after which the item/goods begin to lose quality. This can be used to indicate best before date for all goods related to food, drugs, chemicals, and so on. This element has a required date attribute.</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Contains information for the asset referenced by the packaging. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this Packaging element.</td>
</tr>
</tbody>
</table>

Here is an example of Packaging:

```xml
<Packaging>
  <PackagingCode xml:lang="eu-US"/>
  <Dimension quantity="5.35" type="length">
    <UnitOfMeasure>in</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="5.35" type="height">
    <UnitOfMeasure>in</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="3.35" type="width">
    <UnitOfMeasure>in</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="20.0" type="volume">
    <UnitOfMeasure>mm</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="35.35" type="grossWeight">
    <UnitOfMeasure>kg</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="40.35" type="unitNetWeight">
    <UnitOfMeasure>kg</UnitOfMeasure>
  </Dimension>
  <Description type="Package" xml:lang="eu-US">Pallet Desc2</Description>
  <PackagingLevelCode>1</PackagingLevelCode>
  <PackageTypeCodeIdentifierCode>Pallet2</PackageTypeCodeIdentifierCode>
  <ShippingContainerSerialCode>HU0000000097ASN</ShippingContainerSerialCode>
  <PackageID/>
  <OrderedQuantity quantity="27.0">
    <UnitOfMeasure>CT</UnitOfMeasure>
  </OrderedQuantity>
  <DispatchQuantity quantity="1.0">
    <UnitOfMeasure>CT</UnitOfMeasure>
  </DispatchQuantity>
  <AssetInfo tagNumber="asset1" serialNumber="0000001"/>
</Packaging>
```
PackagingCode

Specifies the unique ID of packaging material (box, container, pallet, rack). This field describes the type of packaging and is relevant to the receiver (buyer) during unloading and storage. The package type in many cases also defines the maximum load or weight of articles. This is a mandatory field.

Each PackagingCode must contain a single string corresponding to the packaging for this item. When multiple PackagingCode are used, they must all describe the same packaging in different languages or locales. Two PackagingCode elements cannot have the same xml:lang attribute.

If the PackagingCode is specified, then the Dimension element is optional. But if the PackagingCode element is not specified, then the Dimension element is required.

PackagingCode has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xml:lang</td>
<td>Specifies one language-specific code for the packaging of the item. Values such as &quot;pallet&quot;, &quot;skid&quot;, and &quot;truck load&quot; might be appropriate for an English-based locale. The xml:lang attribute specifies the language or locale in which the PackagingCode content is written.</td>
</tr>
</tbody>
</table>

Dimension

Specifies a single dimension for the packaging of the item. It also can be used to define item dimensions.

Dimension has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>Specifies the size in this dimension. Expressed in the units given in the UnitOfMeasure element.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>type (required)</td>
<td>Type of dimension. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- length—The length of the packaging or item.</td>
</tr>
<tr>
<td></td>
<td>- width—The width of the packaging or item.</td>
</tr>
<tr>
<td></td>
<td>- height—The height of the packaging or item.</td>
</tr>
<tr>
<td></td>
<td>- weight—The weight or net weight of the packaging or item.</td>
</tr>
<tr>
<td></td>
<td>- volume—The volume or net volume of the packaging or item.</td>
</tr>
<tr>
<td></td>
<td>- stackHeight—The stack height of the packaging. This indicates total</td>
</tr>
<tr>
<td></td>
<td>height of the stacked packages.</td>
</tr>
<tr>
<td></td>
<td>- grossWeight—The gross weight is the total weight including packaging.</td>
</tr>
<tr>
<td></td>
<td>- grossVolume—The total volume, including packaging.</td>
</tr>
<tr>
<td></td>
<td>- unitGrossWeight—The gross weight per unit of the item.</td>
</tr>
<tr>
<td></td>
<td>- unitNetWeight—The net weight per unit of the item.</td>
</tr>
</tbody>
</table>

**Dimension** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>See UnitOfMeasure [page 43].</td>
</tr>
</tbody>
</table>

**PackageID**

Package-related IDs.

**PackageID** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GlobalIndividualAssetID</td>
<td>Unique ID for a package. Global Individual Asset Identifier (GIAI) is part of the GS1 system of standards. It is used to identify the ownership of fixed assets.</td>
</tr>
<tr>
<td>ReturnablePackageID</td>
<td>Specifies an ID that facilitates the return of a package to the supplier.</td>
</tr>
<tr>
<td>PackageTrackingID</td>
<td>Specifies additional information to track packages based on the supplier’s internal numbering scheme.</td>
</tr>
</tbody>
</table>

**OrderedQuantity**

Specifies the number of items/products for a given line item in a purchase order. This element has an optional quantity attribute.

**OrderedQuantity** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>See UnitOfMeasure [page 43].</td>
</tr>
</tbody>
</table>
**DispatchQuantity**

Specifies the delivered quantity (compared to the ordered quantity). This is useful in determining the correctness of any shipment. This element has an optional `quantity` attribute.

DispatchQuantity has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>UnitofMeasure</code></td>
<td>See <a href="#">UnitOfMeasure</a> [page 43].</td>
</tr>
</tbody>
</table>

**FreeGoodsQuantity**

Specifies the quantity that will be delivered without any cost to the buyer. For example, samples, redemptions, promotions, fill-ups, etc. These do not appear on the commercial invoice or marked with value 0.00.

This element has an optional `quantity` attribute.

FreeGoodsQuantity has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>UnitofMeasure</code></td>
<td>See <a href="#">UnitOfMeasure</a> [page 43].</td>
</tr>
</tbody>
</table>

### 7.2.2.21 ReleaseInfo

The ReleaseInfo element stores the details about a release of items or materials.

ReleaseInfo contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| `releaseType` (required) | A mandatory field. A string value to identify the type of delivery schedule against the schedule agreement release. Possible values:  
  - JIT (Just-In-Time)  
  - Forecast                                                            |
| `cumulativeReceivedQuantity` (required) | A mandatory field. A number value to identify the cumulative quantity of all goods received against the scheduling agreement release over a period up to a certain date. |
| `releaseNumber`          | A string indicating the release number.                                                              |
| `productionGoAheadEndDate` | An optional field. Date denoting the end of the production go-ahead period (go-ahead for production). |
| `materialGoAheadEndDate` | Date denoting the end of the material go-ahead period (go-ahead for purchase of input materials).    |
ReleaseInfo contains the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ShipNoticeReleaseInfo</td>
<td>References the last shipment received from a delivery schedule. This reference is against the last shipment made for the schedule line in the schedule agreement release.</td>
</tr>
<tr>
<td>UnitofMeasure</td>
<td>Unit of measure for the quantity specified for the schedule line item.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Any additional information for the schedule line item.</td>
</tr>
</tbody>
</table>

### 7.2.2.22 Batch

An element carrying batch information for material or goods produced in a single manufacturing run. For example, Batch can include ID, characteristic, or date.

Batch has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>productionDate</td>
<td>Date on which when a batch of material or goods is produced.</td>
</tr>
<tr>
<td>expirationDate</td>
<td>Date on which when a batch of material/goods becomes expired.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>Date on which when a batch of material/goods will be inspected.</td>
</tr>
<tr>
<td>shelfLife</td>
<td>Duration that a product is expected to remain within its approved product specification after production date. This attribute is used for information purposes only.</td>
</tr>
<tr>
<td></td>
<td>The lexical representation for duration is the ISO 8601 extended format PnYn MnDTnH nMnS, where nY represents the number of years, nM the number of months, nD the number of days, T the date/time separator, nH the number of hours, nM the number of minutes, and nS the number of seconds. For example, to indicate a duration of 60 days, one would write: P0Y0M60D.</td>
</tr>
<tr>
<td>originCountryCode</td>
<td>Country of origin for a batch of material or goods.</td>
</tr>
<tr>
<td>batchQuantity</td>
<td>Quantity for a batch of material or goods.</td>
</tr>
</tbody>
</table>

Batch has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BuyerBatchID</td>
<td>An identifier from the buyer to identify the material/goods produced in a single manufacturing run.</td>
</tr>
<tr>
<td>SupplierBatchID</td>
<td>An identifier from the supplier to identify the material/goods produced in a single manufacturing run. See SupplierBatchID [page 312].</td>
</tr>
</tbody>
</table>
### 7.3 Response to an OrderRequest

This document is the response part of the synchronous Request-Response transaction. The following example shows a Response to an OrderRequest document:

```
<cXML payloadID="9949494" xml:lang="en"
    timestamp="1999-03-12T18:39:09-08:00">
    <Response>
        <Status code="200" text="OK"/>
    </Response>
</cXML>
```

As shown above, this Response is straightforward. In this case, there is no actual element named “OrderResponse”, because the only data that needs to be sent back to the requestor is the Status part of the Response.

The Response tells the requestor its OrderRequest was successfully parsed and acted on by the remote part of HTTP connection. It does not communicate order-level acknowledgement, such as which items can be shipped, or which need to be backordered.

### 7.4 Accepting Order Attachments

Buyers often need to clarify purchase orders with supporting memos, drawings, or faxes. They can attach files of any type to cXML purchase orders by using MIME (Multipurpose Internet Mail Extensions).
cXML contains only references to external MIME parts sent within one multipart MIME envelope (with the cXML document, in an email or faxed together). Network hubs receive the attachments, and can forward them to suppliers or store them for online retrieval.

**Related Information**

Attachments [page 21]
8 Path Routing

In complex relationships between buyers and suppliers, a document might be routed through several intermediary systems before reaching the intended recipient. Path Routing enables documents to be routed by and copied to intermediary systems such as marketplaces, and network hubs.

Overview of Path Routing [page 182]
Nodes [page 183]
Adding Nodes to PunchOutOrderMessage [page 186]
Creating OrderRequests [page 187]
Other Routable Documents [page 189]
CopyRequest [page 190]

8.1 Overview of Path Routing

Path routing is especially useful in direct and indirect marketplaces. In direct marketplaces, suppliers bill buyers directly. In indirect marketplaces, suppliers bill and receive payment from the marketplace host, which in turn bills and receives payment from member buyers.

Path Routing in PunchOut

Direct marketplaces can be PunchOut sites that enable external buyers to access suppliers’ PunchOut catalogs. For a marketplace to track transactions originating from it, it must receive copies of all purchase orders as they route to the supplier.

To receive copies of all purchase orders as they route, the marketplace adds itself as a copy node to the Path of all PunchOutOrderMessage documents sent to the external buyers. This information also allows a marketplace to support edit/inspect PunchOut from procurement applications because it can distinguish which items in the shopping cart come from an external marketplace by inspecting the Path element.

Indirect Marketplaces can receive OrderRequest documents, modify them, split them, and route them to suppliers. Indirect marketplaces are router nodes that create new versions and route OrderRequest documents to suppliers.

To enable path routing in PunchOut:

1. Each system adds itself as a node to the Path element of PunchOutOrderMessage documents sent by suppliers to procurement applications.
2. Procurement applications generate OrderRequest documents by splitting the order based on the Path and SupplierID of each of the ItemIn elements of PunchOutOrderMessage documents. Procurement applications put a Path element at the cXML header level of each OrderRequest document.
3. Subsequent documents, such as OrderRequest, PunchOutSetupRequest, ConfirmationRequest, and ShipNoticeRequest documents are routed and copied by using the Path element at the header level.

Adding a Path element at the item or header level enables copying and routing of cXML documents for marketplaces and network hubs. The Path element records the path taken between the buyer and supplier which documents can later use to find their way back to a supplier.

**Path Routing in a Multi-Tier Supply Chain**

In a multi-tier supply chain that involves multiple trading partners to deliver a finished product, end-to-end visibility and collaboration is essential. Consequently, buyers and suppliers need to send copies of orders, order confirmations, and ship notices to other tiered suppliers. To accomplish this, path routing can be initiated directly from an OrderRequest without a PunchOutRequestMessage. If no route nodes are included in the Path element, then only copies of orders, order confirmations, and ship notices are processed and sent to suppliers. Invoices are not routed.

Copy Requests are created for each copy node. The Copy Request adds an OriginalDocument with the payload ID of the source document for the copy request.

### 8.2 Nodes

Nodes appear in the Path element of either the header section, or ItemIn and ItemOut elements. Each node in the Path element can be either a router node or a copy node. If the node is of type “copy”, the system simply wants a copy of each document passing through. If the node is of type “route”, the system will modify and re-route each document passing through. Each system in the path must specify which type it is.

#### 8.2.1 Path Element

The Path element contains nodes that are either of type="copy" or type="route". For example, the following contains a copy node and a router node:

```xml
<Path>
  <Node type="copy">
    <Credential domain="NetworkId">
      <Identity>AN01000000111</Identity>
    </Credential>
  </Node>
  <Node type="route">
    <Credential domain="NetworkId">
      <Identity>AN01000000233</Identity>
    </Credential>
  </Node>
</Path>
```
8.2.2 Router Nodes

A router node creates a new version of the document it receives and routes it to the next node in the path. The routed document typically changes unit price, bill-to, or ship-to address information.

8.2.2.1 OriginalDocument

The new document must reference the document it is modifying by adding an OriginalDocument element, if it is not already present, at the header level that specifies the payloadID of the original document. This enables the network hub to keep track of each hop in the Path and decide which version of the document to display to the appropriate party.

8.2.2.2 DocumentReference

Each node is responsible for updating any DocumentReference elements in the new document it generates. For example, when an OrderRequest of type update or delete is routed to an intermediary node, this node
must change the DocumentReference in the new version of the updated OrderRequest to reference the correct payloadID as illustrated in the following diagram:

![Diagram showing DocumentReference elements in new documents](image)

**Figure 14: Updating DocumentReference Elements in New Documents**

### 8.2.3 Copy Nodes

A copy node results in the system requesting a copy of the document. For example, the following excerpt illustrates several copy nodes in the cXML header, which results in a copy being sent to multiple suppliers in a multi-tier supply chain:

```xml
<Header>
  <From>
    <Credential domain="NetworkID">
      <Identity>AN990000000168</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="NetworkID">
      <Identity>AN990000000169</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="NetworkID">
      <Identity>AN990000000168</Identity>
      <SharedSecret>welcome</SharedSecret>
    </Credential>
  </Sender>
</Header>
```
8.3 Adding Nodes to PunchOutOrderMessage

PunchOutOrderMessage documents generated by PunchOut sessions can go through intermediary sites on their way back to the buyer. Each intermediary site must add itself as a node to the Path element of the relevant ItemIn elements of the PunchOutOrderMessage.

Node sequence is top to bottom, with the originating buyer at the top. The intermediary node closest to the end supplier must add the supplier of record to the path as well, if the supplier has not already created the path.

The procurement application must include itself as the first router node in the path, which allows other documents such as ConfirmationRequest and ShipmentNoticeRequest documents to be routed back to the originating buyer.

8.3.1 Path Element

The Path element contains nodes that are either of type="copy" or type="route". A Path element is in each ItemIn element of a PunchOutOrderMessage. Each system visited by the PunchOutOrderMessage must add itself as a node to the Path element for each ItemIn element it cares about.

The following PunchOutOrderMessage shows the Path element with two nodes:

```xml
<ItemIn quantity="1">
  <ItemID>
    <SupplierPartID>1234</SupplierPartID>
  </ItemID>
</ItemIn>
```
8.3.2 Credentials

The From and To elements of the cXML header in a routed document refer to the buyer and supplier of record. Neither of these parties is required to appear in the Path, because they might be visible only to one of the Router nodes.

8.4 Creating OrderRequests

When generating purchase orders, procurement applications split requisitions based on the Path and SupplierID of each of the ItemIn elements.

8.4.1 Path Element

Procurement applications put Path elements in the cXML header level of each of the orders. Procurement applications should not include the identical Path element in any of the ItemOut elements in an OrderRequest.

In OrderRequest documents containing PunchOut items, procurement applications must include nodes for both the originating buyer and the supplier of record.
8.4.2 Credentials

Because network hubs are responsible for routing OrderRequest documents to the next node in the path, the Sender credential is always the network hub credential when received by the next node. The preceding node (most recent originator) can always be found by examining the From Credential list or, the Path for the most recent Router node if the Router node doesn’t modify the From element. In addition, the type="marketplace" credential must be one of the router nodes in the path. A From credential list with no type="marketplace" credential implies that the identical node is the originating procurement application.

The following example is the header of an OrderRequest sent from a procurement application. Because the From credential has no type="marketplace", the node sending this OrderRequest must be the procurement application. The first node in the path is a marketplace Router node.

```
<Header>
  <From>
    <Credential domain="AribaNetworkUserId">
      <Identity>admin@acme.com</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="NetworkId" type="marketplace">
      <Identity>AN01000000233</Identity>
    </Credential>
    <Credential domain="DUNS">
      <Identity>942888711</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="NetworkId">
      <Identity>AN01000000001</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Network Hub</UserAgent>
  </Sender>
  <Path>
    <Node type="route">
      <Credential domain="AribaNetworkUserId">
        <Identity>admin@acme.com</Identity>
      </Credential>
    </Node>
    <Node type="copy">
      <Credential domain="NetworkId">
        <Identity>AN01000000111</Identity>
      </Credential>
    </Node>
    <Node type="route">
      <Credential domain="NetworkId">
        <Identity>AN01000000233</Identity>
      </Credential>
    </Node>
  </Path>
  <OriginalDocument payloadID="pay1"/>
</Header>
```

The following example is an OrderRequest from a marketplace Router node:

```
<Header>
  <From>
    <Credential domain="AribaNetworkUserId">
      <Identity>admin@acme.com</Identity>
    </Credential>
    <Credential domain="NetworkId" type="marketplace">
      <Identity>AN01000000233</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="NetworkId" type="marketplace">
      <Identity>AN01000000233</Identity>
    </Credential>
    <Credential domain="DUNS">
      <Identity>942888711</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="NetworkId">
      <Identity>AN01000000001</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Network Hub</UserAgent>
  </Sender>
  <Path>
    <Node type="route">
      <Credential domain="AribaNetworkUserId">
        <Identity>admin@acme.com</Identity>
      </Credential>
    </Node>
    <Node type="copy">
      <Credential domain="NetworkId">
        <Identity>AN01000000111</Identity>
      </Credential>
    </Node>
    <Node type="route">
      <Credential domain="NetworkId">
        <Identity>AN01000000233</Identity>
      </Credential>
    </Node>
  </Path>
  <OriginalDocument payloadID="pay1"/>
</Header>
```
8.5 Other Routable Documents

Follow-up documents such as PunchOutSetupRequest, ConfirmationRequest, and ShipNoticeRequest documents also use the Path element to route and copy documents.

8.5.1 PunchOutSetupRequest

Procurement applications must include the same path information in the ItemOut elements for any subsequent edit or inspect PunchOut sessions.

Procurement applications must not perform any item grouping according to the Path element during PunchOut sessions.
8.5.2 ConfirmationRequest and ShipNoticeRequest

Route ConfirmationRequest and ShipNoticeRequest documents by using the Path element from the cXML header of the OrderRequest. The Path must be reversed to route the ConfirmationRequest or ShipNoticeRequest to the originating application.

8.6 CopyRequest

Organizations that want to receive copies of purchase orders, but that are not the primary recipients, are called copy organizations. They receive copies of purchase orders as cXML documents within CopyRequest attachments sent by network hubs.

Copy organizations must add the CopyRequest transaction to their cXML profile. When the network hub receives a purchase order containing path routing copy information, it first looks up the copy organization’s CopyRequest URL in the organization’s cXML profile. It then sends the attached document to the copy organization.

CopyRequest has the following optional attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>processingMode</td>
<td>Indicates the processing mode for the cXML document. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● info—The document is for information only.</td>
</tr>
<tr>
<td></td>
<td>● process—The recipient of the document should process the document.</td>
</tr>
<tr>
<td></td>
<td>● copy—The document is a copy as a result of a Path element with copy nodes (type=”copy”) in the source document.</td>
</tr>
</tbody>
</table>

Note that the use of CopyRequest attachments differs from previous implementations of CopyRequest, in which cXML documents were contained as internal elements within CopyRequest/cXML. In cXML 1.2.011, the use of the cXML element as a child of copyRequest is deprecated. Instead, use the cXMLAttachment element to attach another cXML document, whether or not it contains attachments itself.

The following example shows a CopyRequest element forwarding a cXML document that does not itself contain attachments:

```
Content-Type: Multipart/Related; boundary=mime-boundary
[Other headers]
--mime-boundary
Content-Type: text/xml; charset=UTF-8
Content-ID: <111@sendercompany.com>
[Other headers]
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.031/cXML.dtd">
<cXML payloadID="123@sendercompany.com" timestamp="2016-11-20T23:59:45-07:00">
  <Header>
    <From>
      <Credential domain="AribaNetworkUserId">
        <Identity>sender@sendercompany.com</Identity>
      </Credential>
    </From>
    <To>
      <Identity>Target@TargetCompany.com</Identity>
    </To>
    <Path>
      <node name="CopyRequest">
        <node name="copy">
          <node name="copy">
            <node name="copy">
              <node name="copy">
                <node name="copy">
                  <node name="copy">
                    <node name="copy">
                      <node name="copy">
                        <node name="copy">
                          <node name="copy">
                            <node name="copy">
                              <node name="copy">
                                <node name="copy">
                                  <node name="copy">
                                    <node name="copy">
                                      <node name="copy">
                                        <node name="copy">
                                          <node name="copy">
                                            <node name="copy">
                                              <node name="copy">
                                                <node name="copy">
                                                  <node name="copy">
                                                    <node name="copy">
                                                      <node name="copy">
                                                    </node>
                                                  </node>
                                                </node>
                                              </node>
                                            </node>
                                          </node>
                                        </node>
                                      </node>
                                    </node>
                                  </node>
                                </node>
                              </node>
                            </node>
                          </node>
                        </node>
                      </node>
                    </node>
                  </node>
                </node>
              </node>
            </node>
          </node>
        </node>
      </node>
    </Path>
  </Header>
</cXML>
```
<Credential domain="AribaNetworkUserId">
  <Identity>recipient@recipientcompany.com</Identity>
</Credential>

</To>

<Sender>
  <Credential domain="AribaNetworkUserId">
    <Identity>sender@sendercompany.com</Identity>
    <SharedSecret>abracadabra</SharedSecret>
  </Credential>
  <UserAgent>Sender Application</UserAgent>
</Sender>

</Header>

<Request deploymentMode="production">
  <CopyRequest>
    <cXMLAttachment>
      <Attachment>
        <URL>cid:222@sendercompany.com</URL>
      </Attachment>
    </cXMLAttachment>
  </CopyRequest>
</Request>

--mime-boundary
Content-Type: text/xml; charset=UTF-8
Content-ID: <222@sendercompany.com>
[Other headers]
[Forwarded cXML]
--mime-boundary--

Related Information

Attachments [page 21]
Attachment Examples [page 22]
9 Request for Quotations

Buyers can send a cXML request for quotation to a sourcing application that supports these requests for quotation. The suppliers in the sourcing application can view and respond to the requests for quotation by sending a quote. The sourcing application collects the quotes for the requests for quotation submitted by suppliers and matches them based on certain requirements. Based on the best quote received, the sourcing application sends all or only the winning quote received from the supplier to the buyer.

Overview of Request for Quotations [page 192]
Request for Quotations [page 193]
QuoteMessage [page 208]

9.1 Overview of Request for Quotations

A buyer can send a request for quotations to a sourcing application using the QuoteRequest document. The QuoteRequest document contains information on the type of request for quotations and other details. A supplier responds to a QuoteRequest with a QuoteMessage document.

The sourcing application can respond to the request for quotations using the QuoteMessage document. The QuoteMessage document contains detailed information on the quote placed by the supplier.

9.1.1 Quote DTD

The cXML standard uses multiple DTDs to optimize the performance of validating parsers. The requests for quotation transactions described in this chapter are defined in a DTD named Quote.dtd, available at:

http://xml.cXML.org/schemas/cXML/<version>/Quote.dtd

9.1.2 Request for Quotations Document Sequence

Buyers send the QuoteRequest documents and sourcing applications respond with QuoteMessage documents.
9.2 Request for Quotations

The cXML QuoteRequest documents represent requests for quotation. It contains details on the requests for quotations sent by the buyer to the sourcing application.

The following example shows the structure of the QuoteRequest element:

```xml
<QuoteRequest>
  <QuoteRequestHeader>
    header information
  </QuoteRequestHeader>
  <QuoteItemOut>
    QuoteItemOut information
  </QuoteItemOut>
</QuoteRequest>
```

The QuoteRequest element has the following elements:

### 9.2.1 QuoteRequestHeader

This header information stores the details of the request for quotations that is sent to a supplier.

QuoteRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>Unique internal number from the buyer’s system for the request for quotations.</td>
</tr>
<tr>
<td>requestDate</td>
<td>The date and time of the quoteRequest document.</td>
</tr>
<tr>
<td>type</td>
<td>Type of quoteRequest.</td>
</tr>
<tr>
<td></td>
<td>The default value is &quot;new&quot;. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new</td>
</tr>
<tr>
<td></td>
<td>● update</td>
</tr>
<tr>
<td></td>
<td>● delete</td>
</tr>
<tr>
<td>openDate</td>
<td>The date the quoteRequest is open for suppliers to respond.</td>
</tr>
<tr>
<td>closeDate</td>
<td>The date the quoteRequest is closed for supplier responses.</td>
</tr>
<tr>
<td>previewDate</td>
<td>The date the quoteRequest is available to suppliers.</td>
</tr>
<tr>
<td>templateName</td>
<td>The template used by the sourcing application. The template can outline the terms and conditions regarding the details for a request for quotation sent between the buyer and sourcing application.</td>
</tr>
<tr>
<td>currency</td>
<td>Currency for the quoteRequest and quoteMessage. Must be a three-letter ISO currency code.</td>
</tr>
<tr>
<td>(required)</td>
<td>(required)</td>
</tr>
</tbody>
</table>
**Attribute**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xml:lang</td>
<td>The language for the quoteRequest and quoteMessage.</td>
</tr>
<tr>
<td>quoteReceivingPreference</td>
<td>The buyer’s system preference on how they want to receive the quoteMessage</td>
</tr>
<tr>
<td></td>
<td>from the sourcing application.</td>
</tr>
<tr>
<td></td>
<td>The default value is based on the value configured in the template used by</td>
</tr>
<tr>
<td></td>
<td>the sourcing application. If the buyer wants to override the value configured</td>
</tr>
<tr>
<td></td>
<td>in the template, they must specify the required value in this attribute.</td>
</tr>
<tr>
<td></td>
<td>Possible values:</td>
</tr>
<tr>
<td></td>
<td>● winningOnly—The winning quotes that are awarded are sent to the buyer</td>
</tr>
<tr>
<td></td>
<td>from the sourcing application.</td>
</tr>
<tr>
<td></td>
<td>● finalBidsFromAll—Quotes are sent to the buyer from the sourcing applica-</td>
</tr>
<tr>
<td></td>
<td>tion only after all the bids have been received and the event is closed.</td>
</tr>
<tr>
<td></td>
<td>● all—Quotes are sent to the buyer from the sourcing application as soon as</td>
</tr>
<tr>
<td></td>
<td>suppliers submit the bid. The sourcing application does not wait for the</td>
</tr>
<tr>
<td></td>
<td>event to close to send the quote.</td>
</tr>
</tbody>
</table>

The **QuoteRequestHeader** element has the following elements:

### 9.2.1.1 Name

The name of the quoteRequest. This is an optional field.

### 9.2.1.2 SupplierSelector

Defines how suppliers are selected while responding to a quoteRequest. This is an optional field.

The **SupplierSelector** element has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>matchingType</td>
<td>Specifies how suppliers are invited for a quoteRequest.</td>
</tr>
<tr>
<td></td>
<td>Possible values:</td>
</tr>
<tr>
<td></td>
<td>● invitationOnly—Only invited suppliers. Suppliers that can join the event</td>
</tr>
<tr>
<td></td>
<td>are specified in the OrganizationID element.</td>
</tr>
<tr>
<td></td>
<td>● approvedVendorOnly—Suppliers from the approved supplier list. However,</td>
</tr>
<tr>
<td></td>
<td>the sourcing application may filter the suppliers that can bid based on</td>
</tr>
<tr>
<td></td>
<td>the commodity and territory matching rules.</td>
</tr>
<tr>
<td></td>
<td>● public—Any public supplier. The supplier can also exist in the approved</td>
</tr>
<tr>
<td></td>
<td>supplier list. However, the sourcing application may filter the suppliers</td>
</tr>
<tr>
<td></td>
<td>that can bid based on the commodity and territory matching rules.</td>
</tr>
</tbody>
</table>
The SupplierSelector element has the following elements:

**SupplierInvitation**

Defines how the supplier was invited. Can specify more than one SupplierInvitation element.

The SupplierInvitation element has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>supplierStatus</td>
<td>Status of supplier in the buyer’s system. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• approved—The supplier exists in the buyer’s system and is approved by the buyer. The default value is “approved.”</td>
</tr>
<tr>
<td></td>
<td>• contracted—The supplier is an approved supplier in the buyer’s system and has an associated master agreement of a contract. The buyer can specify the MasterAgreementIDInfo.</td>
</tr>
</tbody>
</table>

**OrganizationID**

The unique identification of the supplier. This element is used by the buyer to specify suppliers that are invited for bidding.

**Correspondent**

This element stores the contact information of the supplier and is used to identify and contact the supplier. This is an optional field.

**MasterAgreementIDinfo**

The ID number of the buyer for the corresponding master agreement of the contract or release order. This element is enhanced with the IdReference element. This is an optional field.

**Extrinsic**

The Extrinsic element for the SupplierInvitation. Can specify more than one Extrinsic element. This is an optional field.
9.2.1.3  Total

The total amount for the line item in the quoteRequest. This is an optional field.

9.2.1.4  Description

Description of the quoteRequest. This is an optional field.

9.2.1.5  ShipTo

The ShipTo information for the line item in the quoteRequest. This information is used to determine the sales territory of the supplier. This is an optional field.

9.2.1.6  Contact

The Contact information for the supplier. Can specify more than one Contact element. This is an optional field.

9.2.1.7  Comments

Buyers can send comments and attachments in the quoteRequest. This is an optional field.

9.2.1.8  QuoteHeaderInfo

The QuoteHeaderInfo element represents quote items associated with the header. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LegalEntity</td>
<td>A legal entity in the external system. It has an IdReference element.</td>
</tr>
<tr>
<td>OrganizationalUnit</td>
<td>Identifies the Purchase Unit or Purchase group in the external system. It has an IdReference element.</td>
</tr>
<tr>
<td>PaymentTerms</td>
<td>Defines the payment terms in a PaymentProposalRequest document.</td>
</tr>
<tr>
<td>FollowUpDocument</td>
<td>Provides a hint about the way to follow up on a QuoteMessage response. See FollowUpDocument [page 262].</td>
</tr>
</tbody>
</table>
### 9.2.1.9 Extrinsic

The Extrinsic element for the quoteRequest. Can specify more than one Extrinsic element. This is an optional field.

### 9.2.2 QuotItemOut

Stores details on the line items sent in a QuoteRequest.

The QuotItemOut element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>The number of items.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>Line position (counting from 1) of the item in a QuoteRequest. Used to maintain a reference between the items in the document with the type as &quot;new&quot; and &quot;update&quot;.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>Position (counting from 1) of this item's parent in a QuoteRequest. Used to maintain a hierarchical reference between items in documents.</td>
</tr>
<tr>
<td>requestedDeliveryDate</td>
<td>The delivery date requested for the line item.</td>
</tr>
<tr>
<td>itemClassification</td>
<td>Specifies whether the current line item is &quot;material&quot; or &quot;service&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>• item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>• lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>serviceLineType</td>
<td>Represents the type of the service line. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• standard—Standard service.</td>
</tr>
<tr>
<td></td>
<td>• blanket—Blanket service for which you don't specify a quantity. It is settled as a lump sum.</td>
</tr>
<tr>
<td></td>
<td>• contingency—A service that is not absolutely necessary to perform the order.</td>
</tr>
<tr>
<td></td>
<td>• openquantity—A service for which the sold-to party requires that the bidder offer the quantity for a specific partial service.</td>
</tr>
<tr>
<td></td>
<td>• information—The line type does not describe a service and is for information purposes only.</td>
</tr>
</tbody>
</table>
QuoteItemOut has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Provides unique identification of an item. See ItemID [page 90].</td>
</tr>
<tr>
<td>ItemDetail (required)</td>
<td>Contains descriptive information about the item that procurement applications present to users. See ItemDetail [page 90].</td>
</tr>
<tr>
<td>ShipTo</td>
<td>The ship to address for a item. ShipTo contains four elements: Address, CarrierIdentifier, TransportInformation, and IdReference.</td>
</tr>
<tr>
<td>Shipping</td>
<td>Contains additional information for transportation of the shipment.</td>
</tr>
<tr>
<td>Tax</td>
<td>Contains tax information.</td>
</tr>
<tr>
<td>SpendDetail</td>
<td>Captures spend detail information. See SpendDetail [page 139].</td>
</tr>
<tr>
<td>Total</td>
<td>Contains the total cost for the items in the order, excluding any tax and shipping. See Total [page 110].</td>
</tr>
<tr>
<td>TermsOfDelivery</td>
<td>Specifies the terms of delivery for the ship notice. See TermsOfDelivery [page 125].</td>
</tr>
<tr>
<td>Contact</td>
<td>The contact information for the supplier. Can specify more than one Contact element. See Contact [page 117].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this RFQ line item. The Comments element can contain an Attachment element for including external files.</td>
</tr>
<tr>
<td>Alternative</td>
<td>Represents an alternative option to service specification lines. See Alternative [page 198].</td>
</tr>
<tr>
<td>SupplierSelector</td>
<td>Defines the way suppliers are selected for responding to an RFQ. See SupplierSelector [page 194].</td>
</tr>
</tbody>
</table>

### 9.2.2.1 Alternative

Represented an alternative option to service specification lines. If an alternative is specified, it consists of a basic line and one or more alternative lines.
The `Alternative` element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alternativeType</td>
<td>The alternative type of a service line item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• noAlternative—Describes a service that cannot be performed in alternative ways.</td>
</tr>
<tr>
<td></td>
<td>• basicLine—Describes a service that can be performed in alternative ways. There are one or more alternative lines for each basic line. The value of a basic line is included in the total value of the service specifications.</td>
</tr>
<tr>
<td></td>
<td>• alternativeLine—Describes a different way of performing a service or doing work than that set out in the associated basic line. The value of an alternative line is not included in the total value of the service specifications. Example: If flooring is to be renewed, you may want to enter one service line for parquetry flooring and an alternative line for ceramic tiles.</td>
</tr>
<tr>
<td>basicLineNumber</td>
<td>When an alternative type is set as alternativeLine, the line number of the service line whose alternative type is set as basicLine is set here. This enables this service line item to identify for which service line item this is alternative to.</td>
</tr>
</tbody>
</table>

Here is an example of `Alternative`:

```xml
<Alternative alternativeType="alternativeLine" basicLineNumber="0000200020"/>
```

### 9.2.2.2 Specifying Pricing Conditions

You can specify the `UnitPrice` for a line item contained within a `QuoteRequest` or `ContractRequest`. The `UnitPrice` element has an optional `PricingConditions` element that can provide different cost term values, like Price, Discount, Surcharge, and so on, per validity period and scale dimension.

#### Pricing Conditions Example

The following example shows a `QuoteRequest` with pricing conditions:

```xml
<QuoteRequest>
  <QuoteRequestHeader closeDate="" currency="" openDate="" previewDate="" quoteReceivingPreference="winningOnly" requestDate="" requestID="" templateName="" type="new" xmlns="EN">
    <Name xml:lang="EN">Name</Name>
    <SupplierSelector matchingType="invitationOnly" />
    <Total>
      <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
    </Total>
    <Description type="" xmlns="EN" />
    <ShipTo>
      <Address addressID="" addressIDDomain="" isoCountryCode="">Name</Address>
    </ShipTo>
  </QuoteRequestHeader>
  <Contact addressID="" addressIDDomain="" role="nmtoken">
    ...
  </Contact>
</QuoteRequest>
```
<QuoteItemOut itemClassification="material" itemType="composite" lineNumber="" parentLineNumber="" quantity="" requestedDeliveryDate="" serviceLineType="standard">
    <SupplierPartID revisionID="">SupplierPartID</SupplierPartID>
</QuoteItemOut>

<ItemID>
    <ItemDetail>
        <UnitPrice>
            <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
        </UnitPrice>
    </ItemDetail>
    <PricingConditions>
        <ValidityPeriods>
            <!-- Period Q1 -->
            <ValidityPeriod from='01.01.2019' to='31.03.2019'>
                <ConditionTypes>
                    <!-- Price for Q1 -->
                    <ConditionType name='Price'>
                        <CostTermValue>
                            <Money currency='USD'>120</Money>
                        </CostTermValue>
                    </ConditionType>
                    <!-- Discount for Q1 -->
                    <ConditionType name='Discount'>
                        <CostTermValue>
                            <Money currency='USD'>-5</Money>
                        </CostTermValue>
                    </ConditionType>
                </ConditionTypes>
            </ValidityPeriod>
        </ValidityPeriods>
    </PricingConditions>
<Tax>
  <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
</Tax>

<SpendDetail>
  <TravelDetail confirmationNumber="" pnrLocator="" quoteExpirationTime="">
    <AirDetail>
      <TripType type="round" />
      <AirLeg arrivalTime="" departureTime="" equipment="" flightNumber="" seatNumber="" seatType="window" stops=""
                  travelSegment="" upgrade="yes">
        <Vendor preferred="yes">
          <Address addressID="" addressIDDomain="" isoCountryCode="">
            <Name xml:lang="EN">Name</Name>
          </Address>
        </Vendor>
        <AirLegOrigin>
          <Airport airportCode="" />
        </AirLegOrigin>
        <AirLegDestination>
          <Airport airportCode="" />
        </AirLegDestination>
      </AirLeg>
    </TravelDetail>
  </SpendDetail>
</SpendDetail>

<Total>
  <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
</Total>

<TermsOfDelivery>
  <TermsOfDeliveryCode value=""/>TermsOfDeliveryCode<TermsOfDeliveryCode>
  <ShippingPaymentMethod value=""/>ShippingPaymentMethod</ShippingPaymentMethod>
</TermsOfDelivery>

<ReferenceDocumentInfo lineNumber="" scheduleLineNumber="" status="created" />
  <Contact addressID="" addressIDDomain="" role="nmtoken">
    <Name xml:lang="EN">Name</Name>
  </Contact>
  <Comments type="" xml:lang="EN" />
  <Alternative alternativeType="noAlternative" basicLineNumber="" />
  <SupplierSelector matchingType="invitationOnly"/>
</QuoteItemOut>
</QuoteRequest>

UnitPrice [page 203]
PricingConditions [page 203]
ValidityPeriods [page 203]
ValidityPeriod [page 204]
ConditionTypes [page 204]
ConditionType [page 205]
CostTermValue [page 205]
Scales [page 205]
Scale [page 206]
9.2.2.2.1  UnitPrice

Price per unit of item. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money (required)</td>
<td>Contains the final amount after applying Modifications.</td>
</tr>
<tr>
<td>Modifications</td>
<td>Contains details of the allowances and charges applicable at the line-item level.</td>
</tr>
<tr>
<td>PricingConditions</td>
<td>Pricing condition that represents the cost elements with validity period and optional scales. See PricingConditions [page 203].</td>
</tr>
</tbody>
</table>

Related Information

Specifying Pricing Conditions [page 199]

9.2.2.2.2  PricingConditions

References a pricing condition object for a given line item. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ValidityPeriods (required)</td>
<td>References a list of validity periods. See ValidityPeriods [page 203].</td>
</tr>
</tbody>
</table>

Related Information

Specifying Pricing Conditions [page 199]

9.2.2.2.3  ValidityPeriods

References a list of validity periods. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ValidityPeriod (required)</td>
<td>References a pricing condition validity period. See ValidityPeriod [page 204].</td>
</tr>
</tbody>
</table>

9.2.2.2.4 ValidityPeriod

References a pricing condition validity period. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>from (required)</td>
<td>Start date of the validity period.</td>
</tr>
<tr>
<td>to (required)</td>
<td>End date of the validity period.</td>
</tr>
</tbody>
</table>

ValidityPeriod has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConditionTypes (required)</td>
<td>References a condition types list.</td>
</tr>
</tbody>
</table>

9.2.2.2.5 ConditionTypes

References a condition types list. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConditionType (required)</td>
<td>References a pricing condition type. See ConditionType [page 205].</td>
</tr>
</tbody>
</table>

Related Information

Specifying Pricing Conditions [page 199]
9.2.2.6  ConditionType

References a pricing condition type. ConditionType can have a default cost term value, which is used in cases where scales are not specified. If the scale is specified, the cost term value provided in the scale is used.

ConditionType has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the condition type. Examples: Price, Surcharge.</td>
</tr>
</tbody>
</table>

ConditionType has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CostTermValue</td>
<td>Reference to a pricing condition cost term. See CostTermValue [page 205].</td>
</tr>
<tr>
<td>Scales</td>
<td>Reference to a pricing condition scales vector. See Scales [page 205].</td>
</tr>
</tbody>
</table>

Related Information

Specifying Pricing Conditions [page 199]

9.2.2.7  CostTermValue

References a pricing condition cost term. It contains a Money or Percentage value.

Related Information

Specifying Pricing Conditions [page 199]

9.2.2.8  Scales

References a pricing condition scales vector.
Scales has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>scaleType</td>
<td>Represents the scale type for the validity period. Possible values:</td>
</tr>
<tr>
<td>(required)</td>
<td>● From</td>
</tr>
<tr>
<td></td>
<td>● To</td>
</tr>
<tr>
<td></td>
<td>● Graduated</td>
</tr>
<tr>
<td>scaleBasis</td>
<td>Represents the scale basis, a string. The default is &quot;quantity&quot;.</td>
</tr>
</tbody>
</table>

Scales has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>Represents the volume scale. See Scale [page 206].</td>
</tr>
</tbody>
</table>

Related Information

Specifying Pricing Conditions [page 199]

9.2.2.2.9 Scale

Represents the volume scale. There can be more than one cost term per scale.

Note

The Scales [page 205] element specifies the scale type.

Scale has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>from</td>
<td>Lower bound value for the scale.</td>
</tr>
<tr>
<td>to</td>
<td>Upper bound value for the scale.</td>
</tr>
</tbody>
</table>

Scale has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CostTermValue</td>
<td>References a pricing condition cost term. See CostTermValue [page 205].</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>
The attributes required for a scale depend on the scale type selected:

<table>
<thead>
<tr>
<th>Scale Type</th>
<th>Scale Attributes Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>from</td>
</tr>
<tr>
<td>To</td>
<td>to</td>
</tr>
<tr>
<td>Graduated</td>
<td>from.to</td>
</tr>
</tbody>
</table>

**Example:**
From scale

```xml
<Scale from='0'/>
<Scale from='1000'/>
<Scale from='5000'/>
```

In the above example, there are three scales: From 0, From 1000, and From 5000.

**Example:**
To scale

```xml
<Scale to='100'/>
<Scale to='1000'/>
<Scale to='5000'/>
```

In the above example, there are three scales: To 100, To 1000, and To 5000.

**Example:**
Graduated scale

```xml
<Scale from='0' to='100'/>
<Scale from='101' to='200'/>
```

In the above example, there are two scales: From 0 To 100 and From 101 To 200.

**Related Information**

Specifying Pricing Conditions [page 199]
9.3 QuoteMessage

A supplier can respond to the request for quotations (QuoteRequest) by sending a quote. The sourcing application sends these quotes using the QuoteMessages to the buyer.

9.3.1 QuoteMessageHeader

This element stores the header details of the quoteMessage that is sent to the buyer.

QuoteMessageHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>The type of quoteMessage. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• accept</td>
</tr>
<tr>
<td></td>
<td>• reject</td>
</tr>
<tr>
<td></td>
<td>• update</td>
</tr>
<tr>
<td></td>
<td>• final</td>
</tr>
<tr>
<td></td>
<td>• award</td>
</tr>
<tr>
<td>quoteID</td>
<td>Unique ID of the quote.</td>
</tr>
<tr>
<td>quoteDate</td>
<td>Date on which the quote was submitted.</td>
</tr>
<tr>
<td>currency</td>
<td>Currency for the quoteRequest and quoteMessage. Must be a three-letter ISO</td>
</tr>
<tr>
<td></td>
<td>currency code.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language for the quoteRequest and quoteMessage.</td>
</tr>
</tbody>
</table>

QuoteMessageHeader has the following elements:

9.3.1.1 OrganizationID

The unique identification of the supplier.

9.3.1.2 Total

The total amount for the line item in the quoteMessage.
9.3.1.3  ShipTo

The ShipTo address for the line item in the quoteMessage. This information is used to determine the sales territory of the supplier. This is an optional field.

9.3.1.4  Contact

The Contact information for the supplier. This is an optional field.

9.3.1.5  QuoteRequestReference

This is an optional field. Stores details about the QuoteRequest ID and date.

QuoteRequestReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>Unique internal number from the buyer’s system for the request for quotations.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>requestDate</td>
<td>The date and time of the quoteRequest document.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

The QuoteRequestReference has the following element:

**Document Reference**

The DocumentReference element is listed only when the type is "update" or "delete". In this case, the DocumentReference references the most recent quoteRequest document for the QuoteRequest.

For example when an QuoteRequest is created, updated, and then deleted, the final document should contain a DocumentReference referring to the QuoteRequest with type="update". That document in turn refers to the original (type="new") quoteRequest document.

This is an optional element.

9.3.1.6  Comments

This is an optional field.
9.3.1.7  QuoteHeaderInfo

The QuoteHeaderInfo element represents quote items associated with the header. See QuoteHeaderInfo [page 196].

9.3.1.8  Extrinsic

This is an optional field.

9.3.2  QuoteItemIn

The QuoteItemIn element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type (required)</td>
<td>The type of quoteMessage. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- accept</td>
</tr>
<tr>
<td></td>
<td>- reject</td>
</tr>
<tr>
<td></td>
<td>- update</td>
</tr>
<tr>
<td></td>
<td>- final</td>
</tr>
<tr>
<td></td>
<td>- award</td>
</tr>
<tr>
<td>quantity (required)</td>
<td>The number of items.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>Line position (counting from 1) of the item in the QuoteRequest. Used to maintain a reference between the items in the document with the type as &quot;new&quot; and &quot;update&quot;.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>Position (counting from 1) of this item's parent in a QuoteRequest. Used to maintain a hierarchical reference between items in documents.</td>
</tr>
<tr>
<td>requestedDeliveryDate</td>
<td>The delivery date requested for the line item.</td>
</tr>
<tr>
<td>rank</td>
<td>The rank of the quote.</td>
</tr>
<tr>
<td>itemClassification</td>
<td>Specifies whether the current line item is &quot;material&quot; or &quot;service&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>- item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>- lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>serviceLineType</td>
<td>Represents the type of the service line. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• standard—Standard service.</td>
</tr>
<tr>
<td></td>
<td>• blanket—Blanket service for which you don’t specify a quantity. It is settled as a lump sum.</td>
</tr>
<tr>
<td></td>
<td>• contingency—A service that is not absolutely necessary to perform the order.</td>
</tr>
<tr>
<td></td>
<td>• openquantity—A service for which the sold-to party requires that the bidder offer the quantity for a specific partial service.</td>
</tr>
<tr>
<td></td>
<td>• information—The line type does not describe a service and is for information purposes only.</td>
</tr>
</tbody>
</table>

QuoteItemIn has the following elements:

• ItemID
• ItemDetail
• ShipTo
• Shipping
• Tax
• SpendDetail
• Total
• TermsOfDelivery
• ReferenceDocumentInfo
• Contact
• Comments
• Alternative (see Alternative [page 198])

Related Information

Purchase Orders [page 103]
10 Payment

Buying organizations use cXML payment documents to pay suppliers for provided products or services. cXML payment documents provides immediate access to payment scheduling information, allowing more accurate forecasting and scheduling of payables and receivables.

Overview of Payment [page 212]
PaymentProposalRequest [page 213]
PaymentRemittanceRequest [page 223]
PaymentBatchRequest [page 231]
PaymentRemittanceStatusUpdateRequest [page 234]
Example Payment Documents [page 236]
TradeRequest [page 241]

10.1 Overview of Payment

cXML automates the payment process through scheduled payment and remittance advice documents. These documents allow trading partners to track and process payments. The cXML payment process includes scheduled payments (plans for payment), discounts, creating and sending payments regardless of where payments are made, and ensuring that payments have been received.

The PaymentProposalRequest document is a scheduled payment. It allows buying organizations to specify payment due dates and discounts.

The PaymentRemittance document lists payment transaction details for a wide variety of business scenarios, including standard invoices, credit memos, and debit memos.

When a payment is made, the organization making the payment also creates an associated remittance advice document. Remittance advice documents are summary statements that provides details about payments that have been made. A typical remittance advice includes the payment method used, bank information, discount amount, amount paid, and a list of payables included in the payment.

10.1.1 PaymentRemittance DTD

The cXML standard uses multiple DTDs to optimize the performance of validating parsers. The payment transactions described in this chapter are defined in a DTD named PaymentRemittance.dtd, available at:

http://xml.cXML.org/schemas/cXML/<version>/PaymentRemittance.dtd
10.1.2 Payment Document Sequence

Procurement applications send PaymentProposalRequest and PaymentRemittanceRequest documents and suppliers respond with generic Response documents. When payment transaction status levels are updated, procurement applications send PaymentRemittanceStatusUpdateRequest documents. These documents can all pass through a network commerce hub for authentication and routing.

10.2 PaymentProposalRequest

cXML PaymentProposalRequest documents represent scheduled payments. They list payment amounts and dates and can be for information only or for triggering payment.

After a buying organization sends scheduled payment to a network hub, it can travel immediately to a supplier, or the network hub can store it until the payment date.

PaymentProposalRequest has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentProposalID</td>
<td>A buyer-generated identifier for the scheduled payment.</td>
</tr>
<tr>
<td>operation</td>
<td>Defines the operation to be performed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new—Creates a new scheduled payment.</td>
</tr>
<tr>
<td></td>
<td>● update—Updates an existing scheduled payment identified by paymentProposalID.</td>
</tr>
<tr>
<td></td>
<td>● delete—Cancels an existing scheduled payment identified by paymentProposalID. All optional attributes and sub-elements of PaymentProposalRequest will be ignored.</td>
</tr>
<tr>
<td></td>
<td>● hold—Puts on hold an existing scheduled payment identified by paymentProposalID. All optional attributes and sub-elements of PaymentProposalRequest are ignored.</td>
</tr>
<tr>
<td>isNetworkPayment</td>
<td>Set to &quot;yes&quot; if this scheduled payment is to be paid through a network hub. By default it is set to &quot;no&quot;.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The date that the bank initiates payment.</td>
</tr>
<tr>
<td>companyCode</td>
<td>The buyer’s paying company code for this payment proposal.</td>
</tr>
</tbody>
</table>

PaymentProposalRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayableInfo</td>
<td>Provides a reference to the payable document, such as an invoice, order, or master agreement. See PayableInfo [page 214].</td>
</tr>
<tr>
<td>PaymentMethod</td>
<td>Specifies the method of payment. Must be provided if isNetworkPayment is set to &quot;yes&quot;. See PaymentMethod [page 216].</td>
</tr>
</tbody>
</table>
### Element Description

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaymentPartner</td>
<td>Specifies all partners involved in the payment, such as payer, payee, originating bank, receiving bank, and remitTo. See PaymentPartner [page 217].</td>
</tr>
<tr>
<td>PaymentTerms</td>
<td>Defines the payment terms in a PaymentProposalRequest document. See PaymentTerms [page 221].</td>
</tr>
<tr>
<td>GrossAmount</td>
<td>The gross payment amount.</td>
</tr>
<tr>
<td>DiscountBasis</td>
<td>Defines the discount basis for the payable. See DiscountBasis [page 222].</td>
</tr>
<tr>
<td>DiscountAmount</td>
<td>The discount amount.</td>
</tr>
<tr>
<td>AdjustmentAmount</td>
<td>The total of various adjustment amounts. The adjustment amount can be positive indicating a decrease in payment amount, or negative indicating an increase in payment amount (such as for late charges or penalties).</td>
</tr>
<tr>
<td>Tax</td>
<td>Defines the tax for the payable. See Tax [page 340].</td>
</tr>
<tr>
<td>TaxAdjustment</td>
<td>Defines the tax adjustment for the payable. See TaxAdjustment [page 222].</td>
</tr>
<tr>
<td>NetAmount</td>
<td>Defines the net amount. See NetAmount [page 223].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this object.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

#### 10.2.1 PayableInfo

A reference to the payable document, such as an invoice, order, or master agreement. PayableInfo is known to both buyer and supplier. For example, the PayableInfo for an invoice would be the PayableInvoiceInfo.

The following example shows the element declaration of PayableInfo from PaymentRemittance.dtd:

```xml
<!ELEMENT PayableInfo (PayableInvoiceInfo | PayableOrderInfo | PayableMasterAgreementInfo)>
```

The following example shows the structure of a minimum valid PayableInfo element:

```xml
<PayableInfo>
  <PayableInvoiceInfo>
    <InvoiceIDReference or InvoiceIDInfo>
      ....
    </InvoiceIDReference or InvoiceIDInfo>
  </PayableInvoiceInfo>
</PayableInfo>
```

The following example shows the structure of a PayableInfo element that includes an optional PayableOrderInfo:

```xml
<PayableInfo>
  <PayableInvoiceInfo>
    <InvoiceIDReference or InvoiceIDInfo>
      ....
    </InvoiceIDReference or InvoiceIDInfo>
  </PayableInvoiceInfo>
  <PayableOrderInfo>
    <OrderIDReference or OrderIDInfo>
      ....
    </OrderIDReference or OrderIDInfo>
  </PayableOrderInfo>
</PayableInfo>
```
10.2.1.1 PayableInvoiceInfo

A reference to the invoice being paid. PayableInvoiceInfo must contain either InvoiceReference or InvoiceIDInfo, and might contain either PayableOrderInfo or PayableMasterAgreementInfo.

InvoiceReference

Provides a clear reference to a prior InvoiceDetailRequest document. The InvoiceReference is copied from the InvoiceDetailRequest message.

InvoiceIDInfo

Defines the ID of an invoice known to the supplier system. InvoiceIDInfo is a container for two attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceID</td>
<td>The ID of an invoice known to the supplier system</td>
</tr>
<tr>
<td>invoiceDate</td>
<td>The invoice date</td>
</tr>
</tbody>
</table>

10.2.1.2 PayableOrderInfo

Provides supplementary information related to the order. For example, a payment against a consolidated invoice might include associated order information. Defines payable information related to an order that was paid.

PayableOrderInfo has no attributes.
OrderReference

The reference to the order being paid.

OrderIDInfo

The order ID from the procurement application.

10.2.1.3 PayableMasterAgreementInfo

Provides supplementary information related to the master agreement (contract). For example, a payment against a consolidated invoice might include associated master agreement information. Defines payable information related to the master agreement being paid.

10.2.2 PaymentMethod

The method of payment. Must be provided if isNetworkPayment is true.

Buying organizations use this element to identify the method for a payment.

PaymentMethod has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>The type of the payment method. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• ach—Automated Clearing House</td>
</tr>
<tr>
<td></td>
<td>• cash—Cash payment</td>
</tr>
<tr>
<td></td>
<td>• check—Check payment</td>
</tr>
<tr>
<td></td>
<td>• creditCard—Credit card or PCard payment</td>
</tr>
<tr>
<td></td>
<td>• debitCard—Debit card payment</td>
</tr>
<tr>
<td></td>
<td>• draft—A written payment order, directing a second party to pay a third party</td>
</tr>
<tr>
<td></td>
<td>• wire—Wire transfer</td>
</tr>
<tr>
<td></td>
<td>• other—Other, not defined in cXML</td>
</tr>
</tbody>
</table>

10.2.2.1 Description

The description of the payment method. Description is mandatory if the type is set to “other.” The ShortName element in Description must indicate the name of the payment method.
10.2.3 PaymentPartner

Specifies all partners involved in the payment, such as payer, payee, originating bank, receiving bank, and remitTo. The number of payment partners required depends on the payment method used. PaymentPartner has no attributes.

- Contact [page 217]
- IdReference [page 218]
- PCard [page 220]
- NatureOfBusiness [page 221]
- IncorporationType [page 221]

10.2.3.1 Contact

Contact information of the payment partner.
Contact has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>The role of the payment partner. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• payer—The payer of this transaction.</td>
</tr>
<tr>
<td></td>
<td>• payee—The recipient of the payment.</td>
</tr>
<tr>
<td></td>
<td>• originatingBank—The bank from which the payment will be drawn. Required for bank transfers.</td>
</tr>
<tr>
<td></td>
<td>• receivingBank—The bank to which the payment will be deposited. Required for bank transfers.</td>
</tr>
<tr>
<td></td>
<td>• originatingCorrespondentBank—(optional) The bank that will hold the payment and transfer it to the receiving bank or the receiving correspondent bank.</td>
</tr>
<tr>
<td></td>
<td>• receivingCorrespondentBank—(optional) The bank that will receive the payment and transfer it to the receiving bank.</td>
</tr>
<tr>
<td></td>
<td>• intermediaryBank—(optional) The intermediary bank.</td>
</tr>
<tr>
<td></td>
<td>• payeeContact—(optional) The supplier contact name.</td>
</tr>
<tr>
<td></td>
<td>• remitTo—(optional) The supplier’s remittance address. For this role value, the IdReference and PCard elements can be omitted.</td>
</tr>
<tr>
<td>addressID</td>
<td>An ID for the address. addressID supports address codes for relationships that require ID references.</td>
</tr>
<tr>
<td>addressIDDomain</td>
<td>The code that specifies the agency or organization responsible for the address ID numbering. For example, DUNS or ILN. This code is required if there is a value in the addressID attribute.</td>
</tr>
</tbody>
</table>

Contact elements with role payer and payee are always required. If the payment method indicates a bank transfer, then Contact elements with role originatingBank and receivingBank are required.

The remitTo role must be provided if isNetworkPayment is true.

If the contact role is payee, the name under the contact is the supplier organization name. If the contact role is payeeContact, the name under the contact is the supplier contact name.

### 10.2.3.2 IdReference

Contains a unique identification reference for the payment partner, including information such as bank account identification, bank identification, and optional bank branch identification.

IdReference is mandatory for all transactions that involve electronic payments. It is optional only for non-electronic payment methods, such as check or cash.

IdReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>identifier</td>
<td>The unique identifier of the IdReference within the domain.</td>
</tr>
</tbody>
</table>

(identifier (required))
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| domain (required) | The domain of the IdReference. Possible values:  
- bankRoutingID—The routing ID of this payment partner’s bank  
- accountReceivableID—The ID of the payee’s accounts receivable account or department  
- bankAccountID—The ID of this payment partner’s bank account  
- ibanID—The International Bank Account Number for this payment partner, as specified in ISO 13616  
- abaRoutingNumber—The American Banking Association 9-digit routing transit number of this payment partner’s bank  
- bankNationalID—A national clearing code that is specific to a country. This should uniquely identify the bank within the country specified in the Contact.  
- isoBicID—ISO BIC ID (Bank Identifier Code) as specified in ISO 9362. The Bank Identifier Code (BIC) is a universal method of identifying financial institutions. The BIC consists of 8 or 11 characters, comprising a bank code (4 characters), a country code (2 characters), a location code (2 characters) and an optional branch code (3 characters).  
- swiftID—SWIFT ID (Society for Worldwide Interbank Financial Telecommunications) identification number  
- bankBranchID—The identification number of the bank branch  
- companyRegistrationNumber—The company registration number of the payment partner. |

The bank account identification is specified as follows:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>identifier</td>
<td>The unique identifier of the IdReference within the domain.</td>
</tr>
</tbody>
</table>
| domain   | The domain of the account ID. Possible values:  
- abaRoutingNumber—ABA (American Banking Association) routing number  
- swiftID—SWIFT ID (Society for Worldwide Interbank Financial Telecommunications) identification number  
-芯片ID—CHIPS ID (Clearing House Interbank Payment System) identification number  
- isoBicID—ISO BIC ID (Bank Identifier Code) as specified in ISO 9362. The Bank Identifier Code (BIC) is a universal method of identifying financial institutions. The BIC consists of 8 or 11 characters, comprising a bank code (4 characters), a country code (2 characters), a location code (2 characters) and an optional branch code (3 characters).  
- bankNationalID—If none of the above bank identification methods is applicable, then use the bankNationalID to indicate national clearing codes that are specific to a country. This should uniquely identify the bank within the country specified in the Contact. |

The bank branch identification, if necessary, is specified as follows:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bankBranchID</td>
<td>The bank branch ID.</td>
</tr>
</tbody>
</table>
The following table illustrates some valid role-domain value combinations for Contact and IdReference:

<table>
<thead>
<tr>
<th>Contact@role</th>
<th>IdReference@domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>payer</td>
<td>bankAccountID</td>
</tr>
<tr>
<td></td>
<td>ibanID</td>
</tr>
<tr>
<td>payee</td>
<td>bankAccountID</td>
</tr>
<tr>
<td></td>
<td>ibanID</td>
</tr>
<tr>
<td>originatingBank</td>
<td>abaRoutingNumber</td>
</tr>
<tr>
<td></td>
<td>bankNationalID</td>
</tr>
<tr>
<td></td>
<td>isoBicID</td>
</tr>
<tr>
<td></td>
<td>swiftID</td>
</tr>
<tr>
<td></td>
<td>bankBranchID (optional)</td>
</tr>
<tr>
<td>receivingBank</td>
<td>abaRoutingNumber</td>
</tr>
<tr>
<td></td>
<td>bankNationalID</td>
</tr>
<tr>
<td></td>
<td>isoBicID</td>
</tr>
<tr>
<td></td>
<td>swiftID</td>
</tr>
<tr>
<td></td>
<td>bankBranchID (optional)</td>
</tr>
<tr>
<td>originatingCorrespondentBank</td>
<td>abaRoutingNumber</td>
</tr>
<tr>
<td></td>
<td>isoBicID</td>
</tr>
<tr>
<td></td>
<td>swiftID</td>
</tr>
<tr>
<td>receivingCorrespondentBank</td>
<td>abaRoutingNumber</td>
</tr>
<tr>
<td></td>
<td>isoBicID</td>
</tr>
<tr>
<td></td>
<td>swiftID</td>
</tr>
<tr>
<td>intermediaryBank</td>
<td>abaRoutingNumber</td>
</tr>
<tr>
<td></td>
<td>isoBicID</td>
</tr>
<tr>
<td></td>
<td>swiftID</td>
</tr>
</tbody>
</table>

**Creator**

The creator of this IdReference, such as United Parcel Service or Bank of America.

**Description**

Text description of the IdReference. This is especially useful when the Creator value is not immediately understood by the reader.

**10.2.3.3 PCard**

Specifies purchasing card information, such as card number and expiration date. This element allows buying organizations to charge PCards after they approve invoices. If you specify a PCard, use Contact with role="payer".
10.2.3.4 **NatureOfBusiness**

Specifies the sector or industry to which a company belongs. It describes what the company does. The data type is a string and can be any characters with a maximum of 255 characters.

The following example shows a `NatureOfBusiness`:

```xml
<NatureOfBusiness>Manufacturing business</NatureOfBusiness>
```

10.2.3.5 **IncorporationType**

Specifies the company type. The data type is a string and can be any characters with a maximum of 255 characters.

The following example shows an `IncorporationType`:

```xml
<IncorporationType>Corporation</IncorporationType>
```

10.2.4 **PaymentTerms**

Defines the payment terms in a `PaymentProposalRequest` document. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentTermCode</td>
<td>The payment term code defined in the buyer's system.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

PaymentTerms has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaymentTerm</td>
<td>Defines a payment term in an invoice or order. Payment term can be the net term (without discount) or discount term (with discount). See PaymentTerm [page 116].</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Contains a description of the payment terms.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
10.2.5 DiscountBasis

DiscountBasis defines the discount basis for the payable. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount for the discount basis.</td>
</tr>
<tr>
<td><em>(required)</em></td>
<td></td>
</tr>
</tbody>
</table>

10.2.6 TaxAdjustment

TaxAdjustment defines the tax adjustment for the payable. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Describes the total tax adjustment given on the payable.</td>
</tr>
<tr>
<td><em>(required)</em></td>
<td></td>
</tr>
<tr>
<td>TaxAdjustmentDetail</td>
<td>Defines the details of adjustments given over category and region.</td>
</tr>
</tbody>
</table>

**iNote**

This element is deprecated in the PaymentProposalRequest document in cXML 1.2.042. Use `Tax.TaxAdjustmentAmount` instead. See Tax [page 340].

10.2.6.1 TaxAdjustmentDetail

TaxAdjustmentDetail defines the details of adjustments given over category and region. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>category</td>
<td>String describing the tax adjustment category.</td>
</tr>
<tr>
<td><em>(required)</em></td>
<td></td>
</tr>
<tr>
<td>region</td>
<td>String describing the region where the tax adjustment occurred.</td>
</tr>
</tbody>
</table>

TaxAdjustmentDetail has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the tax adjustment given on the payable for a particular category or region.</td>
</tr>
<tr>
<td><em>(required)</em></td>
<td></td>
</tr>
</tbody>
</table>
10.2.7 NetAmount

The net amount.

\[
\text{NetAmount} = \text{GrossAmount} - \text{DiscountAmount} - \text{AdjustAmount}
\]

If NetAmount is negative, it indicates a credit to the buyer. In this case, except for ProposalID, operation, and PayableInfo.NetAmount, all other attributes and sub-elements of PaymentProposalRequest are ignored.

10.3 PaymentRemittanceRequest

The PaymentRemittanceRequest document is analogous to remittance detail advice for payment or remittance.

The following example shows the structure of PaymentRemittanceRequest:

```xml
<PaymentRemittanceRequest>
    <PaymentRemittanceRequestHeader>
        <PaymentMethod/>
        <PaymentPartner/>
        <PaymentReferenceInfo/>
        <Comments/>
        <Extrinsic/>
    </PaymentRemittanceRequestHeader>
    <PaymentRemittanceSummary>
        <NetAmount/>
        <GrossAmount/>
        <DiscountAmount/>
        <AdjustmentAmount/>
    </PaymentRemittanceSummary>
    <RemittanceDetail>
        <PayableInfo/>
        <NetAmount/>
        <GrossAmount/>
        <DiscountAmount/>
        <AdjustmentAmount/>
        <Comments/>
        <Extrinsic/>
    </RemittanceDetail>
</PaymentRemittanceRequest>
```

PaymentRemittanceRequest has no attributes.

For an example of a PaymentRemittanceRequest for an invoice, see PaymentRemittanceRequest Example [page 237].
10.3.1 PaymentRemittanceRequestHeader

The PaymentRemittanceRequestHeader element defines header information that applies to the entire payment or remittance.

The following example shows the structure of PaymentRemittanceRequestHeader:

```xml
<PaymentRemittanceRequestHeader>
  <PaymentMethod>
    <Description>
      <ShortName/>
    </Description>
  </PaymentMethod>
  <PaymentPartner>
    <Contact/>
    <IdReference/>
    <PCard/>
  </PaymentPartner>
  <PaymentReferenceInfo>
    <PaymentReference/>
    <DocumentReference/>
  </PaymentReferenceInfo>
  <Comments/>
  <Extrinsic/>
</PaymentRemittanceRequestHeader>
```

PaymentRemittanceRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentRemittanceID</td>
<td>A unique identifier for this PaymentRemittance, generated by the buying organization’s system.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The date and time this Payment or Remittance transaction was created. paymentDate should be earlier than the timestamp of the actual PaymentRemittanceRequest.</td>
</tr>
<tr>
<td>isPayment</td>
<td>Indicates whether this request is intended for making payment or is for remittance advice only.</td>
</tr>
<tr>
<td></td>
<td>If the request is for payment purposes, set the attribute to &quot;yes.&quot; Remittance advice information can be included in a PaymentRemittanceRequest with isPayment = yes.</td>
</tr>
<tr>
<td></td>
<td>If isPayment is not specified, the document is assumed to be for remittance advice only.</td>
</tr>
<tr>
<td>paymentReferenceNumber</td>
<td>Indicates a payment transaction reference or payment identification number. For example, for check payments, the paymentReferenceNumber is the check number, and for electronic payments, it is an electronic reference or confirmation number.</td>
</tr>
<tr>
<td>status</td>
<td>Status of the payment remittance. Possible values are &quot;new&quot; (default) or &quot;void&quot;.</td>
</tr>
<tr>
<td>companyCode</td>
<td>Company code of the buyer.</td>
</tr>
</tbody>
</table>

PaymentMethod [page 225]
PaymentPartner [page 225]
PaymentReferenceInfo [page 225]
10.3.1.1 PaymentMethod

Identifies the method for a payment. For more information, see PaymentMethod [page 216].

10.3.1.2 PaymentPartner

Identifies a party involved in the payment. For more information, see PaymentPartner [page 217].

10.3.1.3 PaymentReferenceInfo

Defines the ID of an earlier payment made by a buying organization. This ID should uniquely identify the payment made in the buyer system.

PaymentReferenceInfo has no attributes.

PaymentReference

Reference to an earlier PaymentRemittanceRequest. If the earlier payment was made through cXML, this element is required.

PaymentReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentRemittanceID</td>
<td>The paymentRemittanceID of the request.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The payment date.</td>
</tr>
</tbody>
</table>

i Note

Do not use the transaction identification number, such as check number.

PaymentReference has the following element:

- DocumentReference

  The DocumentReference element of a PaymentReference is a container for the payloadID attribute, which refers to a prior PaymentRemittanceRequest.

  DocumentReference has the following attribute:
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID</td>
<td>A unique identifier for the prior PaymentRemittanceRequest. The payloadID is copied directly from the cXML element of the PaymentRemittanceRequest.</td>
</tr>
</tbody>
</table>

### PaymentIDInfo

The PaymentIDInfo of a PaymentReference refers to the unique identifier for this payment in the buying organization’s system. PaymentIDInfo is a container for paymentRemittanceID and paymentDate attributes.

PaymentIDInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentRemittanceID</td>
<td>The paymentRemittanceID of the request.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The payment date.</td>
</tr>
</tbody>
</table>

**i Note**

Do not use the transaction identification number, such as check number.

### 10.3.1.4 Comments

Header-level textual comments about the payment remittance, for the PaymentRemittanceRequestHeader.

### 10.3.1.5 Extrinsic

Additional information related to this payment. Information in the Extrinsic element of PaymentRemittanceRequestHeader should not duplicate information in the PaymentRemittanceRequest.

### 10.3.2 PaymentRemittanceSummary

The PaymentRemittanceSummary element defines summary information of a PaymentRemittanceRequest. Each money amount in a PaymentRemittanceSummary element is expressed as a flat amount with currency.

PaymentRemittanceSummary has no attributes.

NetAmount [page 227]
10.3.2.1 NetAmount

The NetAmount element defines the total net payment amount. NetAmount should satisfy the following equation:

NetAmount = GrossAmount - DiscountAmount - AdjustmentAmount

10.3.2.2 GrossAmount

The total gross amount.

10.3.2.3 DiscountAmount

The total discount amount.

10.3.2.4 AdjustmentAmount

The total adjustment amount.

10.3.3 RemittanceDetail

The RemittanceDetail element defines the remittance detail of a specific payable that has been paid. Each money amount in a RemittanceDetail element is expressed as a flat amount with currency.

```xml
<RemittanceDetail>
  <PayableInfo/>
  <NetAmount/>
  <GrossAmount/>
  <DiscountAmount/>
  <AdjustmentAmount/>
  <Comments/>
  <Extrinsic/>
</RemittanceDetail>
```
RemittanceDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber (required)</td>
<td>The line number of the associated payable.</td>
</tr>
<tr>
<td>referenceDocumentNumber</td>
<td>Any external document number (a string) for the remittance detail.</td>
</tr>
<tr>
<td>paymentProposalID</td>
<td>The payment proposal identifier (a string) that’s associated with this invoice.</td>
</tr>
</tbody>
</table>

Here is an example of RemittanceDetail:

```
<RemittanceDetail lineNumber="1" referenceDocumentNumber="R0001"
  paymentProposalID="1234">
  <PayableInfo>
    <InvoiceIDInfo invoiceDate="2015-11-02T12:00:01-08:00"
      invoiceID="i1003"></InvoiceIDInfo>
  </PayableInfo>
  <NetAmount>
    <Money currency="USD">1000.00</Money>
  </NetAmount>
  <GrossAmount>
    <Money currency="USD">1000.00</Money>
  </GrossAmount>
  <DiscountAmount>
    <Money currency="USD">0.00</Money>
  </DiscountAmount>
  <AdjustmentAmount>
    <Money currency="USD">0.00</Money>
  </AdjustmentAmount>
  <Modifications>
    <Modification>
      <AdditionalDeduction type="withholdingTax">
        <DeductionAmount>
          <Money currency="USD">200.00</Money>
        </DeductionAmount>
      </AdditionalDeduction>
    </Modification>
  </Modifications>
</RemittanceDetail>
```

PayableInfo [page 228]
NetAmount [page 230]
GrossAmount [page 230]
DiscountAmount [page 230]
AdjustmentAmount [page 230]

10.3.3.1 PayableInfo

A reference to the payable document, such as an invoice, order, or master agreement. See PayableInfo [page 214].
**PayableInvoiceInfo**

A reference to the invoice being paid. PayableInvoiceInfo must contain either InvoiceReference or InvoiceIDInfo, and might contain either PayableOrderInfo or PayableMasterAgreementInfo.

PayableInvoiceInfo has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>InvoiceReference</td>
<td>Provides a clear reference to a prior InvoiceDetailRequest document. The InvoiceReference is copied from the InvoiceDetailRequest message.</td>
</tr>
<tr>
<td>InvoiceIDInfo</td>
<td>Defines the ID of an invoice known to the supplier system. InvoiceIDInfo is a container for two attributes:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
</tr>
<tr>
<td>invoiceID</td>
<td></td>
</tr>
<tr>
<td>invoiceDate</td>
<td></td>
</tr>
</tbody>
</table>

**PayableOrderInfo**

Provides supplementary information related to the order. For example, a payment against a consolidated invoice might include associated order information. Defines payable information related to an order that was paid.

PayableOrderInfo has no attributes. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrderReference</td>
<td>The reference to the order being paid.</td>
</tr>
<tr>
<td>OrderIDInfo</td>
<td>The order ID from the procurement application.</td>
</tr>
</tbody>
</table>

**PayableMasterAgreementInfo**

Provides supplementary information related to the master agreement (contract). For example, a payment against a consolidated invoice might include associated master agreement information. Defines payable information related to the master agreement being paid.
10.3.3.2 NetAmount

The detail-level net amount for this payable:

\[
\text{NetAmount} = \text{GrossAmount} - \text{DiscountAmount} - \text{AdjustmentAmount}
\]

10.3.3.3 GrossAmount

The detail-level gross payment amount for this payable.

10.3.3.4 DiscountAmount

Defines the detail-level discount information for this payable.

10.3.3.5 AdjustmentAmount

The total of various adjustment amounts for this payable, if any. The adjustment amount can be positive, indicating a decrease in payment amount, or negative, indicating an increase in payment amount. For example, a negative AdjustmentAmount might be used to account for late charges or other penalties.

AdjustmentAmount has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Type of adjustment amount, for example, &quot;withholdingTax&quot;.</td>
</tr>
</tbody>
</table>

AdjustmentAmount has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>The adjustment for this payable in dollar (or other currency) amount. If there are multiple Modification elements inside the Modifications element, then ( \text{Money} = (\sum \text{AdditionalDeduction}) - (\sum \text{AdditionalCost}) ).</td>
</tr>
<tr>
<td>Description</td>
<td>The reason for the adjustment</td>
</tr>
<tr>
<td>Modifications</td>
<td>Details of the AdjustmentAmount. Can contain multiple Modification elements.</td>
</tr>
</tbody>
</table>

The following example shows AdjustmentAmount and Comments elements for a PaymentRemittanceRequest document. One of the deductions is for withholding tax (\( \text{type} = \text{"withholdingTax"} \)), which indicates the amount of tax withheld for the payment line item.

```xml
<AdjustmentAmount>
  <Money currency="USD">110.00</Money>
</AdjustmentAmount>
```
10.4 PaymentBatchRequest

The PaymentBatchRequest document specifies a payment batch and the payment remittances included in the batch.

The following example shows the structure of PaymentBatchRequest:

```xml
<PaymentBatchRequest>
  <PaymentBatchRequestHeader>
    <PaymentMethod/>
    <Extrinsic/>
  </PaymentBatchRequestHeader>
  <PaymentBatchSummary>
    <ControlSum/>
    <NumberOfPayments/>
  </PaymentBatchSummary>
  <PaymentRemittanceRequest>
    <PaymentRemittanceRequestHeader/>
    <PaymentRemittanceSummary/>
    <RemittanceDetail/>
  </PaymentRemittanceRequest>
</PaymentBatchRequest>
```

PaymentBatchRequest has no attributes.

Here is an example of a PaymentBatchRequest:

```xml
<Request deploymentMode="production">
  <PaymentBatchRequestHeader batchID="2016043001AP"
    paymentDate="2016-06-06T15:25:51-08:00"
    creationDate="2016-05-01T15:25:51-08:00">
    <PaymentMethod type="other">
      <Description xml:lang="en-US">
        <ShortName>aribapay</ShortName>
      </Description>
    </PaymentMethod>
  </PaymentBatchRequestHeader>
  <PaymentBatchSummary>
    <ControlSum>1000</ControlSum>
    <NumberOfPayments>1</NumberOfPayments>
  </PaymentBatchSummary>
</PaymentBatchRequest>
```
<PaymentRemittanceRequestHeader paymentReferenceNumber="p1003" paymentRemittanceID="4000009112" status="new" companyCode="12000" paymentDate="2016-06-02T12:00:01-08:00">
  <PaymentMethod type="other">
    <Description xml:lang="en-US">
      <ShortName>aribapay</ShortName>
    </Description>
  </PaymentMethod>
  <PaymentPartner>
    <Contact role="payer">
      <Name xml:lang="en">b11@company.com</Name>
      <PostalAddress>
        <Street>123 Main Street</Street>
        <City>Sunnyvale</City>
        <State>CA</State>
        <PostalCode>94089</PostalCode>
      </PostalAddress>
    </Contact>
    <IdReference domain="bankAccountID" identifier="214109887"/>
  </PaymentPartner>
  <PaymentPartner>
    <Contact role="payee">
      <Name xml:lang="en">s11@company.com</Name>
      <PostalAddress>
        <Street>1314 Chesapeake Terrace</Street>
        <City>SunnyVale</City>
        <State>BK</State>
        <PostalCode>94089</PostalCode>
        <Country isoCountryCode="GB">United Kingdom</Country>
      </PostalAddress>
    </Contact>
    <IdReference domain="NetworkID" identifier="AN02001670305"/>
    <IdReference domain="VendorID" identifier="1000"/>
    <IdReference domain="bankAccountID" identifier="393848477"/>
  </PaymentPartner>
  <PaymentPartner>
    <Contact role="originatingBank">
      <Name xml:lang="en">OBank</Name>
      <PostalAddress>
        <Street>691 Random Ave</Street>
        <City>Sunnyvale</City>
        <State>CA</State>
        <PostalCode>94300</PostalCode>
      </PostalAddress>
    </Contact>
    <IdReference domain="abaRoutingNumber" identifier="121000358"/>
    <IdReference domain="accountType" identifier="checking"/>
  </PaymentPartner>
  <PaymentPartner>
    <Contact role="receivingBank">
      <Name xml:lang="en">RBank</Name>
      <PostalAddress>
        <Street>691 Random Ave</Street>
        <City>Sunnyvale</City>
        <State>CA</State>
        <PostalCode>94300</PostalCode>
      </PostalAddress>
    </Contact>
    <IdReference domain="abaRoutingNumber" identifier="121000358"/>
    <IdReference domain="accountType" identifier="Checking"/>
  </PaymentPartner>
</PaymentRemittanceRequestHeader>

<PaymentRemittanceSummary>
  <NetAmount><Money currency="USD">1000.00</Money></NetAmount>
  <GrossAmount><Money currency="USD">1000.00</Money></GrossAmount>
  <DiscountAmount><Money currency="USD">0.00</Money></DiscountAmount>
</PaymentRemittanceSummary>
10.4.1 PaymentBatchRequestHeader

The PaymentBatchRequestHeader element defines the header information of a PaymentBatchRequest. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>batchID</td>
<td>Unique identifier of a batch.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The date that the network hub should initiate payment. This date has impact only if the buyer is configured to hold payments for the automated payment method. If not, payment is initiated right away.</td>
</tr>
<tr>
<td>creationDate</td>
<td>Date and time this payment batch was created.</td>
</tr>
</tbody>
</table>

PaymentBatchRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaymentMethod</td>
<td>Payment method of the batch. If exists, the payment method at each individual payment remittance will be ignored. See PaymentMethod [page 216].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
10.4.2 PaymentBatchSummary

Contains the summary information of a PaymentBatchRequest.

- ControlSum [page 234]
- NumberOfPayments [page 234]

10.4.2.1 ControlSum

Contains the total net payment amount without currency in the batch.

10.4.2.2 NumberOfPayments

Contains the number of payment remittances in the batch.

10.4.3 PaymentRemittanceRequest

Contains remittance detail advice for payment or remittance. See PaymentRemittanceRequest [page 223].

10.5 PaymentRemittanceStatusUpdateRequest

The PaymentRemittanceStatusUpdateRequest document provides status information for a payment remittance. Buying organizations send PaymentRemittanceStatusUpdateRequest documents to suppliers to inform suppliers of the status of their payables. The PaymentRemittanceStatus element supports Extrinsic elements.

The following example shows the structure of the PaymentRemittanceStatusUpdateRequest element:

```xml
<Request>
  <PaymentRemittanceStatusUpdateRequest>
    <DocumentReference>
      .....  
    </DocumentReference>
    <PaymentRemittanceStatus>
      .....  
      <Extrinsic name="OriginalSupplierAccountNumber">4232334545</Extrinsic>
      <Extrinsic name="CorrectedSupplierAccountNumber">004232334545</Extrinsic>
      <Extrinsic name="OriginalSupplierBankAbaNumber">121000358</Extrinsic>
      <Extrinsic name="CorrectedSupplierBankAbaNumber">221000358</Extrinsic>
    </PaymentRemittanceStatus>
  </PaymentRemittanceStatusUpdateRequest>
  .....  
</Request>
```
10.5.1 DocumentReference

The DocumentReference element is a container for payloadID, which associates a status update with a particular PaymentRemittanceRequest document. DocumentReference repeats a required attribute of the earlier document and adds one optional identifier generated by the supplier. For example:

```xml
<DocumentReference payloadID="0c300508b7863dc1b_14999"/>
```

DocumentReference contains no elements, but has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID</td>
<td>A unique identifier for the document. Copied directly from the cXML element of the previous PaymentRemittanceRequest.</td>
</tr>
</tbody>
</table>

10.5.2 PaymentRemittanceStatus

Defines the status for a payment transaction specified by an existing PaymentRemittanceRequest. PaymentRemittanceStatus has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>The status type of the payment transaction.</td>
</tr>
<tr>
<td>paymentReferenceNumber</td>
<td>Indicates a unique number for a payment. For a check payment, for example, the paymentReferenceNumber would be the check number.</td>
</tr>
</tbody>
</table>

Possible values of the type attribute in PaymentRemittanceStatus are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paying</td>
<td>The payment transaction is in progress.</td>
</tr>
<tr>
<td>paid</td>
<td>The payment transaction was completed successfully.</td>
</tr>
<tr>
<td>failed</td>
<td>The payment transaction failed. Under certain conditions, a PaymentRemittance of type &quot;failed&quot; can be resubmitted by the buying organization.</td>
</tr>
<tr>
<td>canceled</td>
<td>The payment transaction was canceled.</td>
</tr>
</tbody>
</table>

PaymentRemittanceStatusDetail [page 236]
Extrinsic [page 236]
10.5.2.1 PaymentRemittanceStatusDetail

Defines status details of the payment transaction specified by an existing PaymentRemittanceStatusDetail. PaymentRemittanceStatusDetail contains a PCDATA string. Typically, this element describes the specifics of a problem.

PaymentRemittanceStatusDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>Payment transaction status code provided by the payment provider.</td>
</tr>
<tr>
<td>description</td>
<td>Textual description of the status code (not specific issue).</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language in which the text attribute and element content are written.</td>
</tr>
</tbody>
</table>

10.5.2.2 Extrinsic

The Extrinsic element list can be used to insert additional data. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order.

Extrinsic has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The value used to indicate the type or nature of the data.</td>
</tr>
</tbody>
</table>

10.6 Example Payment Documents

The following examples illustrate payment documents:

“PaymentProposalRequest Example” [page 237]
“PaymentRemittanceRequest Example” [page 237]
“PaymentRemittanceStatusUpdateRequest Example” [page 241]
The following scheduled payment is for an ACH payment.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/
PaymentRemittance.dtd">
<cXML payloadID="123@bigbuyer.com" timestamp="2005-04-20T23:59:45-07:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN99123456789</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN99987654321</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN99123456789</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Procurement Application 1.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <PaymentProposalRequest
      ProposalID="proposal123"
      operation="new"
      paymentDate="2005-07-20T23:59:20-07:00">
      <PayableInfo>
        <PayableInvoiceInfo>
          <InvoiceReference invoiceID="ABC">
            <DocumentReference payloadID="25510.10.81.231"/>
          </InvoiceReference>
          <PayableOrderInfo>
            <OrderReference orderID="DEF">
              <DocumentReference payloadID="25510.10.81.002"/>
            </OrderReference>
          </PayableOrderInfo>
        </PayableInvoiceInfo>
        <PaymentMethod type="ach"/>
        <Contact role="remitTo" addressID="Billing">
          <Name xml:lang="en">Lisa Dollar</Name>
          <DeliverTo>Lisa Dollar</DeliverTo>
          <Street>100 Castro Street</Street>
          <City>Mountain View</City>
          <State>CA</State>
          <PostalCode>95035</PostalCode>
        </Contact>
        <GrossAmount>
          <Money currency="USD">3000.00</Money>
        </GrossAmount>
      </PayableInfo>
    </PaymentProposalRequest>
  </Request>
</cXML>
```
The following payment proposal passes a discount basis and tax amounts:

```xml
<PaymentProposalRequest paymentProposalID="1100000124" operation="new" paymentDate="2016-04-05T11:59:20-07:00">
  <PayableInfo>
    <InvoiceIDInfo invoiceID="INV8291087" invoiceDate="2016-04-01T18:31:35+05:30"></InvoiceIDInfo>
  </PayableInfo>
  <PaymentMethod type="ach"></PaymentMethod>
  <GrossAmount>
    <Money currency="USD">13440</Money>
  </GrossAmount>
  <DiscountBasis>
    <Money currency="USD">12000</Money>
  </DiscountBasis>
  <DiscountAmount>
    <Money currency="USD">1200</Money>
  </DiscountAmount>
  <AdjustmentAmount>
    <Money currency="USD">0</Money>
  </AdjustmentAmount>
  <Tax>
    <Money currency="USD">100</Money>
    <TaxAdjustmentAmount>
      <Money currency="USD">7.00</Money>
    </TaxAdjustmentAmount>
    <TaxDetail category="gst" percentageRate="50" purpose="tax">
      <TaxableAmount>
        <Money currency="USD">100</Money>
      </TaxableAmount>
      <TaxAmount>
        <Money currency="USD">50</Money>
      </TaxAmount>
      <TaxLocation xml:lang="en">CA</TaxLocation>
      <TaxAdjustmentAmount>
        <Money currency="USD">3.50</Money>
      </TaxAdjustmentAmount>
      <Description xml:lang="en">Goods and Services Tax</Description>
    </TaxDetail>
    <TaxDetail category="hst" percentageRate="20" purpose="tax">
      <TaxAmount>
        <Money currency="USD">50</Money>
      </TaxAmount>
      <TaxLocation xml:lang="en">CA</TaxLocation>
      <Description xml:lang="en">Services Tax</Description>
    </TaxDetail>
    <TaxDetail category="gst" percentageRate="50" purpose="tax">
      <TaxableAmount>
        <Money currency="USD">100</Money>
      </TaxableAmount>
    </TaxDetail>
  </Tax>
</PaymentProposalRequest>
```
10.6.2 PaymentRemittanceRequest Example

This example shows a minimum valid PaymentRemittanceRequest.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/
PaymentRemittance.dtd">
cXML xml:lang="en-US" timestamp="2004-03-10T14:20:53-08:00"
payloadID="PR-031004-01">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN99123456789</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN99987654321</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN99123456789</Identity>
      </Credential>
      <UserAgent>Procurement Application 1.0</UserAgent>
    </Sender>
  </Header>
  <Request deploymentMode="production">
    <PaymentRemittanceRequest>
      <PaymentRemittanceRequestHeader paymentDate="2004-10-10T00:00:00-08:00"
        paymentReferenceNumber="ACH123456789"
        paymentRemittanceID="PR-031204-01">
        <PaymentMethod type="ach"></PaymentMethod>
        <PaymentPartner>
          <Contact role="payer">
            <Name xml:lang="en">buyer</Name>
            <PostalAddress>
              <Street>100 1st Street</Street>
              <City>Anywhere</City>
              <State>CA</State>
            </PostalAddress>
            <PostalCode>94089</PostalCode>
          </Contact>
        </PaymentPartner>
      </PaymentRemittanceRequestHeader>
    </PaymentRemittanceRequest>
  </Request>
</cXML>
```
<PaymentPartner>
  <Contact role="payee">
    <Name xml:lang="en">Supplier</Name>
    <PostalAddress>
      <Street>100 Main Street</Street>
      <City>Anywhere</City>
      <State>CA</State>
      <PostalCode>94089</PostalCode>
    </PostalAddress>
  </Contact>
</PaymentPartner>

<PaymentPartner>
  <Contact role="originatingBank">
    <Name xml:lang="en">Moose Credit Union</Name>
    <PostalAddress>
      <Street>100 Elk Drive</Street>
      <City>Mooseville</City>
      <State>CA</State>
      <PostalCode>94087</PostalCode>
    </PostalAddress>
  </Contact>
  <IdReference domain="abaRoutingNumber" identifier="234567890"></IdReference>
</PaymentPartner>

<PaymentPartner>
  <Contact role="receivingBank">
    <Name xml:lang="en">Gold Rush Bank</Name>
    <PostalAddress>
      <Street>100 Bret Harte Road</Street>
      <City>Gold Rush</City>
      <State>CA</State>
      <PostalCode>97123</PostalCode>
    </PostalAddress>
  </Contact>
  <IdReference domain="abaRoutingNumber" identifier="678902345"></IdReference>
</PaymentPartner>

</PaymentRemittanceRequestHeader>

<PaymentRemittanceSummary>
  <NetAmount>
    <Money currency="USD">2.00</Money>
  </NetAmount>
  <GrossAmount>
    <Money currency="USD">2.85</Money>
  </GrossAmount>
  <DiscountAmount>
    <Money currency="USD">0.35</Money>
  </DiscountAmount>
  <AdjustmentAmount>
    <Money currency="USD">0.50</Money>
  </AdjustmentAmount>
</PaymentRemittanceSummary>

<RemittanceDetail lineNumber="1">
  <PayableInfo>
    <PayableInvoiceInfo>
      <InvoiceIDInfo invoiceID="INV-031204-01"></InvoiceIDInfo>
    </PayableInvoiceInfo>
    <PayableOrderInfo>
      <OrderIDInfo orderID="P0-031204-01"></OrderIDInfo>
    </PayableOrderInfo>
  </PayableInfo>
  <NetAmount>
    <Money currency="USD">2.00</Money>
  </NetAmount>
</RemittanceDetail>
10.6.3 PaymentRemittanceStatusUpdateRequest Example

This example shows a PaymentRemittanceStatusUpdateRequest sent from a buyer to a supplier:

```xml
<PaymentRemittanceStatus type="canceled" paymentReferenceNumber="PaymentRefNumber">1234</PaymentRemittanceStatus>
</PaymentRemittanceStatusUpdateRequest>
</Request>
</cXML>
```

10.7 TradeRequest

Represents a request to create or update a supply chain financing TradeItem object.
TradeRequest documents are associated with PaymentProposalRequest documents that are traded on the trading platform of the supply chain financing provider. Payment proposals can be traded automatically or manually as indicated by the autoTrade attribute of the TradeRequestHeader.

TradeRequest documents travel from the supply chain financing provider to the network hub. Updated PaymentProposalRequest documents are then generated by the network hub and sent to the buyer and supplier as needed.

A TradeRequest document has the following basic structure:

- **TradeRequestHeader**—indicates the buyer, supplier, and third-party funder.
- **TradeRequestSummary**—indicates the original value of the payment proposal, credits and fees, and trade amount.
- **TradeItem elements**—indicate the specifics payables that have been traded to third-party funders.

Here is an example of a TradeRequest document:

```xml
<TradeRequest>
  <TradeRequestHeader operation="new" status="accepted" tradeID="trade200922"
    tradeDate="2015-09-30T10:43:36-07:00"
    tradeApprovedDate="2015-09-30T12:43:36-07:00"
    settlementDate="2015-10-02T10:43:36-07:00" autoTrade="no">
    <PaymentPartner>
      <!-- Funder information -->
      <Contact role="payer">
        <Name xml:lang="en">Bank Of America</Name>
        <IdReference domain="financialInstitutionID"
          identifier="987654321"></IdReference>
      </Contact>
    </PaymentPartner>
    <PaymentPartner>
      <!-- supplier information -->
      <Contact role="payee">
        <Name xml:lang="en">Supplier Name</Name>
      </Contact>
    </PaymentPartner>
    <Contact>
      <Name xml:lang = "en">John Smith</Name>
      <Phone> <!-optional -->
        <TelephoneNumber>
          <AreaOrCityCode/>
          <Number>0477 07 26 41</Number>
        </TelephoneNumber>
      </Phone>
    </Contact>
    <Comments>Optional comments</Comments>
  </TradeRequestHeader>
  <TradeRequestSummary>
    <!-- trade level totals -->
    <OriginalAmount> <!-- sum of all OriginalAmount of all TradeItems -->
      <Money currency="USD">1000</Money>
    </OriginalAmount>
    <CreditApplied> <!-- sum of all credit applied of all TradeItems -->
      <Money currency="USD">100</Money>
    </CreditApplied>
    <FeeAmount> <!-- total fee -->
      <Money currency="USD">20</Money>
    </FeeAmount>
    <Amount> <!-- total projected amount to be paid to supplier -->
      <Money currency="USD">880</Money>
    </Amount>
  </TradeRequestSummary>
</TradeRequest>
```
<TradeItem lineNumber="1" paymentProposalID="PPR910">
maturityDate="2015-04-30T10:43:36-07:00">
<PayableInfo>
  <PayableInvoiceInfo>
    <InvoiceIDInfo invoiceDate="2015-03-30T10:43:36-07:00"
      invoiceID="330inv1"></InvoiceIDInfo>
  </PayableInvoiceInfo>
</PayableInfo>
<OriginalAmount>
  <!-- payment amount of the original PPR -->
  <Money currency="USD">1000</Money>
</OriginalAmount>
<AdjustmentAmount>
  <Money currency="USD">100.00</Money>
  <Modifications>
    <Modification>
      <AdditionalDeduction type="creditApplied">
        <DeductionAmount>
          <Money currency="USD">100.00</Money>
        </DeductionAmount>
      </AdditionalDeduction>
    </Modification>
  </Modifications>
  <DaysPaidEarly>10</DaysPaidEarly>
  <Amount>
    <!-- trade amount: GrossAmount - AdjustmentAmount - FeeAmount--> 
    <Money currency="USD">900</Money>
  </Amount>
</AdjustmentAmount>
<DaysPaidEarly>10</DaysPaidEarly>
<Amount>
  <!-- trade amount: GrossAmount - AdjustmentAmount - FeeAmount-->
  <Money currency="USD">900</Money>
</Amount>
</TradeItem>
<TradeItem lineNumber="2" paymentProposalID="PPR911">
maturityDate="2015-04-30T10:43:36-07:00">
  <!-- credit memo -->
<PayableInfo>
  <PayableInvoiceInfo>
    <InvoiceIDInfo invoiceDate="2015-03-30T10:43:36-07:00"
      invoiceID="cm123"></InvoiceIDInfo>
  </PayableInvoiceInfo>
</PayableInfo>
<OriginalAmount>
  <Money currency="USD">-100</Money>
</OriginalAmount>
<AdjustmentAmount>
  <Money currency="USD">-100.00</Money>
  <Modifications>
    <Modification>
      <AdditionalDeduction type="creditApplied">
        <DeductionAmount>
          <Money currency="USD">-100.00</Money>
        </DeductionAmount>
      </AdditionalDeduction>
    </Modification>
  </Modifications>
  <DaysPaidEarly>0</DaysPaidEarly>
  <Amount>
    <Money currency="USD">0</Money>
  </Amount>
</AdjustmentAmount>
</TradeItem>
10.7.1 TradeRequestHeader

Contains header information for a TradeRequest object. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation</td>
<td>The operational mode of the trade document. Possible values are &quot;new&quot; or &quot;update&quot;.</td>
</tr>
<tr>
<td>status</td>
<td>The status of the TradeRequest. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● accepted—The funder has accepted the trade request.</td>
</tr>
<tr>
<td></td>
<td>● rejected—The funder has rejected the trade request. The funder may update the status to &quot;accepted&quot; later.</td>
</tr>
<tr>
<td>tradeID</td>
<td>ID of a trade transaction in the Supply Chain Financing provider’s system.</td>
</tr>
<tr>
<td>tradeDate</td>
<td>The date and time the trade was created.</td>
</tr>
<tr>
<td>tradeApprovedDate</td>
<td>The date and time that the trade was approved by the funder.</td>
</tr>
<tr>
<td>settlementDate</td>
<td>The date and time that the payment will be paid in the supplier’s bank account.</td>
</tr>
<tr>
<td>autoTrade</td>
<td>Indicates whether it’s an automatic trade (&quot;yes&quot; or &quot;no&quot;).</td>
</tr>
</tbody>
</table>

TradeRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaymentPartner</td>
<td>Contains payer and payee information. Payer is required. You can specify multiple PaymentPartner elements. See PaymentPartner [page 217].</td>
</tr>
<tr>
<td>Contact</td>
<td>The supplier user who created this TradeRequest.</td>
</tr>
<tr>
<td>Comments</td>
<td>Textual comments for this TradeRequest.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Additional information related to this payment. Should not duplicate anything in TradeRequest.</td>
</tr>
</tbody>
</table>
10.7.2 TradeRequestSummary

Contains summary information for a TradeRequest object. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OriginalAmount</td>
<td>The total original net payment amount. All amounts for all TradeItem objects should add up to the total in TradeRequestSummary.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>CreditApplied</td>
<td>The total amount of all credit memos in the trade.</td>
</tr>
<tr>
<td>FeeAmount</td>
<td>Contains the sum of all fees that occur during a trade that the supplier must give to receive this early payment. This should be equal to the sum of all FeeAmount elements in TradeItem objects.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td>The total net value of the trade. This is the projected value to be paid to the supplier. It should be equal to the sum of NetAmount values for TradeItem objects, and it should satisfy the following equation: Amount = OriginalAmount - FeeAmount</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

10.7.3 TradeItem

Contains trading information about a payment proposal or a credit memo. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>Line number for the trade item from the associated payable document.</td>
</tr>
<tr>
<td>paymentProposalID</td>
<td>Original payment proposal number.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>maturityDate</td>
<td>The maturity date of the payment proposal of the trade item.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TradeItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PayableInfo</td>
<td>A reference to the payable document, such as an invoice, order, or master agreement.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>OriginalAmount</td>
<td>Original amount for this payable. This amount is negative for credit memo items.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>AdjustmentAmount</td>
<td>Adjustment amount applied to the GrossAmount. The only adjustment that can be applied is a credit memo, which has an AdditionalDeduction with type &quot;creditMemoApplied&quot;.</td>
</tr>
<tr>
<td>DaysPaidEarly</td>
<td>The number of days that the supplier is paid early.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Amount (required)  | Net value of this trade item. This amount is always zero for credit memo items. The value should satisfy the following equation:  
|                    | \[ \text{Amount} = \text{OriginalAmount} - \text{FeeAmount} - \text{AdjustmentAmount} \] |
| FeeAmount          | Contains various fees that occur during a trade.  
|                    | FeeAmount has the following elements:  
|                    | • Money—Fee amount.  
|                    | • Fee—Different types of individual fees. The optional type attribute for Fee can be one of the following values:  
|                    | ◦ serviceProvider  
|                    | ◦ community  
|                    | ◦ funder |
| Extrinsic          | Contains any additional information related to this object. |
11 TimeCard Transaction

Timecards are used for placing orders related to temporary labor and contractors. They can be generated and sent by either the buyer or the supplier, depending upon which system captures the timecard information.

- TimeCard Requests [page 247]
- TimeCard Element [page 248]
- TimeCard Examples [page 252]

11.1 TimeCard Requests

Because of the two-way nature of timecards, there are two requests that involve the TimeCard element: TimeCardRequest and TimeCardInfoRequest.

The contractor—that is, the temporary laborer in question—enters timecard information in either the buyer or supplier system, depending upon the situation. Therefore, either buyers or suppliers can send timecard documents, and timecard documents can flow in either direction. In this way, timecards differ from invoices, which are typically sent only by suppliers.

Figure 15: Timecard Document Flow
11.1.1 Supplier to Buyer Request

TimeCardRequest describes a timecard document that is sent from a supplier, such as a staffing agency, to a buyer. The from and sender credentials are the supplier’s, and the to credential is the buyer’s. When the timecard is approved, the buyer sends a StatusUpdateRequest with the DocumentApprovalStatus element indicating whether the timecard was approved or rejected.

11.1.2 Buyer to Supplier Request

TimeCardInfoRequest describes a timecard document that is sent from a buyer to a supplier. The from credential is the buyer’s, and to credential is the supplier’s.

11.2 TimeCard Element

The TimeCard element is used to capture the hours worked by a contractor or other temporary laborer. The following example shows the element declaration of TimeCard from Fulfill.dtd:

```xml
<!ELEMENT TimeCard (OrderInfo, Contractor, ReportedTime, SubmitterInfo, ApprovalInfo*, Comments?, DocumentReference?)>
```

The TimeCard element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Possible values are new, update, and delete. The value defaults to new, unless the original timecard is updated.</td>
</tr>
<tr>
<td>status</td>
<td>Possible values are submitted, approved, denied. The default value is submitted.</td>
</tr>
<tr>
<td>timeCardID</td>
<td>Represents the unique identifier for this timecard in the buyer and supplier systems. (required)</td>
</tr>
</tbody>
</table>

11.2.1 OrderInfo

The OrderInfo element is used to reference the order. One timecard can reference only one order.
11.2.2 Contractor

The Contractor element is the definition of a contractor used in the context of temporary labor.

11.2.2.1 ContractorIdentifier

ContractorIdentifier uniquely identifies the contractor in both the buyer and supplier systems, and is agreed upon by the buyer and the supplier prior to sending out orders or timecards. The ContractorIdentifier element contains the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>The domain in which the ContractorIdentifier is represented. Possible values are supplierReferenceID or buyerReferenceID, indicating the system in which the ContractorIdentifier originated.</td>
</tr>
</tbody>
</table>

11.2.2.2 Contact

The generic Contact element describes the contractor.

11.2.3 ReportedTime

The ReportedTime element captures the line items for the timecard.

11.2.3.1 Period

Period denotes the period of time for which the timecard is being submitted.
### 11.2.3.2 TimeCardTimeInterval

The `TimeCardTimeInterval` element represents the time interval being reported on a timecard. It contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>duration</strong></td>
<td>The duration of time being claimed for the line item, represented in the ISO 8601 format <code>PnYnMnDnTnHnMnSnS</code>, where <code>nY</code> represents the number of years, <code>nM</code> the number of months, <code>nD</code> the number of days, <code>T</code> the date/time separator, <code>nH</code> the number of hours, <code>nM</code> the number of minutes and <code>nS</code> the number of seconds. For example, to indicate a duration of 1 year, 2 months, 3 days, 10 hours, and 30 minutes, one would write: <code>P1Y2M3DT10H30M</code>. In the event that <code>duration</code> and <code>TimeRange</code> do not agree, <code>duration</code> takes precedence. For example, if <code>duration</code> is 2 hours, and <code>TimeRange</code> is from 4:00 p.m. to 8:00 p.m., then the 2 hour <code>duration</code> takes precedence. However, if <code>duration</code> is not present, then it is computed from the <code>TimeRange</code>.</td>
</tr>
</tbody>
</table>
| **payCode**     | The pay code to be used. Recommended pay codes include:  
  * Regular  
  * Overtime  
  * Doubletime  
  * Mealbreak  
  * Tripletme  
  * WeeklyRestDay  
  * HolidayWorked  
  * RegularNightShift  
  * OvertimeNightShift  
  * DoubletimeNightShift  
  * TripletNightShift  
  * WeeklyRestDayNightShift  
  * RegularMixedShift  
  * OvertimeMixedShift  
  * DoubletimeMixedShift  
  * TripletmeMixedShift  
  * WeeklyRestDayMixedShift |
| **isNonBillable** | Implied attribute that designates whether or not the time is billable. The default behavior is billable. |
11.2.3.3 Expense

The Expense element represents any expense a contractor reported on a timecard. It contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>expenseDate</td>
<td>The date of the expense.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>expenseType</td>
<td>The type of expense. Recommended expense types include:</td>
</tr>
<tr>
<td></td>
<td>● mileage</td>
</tr>
<tr>
<td></td>
<td>● airfare</td>
</tr>
<tr>
<td></td>
<td>● fuel</td>
</tr>
<tr>
<td></td>
<td>● taxi</td>
</tr>
<tr>
<td></td>
<td>● perDiem</td>
</tr>
<tr>
<td></td>
<td>● hotel</td>
</tr>
<tr>
<td>isNonBillable</td>
<td>Implied attribute that designates whether or not the expense is billable. The default behavior is billable.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

11.2.3.4 ExpenseAmount

The ExpenseAmount element represents the monetary value and currency of an expense a contractor reported on a timecard.

11.2.3.5 TimeRange

The TimeRange element defines a time range in which the start and end dates can be unbounded. The TimeRange element contains the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>The first date in the billable period.</td>
</tr>
<tr>
<td>endDate</td>
<td>The last date in the billable period.</td>
</tr>
</tbody>
</table>
11.2.4 SubmitterInfo

The `SubmitterInfo` element contains information about the person submitting the timecard. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>submittedDate</td>
<td>The time when the timecard was submitted.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

11.2.4.1 Contact

If the `Contact` element is absent, then it is assumed that the contractor is also the submitter.

11.2.5 ApprovalInfo

The `ApprovalInfo` element includes information about the approver of the timecard. This information is sent by the supplier for informational purposes only, and can include all the approvers in the chain. There can be multiple approvals because many people might need to approve the timecard in question.

The `ApprovalInfo` element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>approvedDate</td>
<td>The time when the timecard was approved.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

11.2.6 DocumentReference

`DocumentReference` is used on an update operation to refer to a previous `TimeCardRequest` or `TimeCardInfoRequest`.

11.3 TimeCard Examples

The following example shows a `TimeCardInfoRequest` sent upon submission to the supplier:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/Fulfill.dtd">
<cXML xml:lang="en-US" payloadID="tc1@buyer.com" timestamp="2003-10-01T23:00:06-08:00">
  <Header>
    ...
  </Header>
```
<From>
  <Credential domain="NetworkId">
    <Identity>AN0100023456</Identity>
  </Credential>
</From>

<To>
  <Credential domain="NetworkId">
    <Identity>AN0100023457</Identity>
  </Credential>
</To>

<Sender>
  <Credential domain="NetworkId">
    <Identity>AN0100023456</Identity>
    <SharedSecret>abracadabra</SharedSecret>
  </Credential>
  <UserAgent>Our Procurement Application 2.0</UserAgent>
</Sender>

<Request>
  <TimeCardInfoRequest>
    <TimeCard type="new" status="submitted" timeCardID="TC101">
      <OrderInfo>
        <OrderIDInfo orderID="PO12" orderDate="2003-07-22T08:00:00-08:00"/>
      </OrderInfo>
      <Contractor>
        <ContractorIdentifier domain="supplierReferenceID">Doe8610</ContractorIdentifier>
        <Contact>
          <Name xml:lang="en">John Doe</Name>
        </Contact>
      </Contractor>
      <ReportedTime>
        <Period startDate="2003-09-22T08:00:00-08:00" endDate="2003-09-22T18:00:00-08:00"/>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-22T08:00:00-08:00" endDate="2003-09-22T18:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT2H" payCode="Mealbreak" isNonBillable="yes">
          <TimeRange startDate="2003-09-22T12:00:00-08:00" endDate="2003-09-22T14:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT2H" payCode="Overtime">
          <TimeRange startDate="2003-09-22T18:00:00-08:00" endDate="2003-09-22T20:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-23T08:00:00-08:00" endDate="2003-09-23T16:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-24T08:00:00-08:00" endDate="2003-09-24T16:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-25T08:00:00-08:00" endDate="2003-09-25T16:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-26T08:00:00-08:00" endDate="2003-09-26T16:00:00-08:00"/>
        </TimeCardTimeInterval>
      </ReportedTime>
      <SubmitterInfo submittedDate="2003-10-01T08:00:00-08:00">
        <Contact>
          <Name xml:lang="en">John Doe</Name>
        </Contact>
      </SubmitterInfo>
    </TimeCard>
  </TimeCardInfoRequest>
</Request>
This example shows an update sent upon approval to the supplier.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/Fulfill.dtd">
<cXML xml:lang="en-US" payloadID="tcl-update@buyer.com" timestamp="2003-10-01T23:00:06-08:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN0100023456</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN0100023457</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN0100023456</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Suppliers Time Card Application 5.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <TimeCardInfoRequest>
      <TimeCard type="update" status="approved" timeCardID="TC101">
        <OrderInfo>
          <OrderIDInfo orderID="PO123" orderDate="2003-07-22T08:00:00-08:00"/>
        </OrderInfo>
        <Contractor>
          <ContractorIdentifier domain="supplierReferenceID">Doe8610</ContractorIdentifier>
          <Contact>
            <Name xml:lang="en">John Doe</Name>
          </Contact>
        </Contractor>
        <ReportedTime>
          <Period startDate="2003-09-22T08:00:00-08:00" endDate="2003-09-22T18:00:00-08:00"/>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular">
            <TimeRange startDate="2003-09-22T08:00:00-08:00" endDate="2003-09-22T18:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT2H" payCode="Mealbreak" isNonBillable="yes">
            <TimeRange startDate="2003-09-22T12:00:00-08:00" endDate="2003-09-22T14:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT2H" payCode="Overtime">
            <TimeRange startDate="2003-09-22T18:00:00-08:00" endDate="2003-09-22T20:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular">
            <TimeRange startDate="2003-09-23T08:00:00-08:00" endDate="2003-09-23T16:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular">
            <TimeRange startDate="2003-09-24T08:00:00-08:00" endDate="2003-09-24T16:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular">
            <TimeRange startDate="2003-09-25T08:00:00-08:00" endDate="2003-09-25T16:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular">
            <TimeRange startDate="2003-09-26T08:00:00-08:00" endDate="2003-09-26T16:00:00-08:00"/>
          </TimeCardTimeInterval>
        </ReportedTime>
      </TimeCard>
    </TimeCardInfoRequest>
  </Request>
</cXML>
```
<TimeCardTimeInterval duration="PT8H" payCode="Regular">
    <TimeRange startDate="2003-09-26T08:00:00-08:00"/>
</TimeCardTimeInterval>

<ReportedTime>
    <SubmitterInfo submittedDate="2003-10-01T08:00:00-08:00">
        <Contact>
            <Name xml:lang="en">John Doe</Name>
        </Contact>
    </SubmitterInfo>
    <ApprovalInfo approvedDate="2003-10-02T08:00:00-08:00">
        <Contact>
            <Name xml:lang="en">John Doe</Name>
        </Contact>
    </ApprovalInfo>
    <DocumentReference payloadID="tc1@buyer.com"/>
</TimeCardTransaction>
</Request>
</cXML>
12 Master Agreements and Contracts

cXML supports the transmission of Master Agreement documents, which are contracts between trading partners. It also supports sending ContractRequest and ContractStatusUpdateRequest documents, which represent contracts sent from a buyer to an external buyer system.

Overview of Master Agreements [page 256]
MasterAgreementRequest [page 256]
ContractRequest [page 259]
ContractStatusUpdateRequest [page 265]

12.1 Overview of Master Agreements

Master Agreements enable buyers to establish a commitment for goods and services with suppliers. They represent a common mechanism for managing supplier and budget commitments, and they enable buyers to negotiate better discounts by basing the discounts on future purchases, while enabling suppliers to more accurately forecast demand.

The Master Agreement transaction enables procurement application to facilitate the negotiation and creation of Master Agreements with suppliers and creation of Release Orders from those Master Agreements. These Agreement documents can be routed from the procurement application to the supplier by a network hub. The execution of an order against a contract is called a release.

12.2 MasterAgreementRequest

The MasterAgreementRequest document defines the Master Agreement created by the buying organization. It specifies beginning and end dates, and the committed maximum and minimum values of the agreement. It also lists maximum and minimum values and quantities for individual items.

The following example shows a MasterAgreementRequest document:

```xml
<MasterAgreementRequest>
  <MasterAgreementRequestHeader
    agreementID="MA123"
    agreementDate="2001-12-01"
    type="value"
    effectiveDate="2002-01-01"
    expirationDate="2002-12-31"
    operation="new">
    <MaxAmount>
      <Money currency="USD">10000</Money>
    </MaxAmount>
    <MaxReleaseAmount>
  </MasterAgreementRequest>
</MasterAgreementRequest>
```
<Money currency="USD">10000</Money>
</MaxReleaseAmount>
<Contact role="BuyerLocation">
  <Name xml:lang="en">Buyer Company</Name>
  <PostalAddress name="default">
    <DeliverTo>Joe Smith</DeliverTo>
    <DeliverTo>Mailstop M-543</DeliverTo>
    <Street>123 Anystreet</Street>
    <City>Sunnyvale</City>
    <State>CA</State>
    <PostalCode>90489</PostalCode>
  </PostalAddress>
</Contact>
<Comments xml:lang="en-US">well formed XML can go here.</Comments>
</MasterAgreementRequestHeader>
<AgreementItemOut maxQuantity="100">
  <MaxAmount>
    <Money currency="USD">1000</Money>
  </MaxAmount>
  <MaxReleaseAmount>
    <Money currency="USD">100</Money>
  </MaxReleaseAmount>
  <ItemOut quantity="1">
    <ItemID>
      <SupplierPartID>1233244</SupplierPartID>
    </ItemID>
    <ItemDetail>
      <UnitPrice>
        <Money currency="USD">1.34</Money>
      </UnitPrice>
      <Description xml:lang="en">Blue Ballpoint Pen</Description>
      <UnitOfMeasure>EA</UnitOfMeasure>
      <Classification domain="UNSPSC">12345</Classification>
      <ManufacturerPartID>234</ManufacturerPartID>
      <ManufacturerName>foobar</ManufacturerName>
      <URL>www.foo.com</URL>
    </ItemDetail>
    <Shipping trackingDomain="FedEx" trackingId="1234567890">
      <Money currency="USD">2.5</Money>
      <Description xml:lang="en-us">FedEx 2-day</Description>
    </Shipping>
    <Comments xml:lang="en-US">Any well formed XML</Comments>
  </ItemOut>
</AgreementItemOut>
</MasterAgreementRequest>

12.2.1 MasterAgreementRequestHeader

The MasterAgreementRequestHeader contains information about the Master Agreement common to all contained items.

MasterAgreementHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementID</td>
<td>The procurement system agreement ID for this request.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>
### AgreementItemOut

The `AgreementItemOut` element specifies the requirements of a particular line item that is part of the Master Agreement contract.

`AgreementItemOut` has the following optional attributes:

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>maxQuantity</td>
<td>Specifies the maximum quantity for this particular line item.</td>
</tr>
<tr>
<td>minQuantity</td>
<td>Specifies the minimum quantity for this particular line item.</td>
</tr>
<tr>
<td>maxReleaseQuantity</td>
<td>Specifies the maximum quantity per release for this particular line item.</td>
</tr>
<tr>
<td>minReleaseQuantity</td>
<td>Specifies the minimum quantity per release for this particular line item.</td>
</tr>
</tbody>
</table>
AgreementItemOut can contain the following optional child elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MaxAmount</td>
<td>Contains the maximum amount for this particular line Item.</td>
</tr>
<tr>
<td>MinAmount</td>
<td>Contains the minimum amount for this particular line Item.</td>
</tr>
<tr>
<td>MaxReleaseAmount</td>
<td>Indicates the item level maximum amount per release.</td>
</tr>
<tr>
<td>MinReleaseAmount</td>
<td>Indicates the item level minimum amount per release.</td>
</tr>
<tr>
<td>ItemOut (required)</td>
<td>A line item that is part of the master agreement.</td>
</tr>
</tbody>
</table>

The lineNumber attribute in the ItemOut specifies the corresponding lineNumber on the Master Agreement in the Procurement Application.

The quantity attribute in the ItemOut should be set to "one" and ignored at the Master Agreement implementation processing stage.

12.3 ContractRequest

The ContractRequest element represents a contract sent from a buyer to an external buyer system.

Here is an example of a ContractRequest:

```xml
<Request deploymentMode="production">
  <ContractRequest>
    <ContractRequestHeader
      operation="new"
      xml:lang="en"
      expirationDate="2016-01-30T00:00:00-00:00"
      effectiveDate="2016-01-11T00:00:00-00:00"
      type="value"
      agreementDate="2016-01-12T00:00:00-00:00"
      createDate="2016-01-11T23:36:18+08:00"
      contractID="CW2009">
      <LegalEntity domain="CompanyCode">100</LegalEntity>
      <OrganizationID>
        <Credential domain="NetworkID">
          <Identity>AN02000000120</Identity>
        </Credential>
        <Credential domain="sap">
          <Identity>0000000100</Identity>
        </Credential>
      </OrganizationID>
      <OrganizationalUnit domain="PurchasingOrganization">1001</OrganizationalUnit>
      <OrganizationalUnit domain="PurchasingGroup">10101</OrganizationalUnit>
      <PaymentTerm payInNumberOfDays="10">
        <Discount>
          <DiscountPercent percent="2"></DiscountPercent>
        </Discount>
        <Extrinsic name="Id">0001</Extrinsic>
      </PaymentTerm>
      <MaxAmount>
        <Money currency="USD">2000.00</Money>
      </MaxAmount>
    </ContractRequestHeader>
  </ContractRequest>
</Request>
```
<MaxAmount>

<TermsOfDelivery>
    <TermsOfDeliveryCode value="TransportCondition"/>
    <ShippingPaymentMethod value="Other"/>
    <TransportTerms value="FOB">Free on board vessel</TransportTerms>
</TermsOfDelivery>
</ContractRequestHeader>

<ContractItemIn>
    <TermsOfDelivery>
        <TermsOfDeliveryCode value="TransportCondition"/>
        <ShippingPaymentMethod value="Other"/>
        <TransportTerms value="FOB">Free on board vessel</TransportTerms>
    </TermsOfDelivery>
</ContractItemIn>

<ItemIn lineNumber="1" quantity="100" itemClassification="material">
    <ItemID>
        <SupplierPartID>1</SupplierPartID>
        <SupplierPartAuxiliaryID></SupplierPartAuxiliaryID>
        <BuyerPartID>992</BuyerPartID> <!-- Material code -->
    </ItemID>
    <ItemDetail>
        <UnitPrice>
            <Money currency="USD">1000.00</Money>
            <Modifications>
                <Modification>
                    <AdditionalDeduction type="DISCOUNT">
                        <DeductionAmount>
                            <Money currency="USD">10.00</Money>
                        </DeductionAmount>
                    </AdditionalDeduction>
                </Modification>
                <Modification>
                    <AdditionalDeduction type="DISCOUNT">
                        <DeductionPercent percent="20"/>
                    </AdditionalDeduction>
                </Modification>
                <Modification>
                    <AdditionalCost>
                        <Money currency="USD">30.00</Money>
                    </AdditionalCost>
                </Modification>
                <Modification>
                    <AdditionalCost>
                        <Percentage percent="20"/>
                    </AdditionalCost>
                </Modification>
            </Modifications>
        </UnitPrice>
        <Description xml:lang="en">Laptops</Description>
        <UnitOfMeasure>EA</UnitOfMeasure>
        <Classification domain="unspsc">43211503</Classification>
        <Classification domain="MaterialGroup">29</Classification>
        <ManufacturerPartID></ManufacturerPartID>
        <ManufacturerName></ManufacturerName>
        <URL></URL>
        <LeadTime>2</LeadTime>
    </ItemDetail>
    <ShipTo>
        <Address addressID="3000" addressIDDomain="buyerLocationID" isoCountryCode="US">
            <Name xml:lang="en">Plant 3000</Name>
        </Address>
    </ShipTo>
</ItemIn>

<ReferenceDocumentInfo lineNumber = "10">
    <DocumentInfo documentID = "PR1234"
documentType = "Requisition"
12.3.1 ContractRequestHeader

ContractRequestHeader is the header element for ContractRequest. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>contractID</td>
<td>Contract ID in the source buyer system for this request.</td>
</tr>
<tr>
<td>type</td>
<td>Identifies whether the contract is value-based or quantity-based. Possible values are &quot;value&quot; or &quot;quantity&quot;.</td>
</tr>
<tr>
<td>createDate</td>
<td>The date and time the contract was created or published.</td>
</tr>
<tr>
<td>agreementDate</td>
<td>The date and time the contract was created. This is different from the contract’s effective date and expiry date.</td>
</tr>
<tr>
<td>effectiveDate</td>
<td>Date the contract is available for ordering or releases.</td>
</tr>
<tr>
<td>expirationDate</td>
<td>Date the contract is no longer available.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language or locale in which the ContractRequest content is written.</td>
</tr>
<tr>
<td>operation</td>
<td>The operational mode of the ContractRequest. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new—Identifies a new contract transaction.</td>
</tr>
<tr>
<td></td>
<td>● update—Identifies an update to an existing transaction. The DocumentInfo element can be used to indicate the contract in the external system.</td>
</tr>
<tr>
<td></td>
<td>● delete—Cancels an existing contract. The delete request should be an exact duplicate of the original request.</td>
</tr>
</tbody>
</table>

ContractRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LegalEntity</td>
<td>A legal entity in the external system. It has an IdReference element.</td>
</tr>
<tr>
<td>OrganizationID</td>
<td>Provides credentials for the organization ID.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>OrganizationalUnit</td>
<td>Identifies the Purchase Unit or Purchase group in the external system. It has an IdReference element.</td>
</tr>
<tr>
<td>PaymentTerm</td>
<td>Defines a payment term in an invoice or order. Payment term can be the net term (without discount) or discount term (with discount).</td>
</tr>
<tr>
<td>QuoteRequestReference</td>
<td>Reference to a quote request originated in the external system.</td>
</tr>
<tr>
<td>MaxAmount</td>
<td>The maximum amount for the contract.</td>
</tr>
<tr>
<td>MinAmount</td>
<td>The minimum amount for the contract.</td>
</tr>
<tr>
<td>MaxReleaseAmount</td>
<td>The contractual maximum quantity per release of a contract.</td>
</tr>
<tr>
<td>MinReleaseAmount</td>
<td>The contractual minimum quantity per release of a contract.</td>
</tr>
<tr>
<td>Contact</td>
<td>Supplies additional Address or Location information for the requesting company.</td>
</tr>
<tr>
<td>Comments</td>
<td>Any additional comments about the contract request.</td>
</tr>
<tr>
<td>DocumentInfo</td>
<td>Contract ID managed in the external system. Included if the operation is &quot;update&quot;.</td>
</tr>
<tr>
<td>ParentContractInfo</td>
<td>Parent contract ID from the external system if the current contract is part of a hierarchy.</td>
</tr>
<tr>
<td>FollowUpDocument</td>
<td>Contains information on how to follow up on a QuoteMessage or ContractRequest. See FollowUpDocument [page 262].</td>
</tr>
<tr>
<td>TermsOfDelivery</td>
<td>Optional shipping terms (incoTerms) as defined by the International Chamber of Commerce.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Additional information about the contract request header.</td>
</tr>
</tbody>
</table>

### 12.3.1.1 FollowUpDocument

Contains information on how to follow up on a QuoteMessage or ContractRequest.

The type and category attributes could be set to anything, but they should be well known strings that can be understood by the backend system. For example, type could be set to "Contract" and category could be set to "WK" or "value". This would give a hint to the backend system that the next step should be to create a WK Contract.

FollowUpDocument has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Indicates the document type. Possible values are Contract, Scheduling Agreement, or any custom document type.</td>
</tr>
</tbody>
</table>
Attribute | Description
--- | ---
category | Indicates the document category.

For an Outline Agreement: Enter value or quantity.

For a Scheduling Agreement: Enter LP or LPA.

For a custom document category: Enter any configured value.

The following examples show FollowUpDocument:

```xml
<FollowUpDocument type="Contract" category="value"/>
<FollowUpDocument type="Scheduling Agreement" category="LP"/>
```

12.3.2 **ContractItemIn**

ContractItemIn represents a contract line item to be sent to an external system. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| operation | Operation to be performed. Possible values:
- new—A new contract line item sent to the external system.
- update—An update to an existing contract line item.
- delete—An instruction to delete this contract line item in the external system. |

| itemType | Specifies the type of item. Possible values:
- composite—Identifies an item group.
- item—Identifies an independent line item.
- lean—Indicates that no child item is expected for the line. |

| serviceLineType | Represents the type of the service line. Possible values:
- standard
- blanket
- contingency
- openquantity
- information |

**ContractItemIn** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MaxAmount</td>
<td>The maximum amount for an item.</td>
</tr>
<tr>
<td>MinAmount</td>
<td>The minimum amount for an item.</td>
</tr>
<tr>
<td>MaxReleaseAmount</td>
<td>The contractual maximum quantity for an item per release (order).</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MinReleaseAmount</td>
<td>The contractual minimum quantity for an item per release (order).</td>
</tr>
<tr>
<td>MaxQuantity</td>
<td>The maximum quantity for an item.</td>
</tr>
<tr>
<td>MinQuantity</td>
<td>The minimum quantity for an item.</td>
</tr>
<tr>
<td>MaxReleaseQuantity</td>
<td>The contractual maximum quantity for an item per release (order).</td>
</tr>
<tr>
<td>MinReleaseQuantity</td>
<td>The contractual minimum quantity for an item per release (order).</td>
</tr>
<tr>
<td>TermsOfDelivery</td>
<td>Optional shipping terms (incoTerms) as defined by the International Chamber of Commerce.</td>
</tr>
<tr>
<td>ItemIn (required)</td>
<td>An item from the source buyer system.</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Optional reference document info for this line item. For example, the Requisition or RFQ in the external system. See ReferenceDocumentInfo [page 128].</td>
</tr>
<tr>
<td>Alternative</td>
<td>Represents an alternative option to service specification lines. If an alternative is specified, it consists of a basic line and one or more alternative lines.</td>
</tr>
</tbody>
</table>

The following example shows a ContractItemIn element:

```xml
<ContractItemIn operation="new" itemType="item" serviceLineType="standard">
  <MaxQuantity>10.000</MaxQuantity>
  <ItemIn itemClassification="service" lineNumber="3" quantity="10.000">
    <ItemID>
      <SupplierPartID></SupplierPartID>
      <SupplierPartAuxiliaryID></SupplierPartAuxiliaryID>
      <BuyerPartID>PROC-IT-SH-001</BuyerPartID>
    </ItemID>
    <ItemDetail>
      <UnitPrice>
        <Money currency="USD">10.00</Money>
      </UnitPrice>
      <Description xml:lang="en">Conan Digital Rebel XTi 10.1-Megapixel</Description>
      <UnitOfMeasure>EA</UnitOfMeasure>
      <Classification domain="MaterialGroup">45000000</Classification>
      <ManufacturerPartID></ManufacturerPartID>
      <ManufacturerName></ManufacturerName>
      <URL></URL>
      <LeadTime></LeadTime>
      <Extrinsic name="Material Number">PROC-IT-SH-001</Extrinsic>
      <Extrinsic name="Material Type">ZARB</Extrinsic>
      <Extrinsic name="Order Unit">EA</Extrinsic>
    </ItemDetail>
    <ShipTo>
      <Address addressIDDomain="buyerLocationID" addressID="3200">
        <Name xml:lang="en">3200</Name>
      </Address>
    </ShipTo>
  </ItemIn>
  <Alternative alternativeType="alternativeLine" basicLineNumber="1"/>
</ContractItemIn>
```

**Note**

You can use pricing conditions to provide different cost term values, like Price, Discount, Surcharge, and so on, per validity period and scale dimension. See Specifying Pricing Conditions [page 199].
12.4 ContractStatusUpdateRequest

ContractStatusUpdateRequest contains the status update for a contract, including whether the contract was created or updated successfully.

Here is an example of ContractStatusUpdateRequest:

```xml
<Request deploymentMode="production">
  <ContractStatusUpdateRequest>
    <ContractStatus type="created">
      <Status xml:lang="en-US" code="200" text="OK">Succeeded</Status>
      <ContractIDInfo contractID="CW2009">
        <IdReference identifier="55000000" domain="SAPAgreementId"/>
      </ContractIDInfo>
      <ContractItemStatus>
        <ItemStatus type="created">
          <ReferenceDocumentInfo lineNumber="1"/>
        </ItemStatus>
        <IdReference identifier="010" domain="SAPLineNumber"/>
      </ContractItemStatus>
      <ContractItemStatus>
        <ItemStatus type="created">
          <ReferenceDocumentInfo lineNumber="2"/>
        </ItemStatus>
        <IdReference identifier="020" domain="SAPLineNumber"/>
      </ContractItemStatus>
    </ContractStatus>
  </ContractStatusUpdateRequest>
</Request>
```

12.4.1 Status

Status of a Response or Message. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>HTTP or cXML-specific status code.</td>
</tr>
<tr>
<td>text</td>
<td>Textual version of the status code.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language or locale in which the ContractStatusUpdateRequest content is written.</td>
</tr>
</tbody>
</table>
12.4.2 ContractStatus

ContractStatus contains item-level status updates for a contract. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type (required)</td>
<td>Type of the contract status, for example, &quot;created&quot;.</td>
</tr>
</tbody>
</table>

ContractStatus has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ContractIDInfo (required)</td>
<td>The contract ID information created/updated in the source buyer system.</td>
</tr>
<tr>
<td>ContractItemStatus</td>
<td>Represents a line item in a contract status update request.</td>
</tr>
<tr>
<td>Comments</td>
<td>Optional field for communicating arbitrary comments or description of an item.</td>
</tr>
</tbody>
</table>

12.4.3 Extrinsic

Optional additional information about the contract status.
13 Later Status Changes

cXML allows entities to set the status of purchase orders and line items within them.

- Overview of Status [page 267]
- StatusUpdateRequest [page 267]
- ConfirmationRequest [page 276]
- OrderStatusRequest [page 289]
- ShipNoticeRequest [page 292]
- ReceiptRequest [page 314]

13.1 Overview of Status

After the OrderRequest transaction has completed, suppliers and intermediate servers might need to communicate additional information back to the buying organization. In addition, after a buying organization receives an invoice, it might need to communicate back to the supplier about invoice status. The transactions described in this chapter are used for that purpose. These transactions share some common semantics and elements.

Like the response to an OrderRequest (see Response to an OrderRequest [page 180]), none of these transactions includes a specific Response element. Instead, the returned document contains a nearly empty Response (only a Status). Each returned document has the form:

```xml
<cXML payloadID="9949494@supplier.com"
timestamp="2000-01-12T18:39:09-08:00" xml:lang="en-US">
  <Response>
    <Status code="200" text="OK"/>
  </Response>
</cXML>
```

The returned code is "200" only if the operation completed successfully.

13.2 StatusUpdateRequest

This transaction informs an earlier node about changes in the processing status of an order, invoice, or service sheet.

One change is of particular significance: when an intermediate hub successfully transmits a document onward, it can inform the original sender or a previous hub about that success. Transitions through various queues and processing steps at a supplier or hub might also be significant to the buying organization.
Order-processing partners (such as fax or EDI service providers) send StatusUpdateRequest transaction messages to network hubs to set purchase order status. It affects the order status indicator on the hub, which is visible to both buyers and suppliers. Additionally, suppliers can send this transaction to allow buying organizations to see the status of document processing within the supplier’s organization.

Buying organizations use StatusUpdateRequest to update the status of invoices on network hubs, which can in turn forward them to suppliers.

The StatusUpdateRequest updates the processing status of a single OrderRequest document. For example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML xml:lang="en-US"
    payloadID="0c30050@supplierorg.com"
    timestamp="2000-01-08T23:00:06-08:00">
    <Header>
        <From>
            <Credential domain="NetworkId">
                <Identity>AN00000123</Identity>
            </Credential>
        </From>
        <To>
            <Credential domain="NetworkId">
                <Identity>AN00000456</Identity>
            </Credential>
        </To>
        <Sender>
            <Credential domain="NetworkId">
                <Identity>AN00000123</Identity>
                <SharedSecret>abracadabra</SharedSecret>
            </Credential>
            <UserAgent>Supplier’s Super Order Processor</UserAgent>
        </Sender>
    </Header>
    <Request>
        <StatusUpdateRequest>
            <DocumentReference
                payloadID="0c300508b7863dc1lb_14999"/>
            <Status code="200" text="OK" xml:lang="en-US">Forwarded to supplier</Status>
        </StatusUpdateRequest>
    </Request>
</cXML>
```

This request contains only a DocumentReference and a Status element. The Status can communicate a later transport error encountered by an intermediate hub. The semantics of this element are identical to a Status that might have been returned in the initial HTTP response to an OrderRequest document.

The 200/OK code is especially important when documents are stored and forwarded. This code indicates that a supplier has begun processing the OrderRequest or a hub has forwarded the document. The recipient should expect no further StatusUpdateRequest documents after 200/OK arrives.

Suppliers and hubs utilizing the StatusUpdate transaction must return code 201/Accepted when an OrderRequest is queued for later processing. After it sends 200/OK (in the immediate Response to an OrderRequest or a later StatusUpdateRequest), the server should send no further StatusUpdate transactions for that order. Errors later in processing might lead to exceptions to this rule.
13.2.1 DocumentReference

The DocumentReference element associates a status update with a particular OrderRequest or InvoiceDetailRequest document. It repeats a required attribute of the earlier document and adds one optional identifier generated by the supplier. For example:

```xml
<DocumentReference
   payloadID="0c300508b7863dclb_14999"/>
```

DocumentReference contains no elements, but has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID (required)</td>
<td>A unique number with respect to space and time that is used for logging purposes to identify documents. This value should not change in the case of retry attempts.</td>
</tr>
<tr>
<td></td>
<td>The recommended implementation is:</td>
</tr>
<tr>
<td></td>
<td>datetime.process id.random number@hostname</td>
</tr>
<tr>
<td></td>
<td>Taken directly from the cXML element of the OrderRequest or InvoiceDetailRequest document.</td>
</tr>
</tbody>
</table>

DocumentReference is optional. StatusUpdateRequest documents for invoices can use InvoiceIDInfo elements within InvoiceStatus elements to identify the invoices.

13.2.2 Status

Status of a Response or Message. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code (required)</td>
<td>HTTP or cXML-specific status code.</td>
</tr>
<tr>
<td>text (required)</td>
<td>Textual version of the status code.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>The language in which the text attribute and element content are written.</td>
</tr>
</tbody>
</table>

13.2.3 PaymentStatus

The PaymentStatus element contains the status of a PCard transaction. The status update includes information such as the success of the transaction, transaction ID, authorization ID, order ID, total, tax, shipping information, and the time stamp of the original submission.

A StatusUpdateRequest document is sent to a supplier in response to a ConfirmationRequest with type="RequestToPay" to a network hub. This ConfirmationRequest invokes a payment service where the network hub requests a payment service provider to perform a point of sale transaction against the PCard
The network hub then sends the transaction status back to the supplier in a `StatusUpdateRequest` document. For example:

```xml
<StatusUpdateRequest>
  <DocumentReference payloadID="0c300508b7863dccc1b_14999"/>
  <Status code="0" text="Approved">Approved</Status>
  <PaymentStatus orderID="PC100" transactionTimestamp="2000-01-08T10:00:06-08:00" type="Sale" transactionID="V20000212000" authorizationID="PN123">
    <PCard number="1234567890123456" expiration="2003-03-31"/>
    <Total>
      <Money currency="USD">500.00</Money>
      <Shipping>
        <Money currency="USD">20.00</Money>
        <Description xml:lang="en">shipping charge</Description>
      </Shipping>
      <Tax>
        <Money currency="USD">40.00</Money>
        <Description xml:lang="en">CA Sales Tax</Description>
      </Tax>
    </PaymentStatus>
  </StatusUpdateRequest>
```

The `PaymentStatus` element contains the required `PCard` and `Total` element, and optionally `Shipping`, `Tax`, and `Extrinsic` elements.

The `PCard` element contains two attributes that specify the number of the PCard and its expiration date.

`PaymentStatus` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>orderID</code></td>
<td>Identifies the referenced order. It is copied from the ConfirmationRequest or the OrderRequest.</td>
</tr>
<tr>
<td><code>transactionTimestamp</code></td>
<td>Specifies the time when the payment transaction was submitted.</td>
</tr>
<tr>
<td><code>type</code></td>
<td>Specifies the type of PCard transaction. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- Authorization—Authorizes the PCard. No charge is made. There is one authorization per order.</td>
</tr>
<tr>
<td></td>
<td>- Settlement—Transfers the funds secured by a previous authorization transaction.</td>
</tr>
<tr>
<td></td>
<td>- Sale—Initiates a charge to the PCard.</td>
</tr>
<tr>
<td></td>
<td>- Credit—Initiates a credit against the original charge. Compensates for an order that did not meet buyer expectations, to make adjustments to an account that was overcharged, or to credit an account for items returned by a buyer.</td>
</tr>
<tr>
<td><code>transactionID</code></td>
<td>Assigned to the transaction by the payment processing gateway.</td>
</tr>
<tr>
<td><code>authorizationID</code></td>
<td>The authorization code for the transaction provided by the bank.</td>
</tr>
</tbody>
</table>
13.2.4 SourcingStatus

The SourcingStatus element provides update information for a RFQ sourcing transaction, PunchOutSetupRequest document with operation="source".

```xml
<StatusUpdateRequest>
    <DocumentReference payloadID="123345678.RFQID:1234456787" />
    <Status code="200" text="OK">Approve Request</Status>
    <SourcingStatus action="approve" xml:lang="en"/>
</StatusUpdateRequest>
```

The action attribute identifies the update type for the transaction. Can be “approve”, “cancel”, or “deny”. The body of the SourcingStatus element can contain human-readable information about the new state of the RFQ.

13.2.5 InvoiceStatus

When using StatusUpdateRequest for invoices, include the InvoiceStatus element.

```xml
<StatusUpdateRequest>
    <Status code="201" text="OK">Approved</Status>
    <InvoiceStatus type="reconciled">
        <InvoiceIDInfo invoiceID="INV123"
            invoiceDate="2005-04-20T23:59:20-07:00"/>
    </InvoiceStatus>
</StatusUpdateRequest>
```

InvoiceStatus has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Refers to the action taken by the buying organization on the invoice. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● processing—The invoice was received by the buying organization and is being processed.</td>
</tr>
<tr>
<td></td>
<td>● reconciled—The invoice successfully reconciled. The amounts in the invoice have not yet been paid.</td>
</tr>
<tr>
<td></td>
<td>● rejected—The invoice failed reconciliation. The buying organization is rejecting the invoice. The Comments element should contain free text explaining why the invoice was rejected, and the actions the supplier should take. The supplier can then submit a corrected invoice (a new invoice document with a new invoice number).</td>
</tr>
<tr>
<td></td>
<td>● paying—The invoice has been approved for payment and is in the payment process.</td>
</tr>
<tr>
<td></td>
<td>● paid—The invoice amounts have been paid by the buying organization.</td>
</tr>
</tbody>
</table>

13.2.5.1 InvoiceIDInfo

Use the InvoiceIDInfo element if the DocumentReference element is omitted. It identifies a specific invoice document by invoice ID and date, not by payloadID as required by DocumentReference.
InvoiceIDInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceID</td>
<td>A supplier-generated identifier for the Invoice. This value is the invoiceID attribute that was in the InvoiceDetailRequestHeader of the invoice.</td>
</tr>
<tr>
<td>invoiceDate</td>
<td>Date and time the invoice was created.</td>
</tr>
</tbody>
</table>

13.2.5.2 PartialAmount

The PartialAmount element allows buying organizations to specify different amounts paid than the amounts specified in invoices. If invoices are paid in full, do not include PartialAmount. The existence of PartialAmount alerts the supplier to read the Comments elements which should contain more explanations on the differences.

13.2.6 DocumentStatus

Provides a status update for a document, such as a service sheet or an order confirmation.

DocumentStatus has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Describes the type of document status. The possible values depend on the network hub and the type of document being updated.</td>
</tr>
</tbody>
</table>

When updating a service sheet (ServiceEntryRequest), possible values are:

- approved—The buying organization has approved the service sheet.
- canceled—The buying organization has received the service sheet and has canceled it.
- processing—The buying organization has received the service sheet and is processing it.
- rejected—The buying organization has rejected the service sheet. The Comments element should contain free text explaining why the service sheet was rejected and the actions the supplier should take. The supplier can resubmit a corrected service sheet (for example, a new ServiceEntryRequest document with a new serviceEntryID).

When updating an order confirmation (ConfirmationRequest), the only possible value is ConfirmationStatusUpdate.

When buyers update a ship notice (ShipNoticeRequest), they can use the value AcceptedWithChanges to indicate that the ship notice is accepted with proposed changes.

Here is an example of a DocumentStatus for a service sheet:

```xml
<Request>
```
Here is an example of a DocumentStatus for an order confirmation:

```xml
<Request>
  <StatusUpdateRequest>
    <DocumentReference payloadID="oc123456" />
    <Status code="200" text="OK" />
    <DocumentStatus type="ConfirmationStatusUpdate">
      <!-- Status from the buyer's backend, lineNumber refers to the OC -->
      <ItemStatus type="rejected" code="out-of-tolerance">
        <ReferenceDocumentInfo lineNumber="1" />
        <Comments>Some back-ordered items have an out-of-tolerance delivery date.</Comments>
      </ItemStatus>
      <ItemStatus type="approved">
        <ReferenceDocumentInfo lineNumber="2" />
      </ItemStatus>
    </DocumentStatus>
  </StatusUpdateRequest>
</Request>
```

Here is an example of a DocumentStatus for a ship notice. The Comments element contains proposed ship notice changes. The comments are informational only and do not affect the ship notice.

```xml
<Request>
  <StatusUpdateRequest>
    <DocumentReference payloadID="ServiceOrderPayloadID12345" />
    <Status code="200" text="OK" />
    <DocumentStatus type="AcceptedWithChanges">
      <DocumentInfo documentID="SES-HC-t1" documentType="ShipNoticeDocument"
        documentDate="2018-08-12T21:03:20-07:00">
        <Comments>proposed ship notice changes</Comments>
      </DocumentInfo>
      </DocumentStatus>
  </StatusUpdateRequest>
</Request>
```
13.2.6.1 DocumentInfo

Identifies an earlier document known to the system. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>documentID</td>
<td>The ID of a document known to the system.</td>
</tr>
<tr>
<td>documentType</td>
<td>The document type. For a StatusUpdateRequest for a service sheet, type is</td>
</tr>
<tr>
<td></td>
<td>ServiceEntryRequest.</td>
</tr>
<tr>
<td>documentDate</td>
<td>The date when the referenced document was created.</td>
</tr>
</tbody>
</table>

13.2.6.2 ItemStatus

Contains detailed information about an item when a buyer sends a StatusUpdateRequest in response to a ConfirmationRequest. For example, it could contain information from a backend procurement system.

ItemStatus has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Specifies the item status. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● rejected—The item was rejected.</td>
</tr>
<tr>
<td></td>
<td>● accepted—The item was accepted.</td>
</tr>
<tr>
<td>code</td>
<td>Optional code for the item status from the backend system.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>The line number of the corresponding parent line item to identify this item's hierarchical parent item in a response message.</td>
</tr>
</tbody>
</table>

ItemStatus has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Contains information about a referenced document. See ReferenceDocumentInfo</td>
</tr>
<tr>
<td></td>
<td>[page 128].</td>
</tr>
<tr>
<td>Comments</td>
<td>Optional field for communicating arbitrary comments about the item status.</td>
</tr>
</tbody>
</table>

13.2.6.3 Comments

Optional field for communicating arbitrary comments about the document status.
13.2.7 IntegrationStatus

The IntegrationStatus element allows external parties to provide document status visibility after the document is processed and delivered by the network hub.

IntegrationStatus has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>documentStatus</td>
<td>Indicates document status and could be one of the following values:</td>
</tr>
<tr>
<td>(required)</td>
<td>• deliverySuccessful—The document was successfully delivered to the customer (but no processing confirmation has been issued yet).</td>
</tr>
<tr>
<td></td>
<td>• deliveryDelayed—The document is experiencing delays while trying to reach the customer.</td>
</tr>
<tr>
<td></td>
<td>• deliveryFailed—The document couldn’t be sent to the customer due to a failure between the gateway and the customer.</td>
</tr>
<tr>
<td></td>
<td>• deliveryReady—When sending to the buyer, the document has been queued and is ready for pick-up.</td>
</tr>
<tr>
<td></td>
<td>• customerConfirmed—The customer has confirmed that the document has been processed successfully.</td>
</tr>
<tr>
<td></td>
<td>• customerReceived—The customer has confirmed that the document has been received successfully.</td>
</tr>
<tr>
<td></td>
<td>• customerFailed—The customer has received the document and is reporting a failure in the content.</td>
</tr>
</tbody>
</table>

IntegrationStatus has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IntegrationMessage</td>
<td>Indicates the type/result of the message received by external parties. It has two required attributes:</td>
</tr>
<tr>
<td></td>
<td>• isSuccessful—Indicates whether the message is positive or negative.</td>
</tr>
<tr>
<td></td>
<td>• type—Indicates the message type, for example, 997/824/MDN.</td>
</tr>
</tbody>
</table>

Here is an example of a StatusUpdateRequest with IntegrationStatus information:

```xml
<StatusUpdateRequest>
  <DocumentReference payloadID="1DA85A45-C90E-4668-AE9D-A85F4612E7E5"></DocumentReference>
  <Status text="Processed" code="201">Positive 824 received.</Status>
  <IntegrationStatus documentStatus="customerConfirmed">
    <IntegrationMessage isSuccessful="yes" type="824"/>
  </IntegrationStatus>
</StatusUpdateRequest>
```

13.2.8 Extrinsic

The Extrinsic element allows inclusion of additional information about the status of a document being updated.
13.3 ConfirmationRequest

This transaction provides detailed status updates on a specific Order Request. It extends the simple acknowledgment of an order, provided by StatusUpdateRequest, to a more detailed item level confirmation and ship notification.

**Note**
The DTD for this transaction is contained in Fulfill.dtd rather than cXML.dtd.

No specific Response document is required for this transaction. Servers must respond to a ConfirmationRequest with a generic Response document.

A document is one of the following types, specified by the type attribute of the ConfirmationHeader element: "accept," "allDetail," "detail," "backordered," "except," "reject," "requestToPay," and "replace." With a type of "detail," you can update portions of a purchase order, such as prices, quantities, and delivery dates, reject portions, and add tax and shipping information. Only the line items mentioned are changed. With a type of "allDetail," you can update all information of specified line items without rejecting or accepting the order. You can apply the confirmation to the entire order request using the types "accept," "reject," and "except." "allDetail" and "detail" update individual lines, they do not accept or reject the entire order.

A ConfirmationRequest with type="requestToPay" invokes a payment service where the network hub requests a payment service provider to perform a point of sale transaction against the PCard listed in the purchase order and return the status of the transaction. The network hub then sends the transaction status back to the supplier in a StatusUpdateRequest document.

The following example shows a ConfirmationRequest element that is of type "accept".

```xml
<ConfirmationRequest>
  <!-- Without the confirmID, it remains possible to update this confirmation. An update would refer (in the OrderReference element) to the same OrderRequest document, would describe the status of the same items, and would point to this document through its DocumentReference element. However, the confirmID makes the update much more explicit.-->  
  <ConfirmationHeader type="accept" noticeDate="2000-10-12T18:39:09-08:00" confirmID="C999-234" invoiceID="I1010-10-12">
    <Shipping>
      <Money currency="USD">2.5</Money>
      <Description xml:lang="en-CA">FedEx 2-day</Description>
    </Shipping>
    <Tax>
      <Money currency="USD">0.19</Money>
      <Description xml:lang="en-CA">CA Sales Tax</Description>
    </Tax>
    <Contact role="shipFrom">
      <Name xml:lang="en-CA">Workchairs, Vancouver</Name>
      <PostalAddress>
        <Street>432 Lake Drive</Street>
        <City>Vancouver</City>
        <State>BC</State>
        <PostalCode>V3C 2G4</PostalCode>
        <Country isoCountryCode="CA">Canada</Country>
      </PostalAddress>
      <Phone>
        <TelephoneNumber>
        </TelephoneNumber>
      </Phone>
    </Contact>
  </ConfirmationHeader>
</ConfirmationRequest>
```
Multiple “detail” ConfirmationRequest documents can refer to a single purchase order, but they must not refer to common line items.

To perform a substitution, include a ConfirmationItem element to specify the item to be replaced, then provide an ItemIn element for the replacement. You should then wait for a corresponding change order from the buyer before shipping.

The ConfirmationRequest element is a request to add confirmation information to the data known about an order at the receiving server. It can contain three elements: ConfirmationHeader, OrderReference, and an optional ConfirmationItem. If the Confirmation Request type specified in the ConfirmationHeader is either “detail” or “except”, you can include ConfirmationItem elements to update specific line items from a purchase order.

While suppliers send multiple confirmations for a purchase order, each confirmation must mention a line item only once. In addition, a line item must not be mentioned in more than one confirmation request. Multiple confirmations are allowed, and sensible, only for “allDetail” or “detail”. Only one confirmation per order is allowed for “accept”, “except”, or “reject”. When a confirmation with one of these types arrives, the receiving system must discard all previous confirmations for the purchase order.

ConfirmationItem elements can appear in any order within the ConfirmationRequest document. However, listing the lineNumber elements in ascending order is preferred. Again, no line item can appear more than once within a ConfirmationRequest element.

The ConfirmationRequest can include the OrderStatusRequestReference and OrderStatusRequestIDInfo as optional elements to explicitly reference the OrderStatusRequest associated to the ConfirmationRequest.

Related Information

OrderStatusRequest [page 289]

13.3.1 OrderReference

The OrderReference element provides a clear reference to a purchase order. While the contained DocumentReference provides an unambiguous reference, the additional attributes of the OrderReference allow the ConfirmationRequest and ShipNoticeRequest to be viewed independently. The OrderReference contains a DocumentReference element and two attributes: orderID and orderDate.
**OrderReference** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>Specifies the buyer system orderID for the confirmation, that is, the PO number. When used, it must be copied directly from the referenced OrderRequest OrderRequestHeader element.</td>
</tr>
<tr>
<td>orderDate</td>
<td>Specifies the date and time the OrderRequest was created. If present, it must be copied directly from the referenced OrderRequest OrderRequestHeader element.</td>
</tr>
</tbody>
</table>

**Related Information**

[DocumentReference](page 296)

**13.3.2 ConfirmationHeader**

The ConfirmationHeader element contains information that is common to all items contained in the ConfirmationRequest. It has the following attributes:

**ConfirmationHeader** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>confirmID</td>
<td>A supplier-specified optional identifier for the document assigned by the supplier. The attribute is user-visible and secondary to the document's payloadID. This value does not vary as a particular confirmation is updated. That is, documents with operation=&quot;update&quot; describing the status of the same items in the same order share a confirmID with the original ConfirmationRequest with operation=&quot;new&quot;. When the confirmID does not appear in an operation=&quot;new&quot; ConfirmationRequest, it must not appear in a corresponding operation=&quot;update&quot; document. The DocumentReference element contained in the update's ConfirmationHeader and the payloadID attribute of the original or previous update link the two documents.</td>
</tr>
</tbody>
</table>
| operation | Specifies whether the confirmation is new, or an update to a previous confirmation. Possible values:  
  - new—Default value. No previous confirmation request has been sent.  
  - update—Updates a previous confirmation request. The confirmID must match a previous request's confirmID. |
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| type (required) | Specifies the type of confirmation. Possible values:  
  • accept—Accepts the entire order as described in the referenced purchase order. A document of this type can contain ConfirmationItem elements. They must contain only ConfirmationStatus elements of type="accept".  
  • allDetail—Updates only specific line items. Line items not mentioned retain their current status. Unlike the "detail" type, this type of confirmation includes all information known by the supplier, whether or not it differs from the data provided in the original OrderRequest document. This confirmation is compatible with current EDI and order entry tools, which commonly send buyers a snapshot of an order in supplier's systems. Due to the reconciliation issues caused by confirmations of this type, it is recommended that this type be considered as a "bridge" strategy for the short term. This confirmation must contain ConfirmationItem elements and ConfirmationStatus elements must have types "allDetail","reject", or "unknown". Do not include "accept" or "detail" ConfirmationStatus types because they could conflict.  
  • detail—Updates individual line items. Line items not mentioned retain their current states. This document type should include only information that differs from the information in the purchase order. Do not include the variations described in an earlier ConfirmationRequest in later ConfirmationRequest documents that restore information provided in the purchase order. For example, the Tax element might appear in the ConfirmationStatus of one ConfirmationRequest but not in an update to that confirmation. This signifies that the purchase order contained the correct charge. This document type must contain ConfirmationItem elements and ConfirmationStatus elements can have any type except "allDetail".  
  • backordered—Sets the entire purchase order to backordered status. The supplier does not have the items in stock, but will ship them when they are available.  
  • except—Accepts the entire purchase order with exceptions. Line items not mentioned are as described in the purchase order. This document type must contain ConfirmationItem elements and ConfirmationStatus elements can have any type except "allDetail".                                                                                                                                                                                                                     |
<p>| noticeDate (required) | Specifies the date and time the confirmation document was created.                                                                                                                                                                                                                                                                                                                                                                                                            |
| invoiceID       | Optional supplier-generated identifier for an invoice associated with the items described in this confirmation. It is identical to the Invoice Number that appears at the top of a physical invoice.                                                                                                                                                                                                                                                  |</p>
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>incoTerms</td>
<td>Specifies optional shipping terms defined by the International Chamber of Commerce. These terms inform the buyer which portion of the shipping charges are their responsibility. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• cfr—Cost and freight.</td>
</tr>
<tr>
<td></td>
<td>• cif—Cost, insurance, and freight.</td>
</tr>
<tr>
<td></td>
<td>• cip—Carriage and insurance paid to.</td>
</tr>
<tr>
<td></td>
<td>• cpt—Carriage paid to.</td>
</tr>
<tr>
<td></td>
<td>• daf—Delivered at frontier.</td>
</tr>
<tr>
<td></td>
<td>• ddp—Delivered duty paid.</td>
</tr>
<tr>
<td></td>
<td>• ddu—Delivered duty unpaid.</td>
</tr>
<tr>
<td></td>
<td>• deq—Delivered ex quay (duty paid).</td>
</tr>
<tr>
<td></td>
<td>• des—Delivered ex ship.</td>
</tr>
<tr>
<td></td>
<td>• exw—Ex works.</td>
</tr>
<tr>
<td></td>
<td>• fas—Free alongside ship.</td>
</tr>
<tr>
<td></td>
<td>• fca—Free carrier.</td>
</tr>
<tr>
<td></td>
<td>• fob—Free on board vessel.</td>
</tr>
<tr>
<td>version</td>
<td>The version number for this confirmation. It should start with 1 and should be incremented by 1 for each subsequent version (2,3,4...).</td>
</tr>
</tbody>
</table>

The `ConfirmationHeader` element can contain the following elements:

- DocumentReference
- Tax
- Shipping
- Total
- Contact
- Hazard
- Comments
- IdReference
- Extrinsic

If the `ConfirmationHeader` is either, "allDetail", "detail" or "except", you can include `ConfirmationItem` elements to update specific line items from a purchase order.

The following example shows a `ConfirmationRequest` of type "except":

```xml
<ConfirmationRequest>
  <!-- Without the confirmID, it remains possible to update the original confirmation. -->
  <ConfirmationHeader type="except" noticeDate="2000-10-13T18:39:09-08:00" confirmID="C999-234" operation="update">
    <!-- This update refers (in the OrderReference element) to the same OrderRequest document, describes the status of the same items and refers to the original confirmation document in the DocumentReference element. However, the confirmID makes the update much more explicit. Note: The noticeDate changes to match the time of the update and not the original confirmation time. -->
  </ConfirmationHeader>
</ConfirmationRequest>
```
The `DocumentReference` element should appear only when `operation` is "update". It should reference the most recent `ConfirmationRequest` document for this particular confirmation, usually indicated by a common `confirmID`. For example, when a confirmation is created, updated, and then updated again, the final document should contain a `DocumentReference` referring to the previous `ConfirmationRequest` with `operation="update"`. That document, in turn, refers to the original `operation="new"` `ConfirmationRequest` document.
13.3.2.2 Tax and Shipping

Tax and Shipping amounts can be updated and included in the confirmation with new values without any corresponding line item information.

13.3.2.3 Total

The Total value should match the OrderRequest document value unless a ConfirmationItem describes a new UnitPrice or quantity. It is not necessary to copy this information from the OrderRequest document: although permissible, Total, Tax, and Shipping information should not be included if they match those amounts in the original order.

The Total element also contains the Modifications element which stores any modification to the original price or shipping price of the item. This element can store a set of one or more Modification elements.

The Modification element contains details of the allowances and charges applicable at the header-level. For more information, see Total [page 110].

13.3.2.4 Contact

The Contact element should be used primarily to add new information about an order. It is not necessary to copy this information from the OrderRequest document.

Contact role values include:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>technicalSupport</td>
<td>Technical support</td>
</tr>
<tr>
<td>customerService</td>
<td>Customer service</td>
</tr>
<tr>
<td>sales</td>
<td>Sales</td>
</tr>
<tr>
<td>shipFrom</td>
<td>Starting point for shipments related to this order</td>
</tr>
<tr>
<td>shipTo</td>
<td>Copies the ShipTo element from the OrderRequest document</td>
</tr>
<tr>
<td>payTo</td>
<td>Where payment for this order should be sent</td>
</tr>
<tr>
<td>billTo</td>
<td>Copies the BillTo element from the OrderRequest document</td>
</tr>
<tr>
<td>supplierCorporate</td>
<td>Supplier at corporate</td>
</tr>
</tbody>
</table>

Elements in the Contact list can appear in any order. A contact role must not appear more than once within a ConfirmationHeader element.
13.3.2.5 Hazard

Elements in the Hazard list can appear in any order. The same hazard should not be listed more than once in a ConfirmationHeader element. Each hazard listed at this level should apply to the entire order or all items mentioned in the confirmation. A ConfirmationRequest that updates the status of a single line item should not include Hazard elements in the ConfirmationItem element. See Hazard [page 311] for more information.

13.3.2.6 Comments

The Comments element can contain additional information about the status of the overall order, or the portion described in this confirmation, such as payment terms, additional details on shipping terms and clarification of the status. For status information, terms such as “backordered”, “shipped”, and “invalid” might be appropriate. All such data are intended for human use.

13.3.2.7 IdReference

Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier).

IdReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>identifier</td>
<td>The unique identifier of the IdReference within the domain.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>domain</td>
<td>The domain of the IdReference. Possible values are: accountID, bankRoutingID, accountPayableID, accountReceiveableID, bankAccountID, ibanID, abaRoutingNumber, bankNationalID, isoBICID, swiftID, bankBranchID, federalTaxID, stateTaxID, provincialTaxID, vatID, gstID, and taxExemptionID. supplierTaxID is deprecated and will be treated as federalTaxID. Other possible values could be 1099ID, courtRegisterID, supplierReference, governmentNumber, documentName, and so on.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>
IdReference has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creator</td>
<td>The creator of this IdReference.</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description of the IdReference, for human readability.</td>
</tr>
</tbody>
</table>

### 13.3.2.8 Extrinsic

The Extrinsic element list can be used to insert additional data about the order for application consumption. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order. An extrinsic type must not appear more than once within a ConfirmationHeader element. A type must not be mentioned both in this list and in a particular ConfirmationStatus element. The ConfirmationHeader must not contain a default extrinsic value overridden at the lower level.

### 13.3.3 ConfirmationItem

The ConfirmationItem element completely describes the status of a specific line item. The ConfirmationItem element can contain the following elements: UnitOfMeasure, ConfirmationStatus, Contact, and Hazard. ConfirmationStatus can occur more than once, and only Contact is optional.

ConfirmationItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Specifies how many items were ordered. Expressed in units given in the UnitOfMeasure element. Matches the quantity value for the line item’s ItemOut element in the corresponding OrderReference element.</td>
</tr>
<tr>
<td>lineNumber (required)</td>
<td>Position, counting from 1, of the item in an order. Matches the corresponding line item, ItemOut, in the document referenced by the OrderReference element.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>The line number of the corresponding parent line item. This attribute is applicable only for a line item with itemType=&quot;item&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>- item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>- lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>compositeItemType</td>
<td>Specifies whether a parent item uses group-level pricing. Possible values are &quot;groupLevel&quot; or &quot;itemLevel&quot;.</td>
</tr>
</tbody>
</table>

You can use more than one ConfirmationRequest document to update the status of an entire order, but only mention a particular line item in one document and in only one ConfirmationItem within that document.
13.3.3.1 Contact

Use Contact elements in the ConfirmationItem to describe contacts specific to the item. The elements can be in any order. If you specify a particular Contact role, specify it in the ConfirmationItem or ConfirmationHeader but not both. Do not specify the role more than once within a ConfirmationItem.

List elements in the Contact list in any order. Do not add a Contact role attribute more than once within a ConfirmationItem element.

13.3.3.2 Hazard

See Hazard [page 311].

13.3.3.3 ConfirmationStatus

The ConfirmationStatus element provides the status of a specific line item or portion thereof. Quantities at this level must sum to the quantity in the containing ConfirmationItem. Use a consistent UnitOfMeasure in the ConfirmationItem element and its contained ConfirmationStatus element. In a substitution, you can use a different UnitOfMeasure in the ItemDetail contained within the ItemIn element.

When accepting or rejecting an item, include only a UnitOfMeasure element in the ConfirmationStatus element.

Use an ItemIn element only to recommend a substitution. With a substitution, you must match the quantity of the ItemIn element to that of the containing ConfirmationStatus, unless the UnitOfMeasure has changed. This requires an ItemDetail element within the ItemIn element.

The ConfirmationStatus element also contains the Modifications element. The Modification element contains details of the allowances and charges applicable at the line-item level. For more information, see Total [page 110].

The following example shows a Modification element:

```xml
<ConfirmationItem quantity = "3" lineNumber = "1">
   <UnitOfMeasure>DZ</UnitOfMeasure>
   <ConfirmationStatus type = "unknown" quantity = "1">
      <UnitOfMeasure>DZ</UnitOfMeasure>
   </ConfirmationStatus>
   <ConfirmationStatus type = "accept" quantity = "2">
      <UnitOfMeasure>DZ</UnitOfMeasure>
      <UnitPrice>
         <Money currency = "USD">47</Money>
      </UnitPrice>
      <Modifications>
         <Modification>
            <OriginalPrice>
               <Money currency = "USD">45.00</Money>
            </OriginalPrice>
            <AdditionalDeduction>
               <DeductionAmount>
                  <Money currency = "USD">5.00</Money>
               </DeductionAmount>
            </AdditionalDeduction>
         </Modification>
      </Modifications>
   </ConfirmationStatus>
</ConfirmationItem>
```
You can update UnitPrice, Tax and Shipping amounts in the ConfirmationStatus element without a complete part substitution. It is not necessary to copy this information from the OrderRequest document. Do not include UnitPrice, Tax, and Shipping if they match those in the original ItemOut element. You can also update the PriceBasisQuantity in the ConfirmationStatus element if you are confirming an order containing quantity-based pricing.

When the type is "accept", "allDetail", or "detail", you can add tax or shipping amounts not mentioned in the original order. Use the "accept" type when these additions are the only changes to the order. Use the "detail" type to indicate a substitution if there is an ItemIn element, a price change if there is a UnitPrice element, or a delayed shipment if there is a deliveryDate attribute. The "allDetail" type requires reconciliation software to determine what has changed since the original order.

ConfirmationStatus has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Specifies how many items have this status. Expressed in the units specified in the UnitOfMeasure element.</td>
</tr>
</tbody>
</table>
Attribute | Description
--- | ---
type (required) | Specifies the status of this portion of the order. Possible values:
  - accept—Accept this portion as described in the referenced ItemOut element.
  - allDetail—Accept this portion of the line item as detailed in the contents of this ConfirmationStatus element. These contents completely describe what will be shipped. Unlike the “detail” type, this confirmation type includes all information known by the supplier, whether or not it differs from the data provided in the original OrderRequest document.
  - detail—Accept this portion with the changes detailed in the ConfirmationStatus element. At least one of the UnitPrice, Shipping, Tax, or ItemIn elements, or the deliveryDate attribute must be present. This is a substitution if there is an ItemIn element, a price change if there is a UnitPrice element, or a delayed shipment if there is a deliveryDate attribute.
  - reject—Reject this portion of the line item.
  - requestToPay—Requests payment for this portion of the line item. It initiates a request to the financial institution to begin the settlement process of the portion of the line item. This type is allowed in documents with overall request (ConfirmationHeader) type "requestToPay".
  - unknown—The status of this portion of the line item is not known at the time of this confirmation. This line item status provides a placeholder while the supplier does further research. Update confirmations can also reset the status of a line item portion to "unknown" when an earlier confirmation incorrectly accepted or rejected that portion. Allowed only in documents whose ConfirmationHeader type is "allDetail", "detail", or "except".
  - backordered—Sets this portion of the line item to backordered status. The supplier does not have the items in stock, but will ship them when they are available.

shipmentDate | Specifies the date and time this shipment is expected to leave the supplier. Use the ConfirmationStatus element to include this information if the type is "accept", "allDetail", or "detail".
deliveryDate | Specifies the new date and time this shipment is expected to arrive. Do not include if the value matches the requestedDeliveryDate attribute, if any, in the corresponding OrderRequest document. Otherwise, use the ConfirmationStatus element to include this information if its type is "accept", "allDetail", or "detail".

ConfirmationStatus has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure (required)</td>
<td>Describes how the product is packaged or shipped. It must conform with UN/CEFACT Unit of Measure Common Codes.</td>
</tr>
</tbody>
</table>
### ItemIn | (UnitPrice, Tax, Shipping)

Enter either ItemIn, which represents an item added from a shopping basket to a requisition in the procurement application, or the UnitPrice, Tax, or Shipping details.

### SupplierBatchID

An identifier from the supplier to identify the material/goods produced in a single manufacturing run. See SupplierBatchID or Batch [page 312].

### ScheduleLineReference

Defines all references related to a schedule line in the confirmation. See ScheduleLineReference [page 288].

### ComponentConsumptionDetails

Contains detailed information about consumption of components in the manufacturing of final product. See ComponentConsumptionDetails [page 455].

### Comments

Contains comments associated with the confirmation status. Terms such as "backordered", "shipped", and "invalid" might be sensible. All such data is intended for human use.

### Extrinsic

Contains any additional information related to this confirmation status for application consumption. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order. An extrinsic attribute value must not appear more than once within a ConfirmationStatus element. A type must not be mentioned both in this list and in the overall ConfirmationHeader element. The ConfirmationHeader must not contain a default extrinsic value overridden at this lower level.

### 13.3.3.3.1 ScheduleLineReference

Defines all references related to a schedule line in the confirmation.

ScheduleLineReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Quantity from the ScheduleLine element of the OrderRequest document that the current document is referring to.</td>
</tr>
<tr>
<td>requestedDeliveryDate (required)</td>
<td>Requested delivery date from the ScheduleLine element of the OrderRequest document that the current document is referring to.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>Line number identifier from the ScheduleLine element of the OrderRequest document that the current document is referring to.</td>
</tr>
</tbody>
</table>
ScheduleLineReference has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this ScheduleLineReference.</td>
</tr>
</tbody>
</table>

The following example shows ScheduleLineReference:

```xml
<ConfirmationRequest>
  <ConfirmationHeader noticeDate="2018-06-25T10:44:43-07:00" type="detail" operation="new">
    <OrderReference orderDate="2018-06-25T10:43:46-07:00" orderID="Order00001">
      <DocumentReference payloadID="payload@10.163.1.39"/>
    </OrderReference>
    <ConfirmationItem quantity="12" lineNumber="1">
      <UnitOfMeasure>PK</UnitOfMeasure>
      <ConfirmationStatus type="accept" quantity="5">
        <UnitOfMeasure>PK</UnitOfMeasure>
        <ScheduleLineReference requestedDeliveryDate="2018-06-01T00:00:00-07:00" quantity="12" lineNumber="1"/>
      </ConfirmationStatus>
      <ConfirmationStatus type="accept" quantity="7">
        <UnitOfMeasure>PK</UnitOfMeasure>
        <ScheduleLineReference requestedDeliveryDate="2018-06-01T00:00:00-07:00" quantity="12" lineNumber="1"/>
      </ConfirmationStatus>
    </ConfirmationItem>
  </ConfirmationHeader>
</ConfirmationRequest>
```

### 13.4 OrderStatusRequest

Buyers use the **OrderStatusRequest** document to ask suppliers for status reports on orders not yet fulfilled. Buyers can request information from suppliers on the status of the order, delivery date, current location of the shipped items, or any other related information regarding purchase orders previously sent by them.

**OrderStatusRequest** documents contain the following elements:

- OrderStatusRequestHeader
- OrderStatusRequestItem

#### 13.4.1 OrderStatusRequestHeader

The **OrderStatusRequestHeader** element stores the reference information about the **OrderStatusRequest** document.
The `OrderStatusRequestHeader` element has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrderReference</td>
<td>The reference to the purchase order. You can specify either the <code>OrderReference</code> or <code>OrderIDInfo</code> information.</td>
</tr>
<tr>
<td>OrderIDInfo</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>The contact information of the buyer. This is a mandatory field.</td>
</tr>
<tr>
<td>Comments</td>
<td>This element stores the comments from the buyer. This is an optional field.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Any extrinsic sent by the buyer. This is an optional field.</td>
</tr>
</tbody>
</table>

The `OrderStatusRequestHeader` element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderStatusRequestID</td>
<td>The system ID of the buyer sending the <code>OrderStatusRequest</code>. This is an internal unique number for the buyer.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>orderStatusRequestDate</td>
<td>The date and time when the <code>OrderStatusRequest</code> was created by the buyer.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

The following example shows an `OrderStatusRequestHeader` element:

```xml
<OrderStatusRequestHeader orderStatusRequestID="osrFor_order02_08.20" orderStatusRequestDate="2013-02-06T16:09:26-08:00">
  <OrderReference orderID="order02_08.20" orderDate="2013-02-06T16:09:26-08:00">
    <DocumentReference payloadID="order02_08.20@cviewer.com"/>
  </OrderReference>

  <Contact role="soldTo" addressID="AA20">
    <Name xml:lang="en">Lisa Dollar</Name>
    <PostalAddress name="default">
      <DeliverTo>Lisa Dollar</DeliverTo>
      <Street>100 Castro Street</Street>
      <City>Mountain View</City>
      <State>CA</State>
      <PostalCode>95035</PostalCode>
      <Extrinsic name="PBox"></Extrinsic>
      <Extrinsic name="houseNumber"></Extrinsic>
      <Extrinsic name="building"></Extrinsic>
    </PostalAddress>
    <Email name="default">ldollar@workchairs.com</Email>
    <Phone name="work">
      <TelephoneNumber>
        <AreaOrCityCode>650</AreaOrCityCode>
        <Number>990000</Number>
      </TelephoneNumber>
    </Phone>
  </Contact>

  <Contact role="from" addressID="0030105956">
    <Name xml:lang="en">Lisa Dollar</Name>
    <PostalAddress name="default">
      <DeliverTo>Lisa Dollar</DeliverTo>
      <Street>100 Castro Street</Street>
      <City>Mountain View</City>
      <State>CA</State>
      <PostalCode>95035</PostalCode>
      <Extrinsic name="PBox"></Extrinsic>
      <Extrinsic name="houseNumber"></Extrinsic>
      <Extrinsic name="building"></Extrinsic>
    </PostalAddress>
    <Email name="default">ldollar@workchairs.com</Email>
    <Phone name="work">
      <TelephoneNumber>
        <AreaOrCityCode>650</AreaOrCityCode>
        <Number>990000</Number>
      </TelephoneNumber>
    </Phone>
  </Contact>
</OrderStatusRequestHeader>
```
13.4.2 OrderStatusRequestItem

The `OrderStatusRequestItem` element stores information regarding a specific line item. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>rescheduleRequest</td>
<td>Information derived from Materials Requirements Planning (MRP) to suggest possible changes to the delivery date. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>● in—MRP proposal to reschedule the delivery date earlier than the current delivery date.</td>
</tr>
<tr>
<td></td>
<td>● out—MRP proposal to reschedule the delivery date later than the current delivery date.</td>
</tr>
<tr>
<td></td>
<td>● cancel—MRP proposal to cancel the PO line item.</td>
</tr>
<tr>
<td>rescheduleDate</td>
<td>MRP proposed rescheduled delivery date.</td>
</tr>
</tbody>
</table>

`OrderStatusRequestItem` has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemReference</td>
<td>Defines all references related to a line item. See <code>ItemReference</code> [page 292].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains any additional comments associated with this line item.</td>
</tr>
<tr>
<td>Priority</td>
<td>Priority indicator, used to drive the priority of the orders for the suppliers. Indicates the current build priority associated with the PO line item. This value does not update the priority in the PO.</td>
</tr>
</tbody>
</table>

The following example shows an `OrderStatusRequestItem` element:

```xml
<OrderStatusRequestItem rescheduleRequest="in" rescheduleDate="2017-09-12T18:39:09-08:00">
  <ItemReference lineNumber="1">
    <ItemID>
      <SupplierPartID>AX4518</SupplierPartID>
    </ItemID>
  </ItemReference>
</OrderStatusRequestItem>
```
13.4.2.1 ItemReference

The ItemReference element has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>The part ID of the line item in the OrderStatusRequest.</td>
</tr>
<tr>
<td>IDReference</td>
<td>The unique reference to the part number for the line item in the OrderStatusRequest.</td>
</tr>
<tr>
<td>Classification</td>
<td>The recommended commodity classification code for the line item.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the line item.</td>
</tr>
</tbody>
</table>

The ItemReference element has the lineNumber attribute which is a mandatory field. This line number corresponds to the line number available in the OrderRequest.

13.5 ShipNoticeRequest

Suppliers use the ShipNoticeRequest document to send shipment information about orders. This transaction describes a single shipment and can contain portions of multiple orders as well as hazard information for the entire shipment or individual line items.

**i Note**

The DTD for this transaction is contained in Fulfill.dtd rather than cXML.dtd.

ShipNoticeRequest can contain the following elements:

- ShipNoticeHeader
- ShipControl
- ShipNoticePortion

ShipNoticeRequest documents do not provide updates to tax and shipping amounts. This information should be transmitted with ConfirmationRequest documents. If necessary, you can send a ConfirmationRequest with operation="update" with this information after the shipment has been delivered.

ConfirmationRequest and ShipNoticeRequest documents with operation="update" must include all relevant information from the original OrderRequest document.
The following example shows a `ShipNoticeRequest` element:

```xml
<ShipNoticeRequest>
  <ShipNoticeHeader shipmentID="S2-123" noticeDate="2000-10-14T18:39:09-08:00"
    shipmentDate="2000-10-14T08:30:19-08:00"
    deliveryDate="2000-10-18T09:00:00-08:00">
    <Name xml:lang="en-CA">Workchairs, Vancouver</Name>
    <PostalAddress>
      <Street>432 Lake Drive</Street>
      <City>Vancouver</City>
      <State>BC</State>
      <PostalCode>B3C 2G4</PostalCode>
      <Country isoCountryCode="CA">Canada</Country>
    </PostalAddress>
    <Phone>
      <TelephoneNumber>
        <AreaOrCityCode>201</AreaOrCityCode>
        <Number>9211132</Number>
      </TelephoneNumber>
    </Phone>
    <Comments xml:lang="en-CA">Got it all into one shipment.</Comments>
    <ReferenceDocumentInfo>
      <DocumentInfo documentDate="2016-01-10T17:55:20-05:00"
        documentID="QN171226_01"
        documentType="QualityNotificationDocument"/>
    </ReferenceDocumentInfo>
  </ShipNoticeHeader>

  <ShipControl>
    <CarrierIdentifier domain="SCAC">FDE</CarrierIdentifier>
    <CarrierIdentifier domain="companyName">Federal Express</CarrierIdentifier>
    <ShipmentIdentifier>8202 8261 1194</ShipmentIdentifier>
  </ShipControl>

  <ShipNoticePortion>
    <!-- The orderID and orderDate attributes are not required in the
         OrderReference element. -->
    <OrderReference orderID="DO1234">
      <DocumentReference payloadID="32232995@hub.acme.com"/>
    </OrderReference>
  </ShipNoticePortion>
</ShipNoticeRequest>
```

The `ShipNoticeRequest` element contains information about a ship notice common to all contained items. It is not necessary to copy this information from the `OrderRequest` document. The `Contact` element should be used primarily to add new information about an order.

The `ShipNoticeRequest` element contains three elements: `ShipNoticeHeader`, `ShipControl`, and `ShipNoticePortion`. All are required, and both `ShipNoticePortion` and `ShipControl` can occur more than once.

Shipments with multiple responsible carriers are described in one of two ways:

1. A single carrier or third-party logistics provider creates a tracking identifier that can be used to retrieve information about the entire trip. Suppliers send such information in a single `ShipControl` element.
2. Each segment requires a separate tracking number. Suppliers send such information with one `ShipControl` element per segment.

`ShipControl` elements must appear in the order the shipment will travel. The first such element must not have an explicit starting date, the `ShipControl startDate` attribute must not be present, and that carrier’s control must begin at the shipment’s origination time specified by the `ShipNoticeHeader shipmentDate`.
attribute value. All later ShipControl elements must have increasing, or later, starting dates specified by the ShipControl startDate attribute value.

ShipNoticePortion elements can appear in any order. A particular order, with ShipNoticePortion, OrderReference, or DocumentReference payloadID attribute value, must not appear more than once in a ShipNoticeRequest element.

**i Note**

Many elements and attributes in the ShipNoticeRequest and ShipNoticeHeader elements are optional only for the operation="delete" case. For other operations, one or more ShipControl and ShipNoticePortion elements must appear in a ShipNoticeHeader element.

### 13.5.1 ShipNoticeHeader

The ShipNoticeHeader element contains information about a ship notice common to all contained items. The ShipNoticeHeader element can contain the following elements: ServiceLevel, DocumentReference, Contact, Hazard, Comments, TermsOfDelivery, IdReference, Comments, Extrinsic, RequestedDeliveryDate, and Dimension, all of which are optional.

ShipNoticeHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>shipmentID</td>
<td>A supplier-specified identifier for the document. The attribute is user-visible and secondary to the document's payloadID.</td>
</tr>
<tr>
<td>(required)</td>
<td>This value does not vary as a particular ship notice is deleted. That is, &quot;delete&quot; documents describing the same shipment share a shipmentID with the original &quot;new&quot; ShipNoticeRequest.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>operation</td>
<td>This optional attribute specifies whether the ShipNoticeRequest document is new or an update to a previous ship notice. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new—Default value. No previous ship notice has been sent.</td>
</tr>
<tr>
<td></td>
<td>● update—Updates a previous ship notice request. Allows a supplier to correct an error in a ship notice or to add additional information learned later. In either case, an “update” document must be complete: all data from the original should be discarded by the recipient. The shipmentID must match a previous request’s shipmentID.</td>
</tr>
<tr>
<td></td>
<td>● delete—Removes the changes described in the previous new or updated ShipNoticeRequest from the state of the shipment. Only use when the supplier discards a planned shipment or incorrectly sends a ShipNoticeRequest about an order that will not take place. The shipmentID must match a previous request’s shipmentID.</td>
</tr>
<tr>
<td>noticeDate</td>
<td>(required) Specifies the date and time the ShipNoticeRequest document was created.</td>
</tr>
<tr>
<td>shipmentDate</td>
<td>The date and time the shipment left the supplier. You must specify this attribute in all ShipNoticeRequest documents except when the operation is “delete”.</td>
</tr>
<tr>
<td>deliveryDate</td>
<td>Specifies the date and time this shipment is expected to arrive. While this value can default to the requestedDeliveryDate of a single order, that attribute is optional in an OrderRequest document, and the ShipNoticeRequest can refer to multiple OrderRequest documents. You must include this attribute in all ShipNoticeRequest documents except when the operation is “delete”.</td>
</tr>
<tr>
<td>shipmentType</td>
<td>Use this attribute to specify if the type of ship notice was actual or estimated. Specify “actual” to indicate an actual ship notice and “planned” for an estimated ship notice. When you specify “actual”, you must enter the actual shipping date. If you specify “planned”, you must enter the estimated shipping date. For example:</td>
</tr>
<tr>
<td></td>
<td>&lt;ShipNoticeRequest&gt; &lt;ShipNoticeHeader shipmentType=&quot;planned&quot; deliveryDate=&quot;2012-09-28T12:00:00+05:30&quot; shipmentDate=&quot;2012-09-27T12:00:00+05:30&quot; noticeDate=&quot;2012-09-27T21:30:29+05:30&quot; operation=&quot;new&quot; shipmentID=&quot;ID00099&quot;&gt;</td>
</tr>
</tbody>
</table>
### Attribute Description

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestedDeliveryDate</td>
<td>Specifies the desired date of delivery. In many cases, it can reflect the time (or time frame) when the buyer is able and willing to receive the goods. For example:</td>
</tr>
<tr>
<td>reason</td>
<td>The reason for the ship notice. The only possible value is &quot;return&quot;, which means the shipment contains items that are being returned from the buyer to the supplier for some reason. For example, the items could be damaged or defective.</td>
</tr>
</tbody>
</table>

#### 13.5.1.1 ServiceLevel

Specifies a language-specific string for the service level code. One or more ServiceLevel elements must appear in all ShipNoticeRequest documents, except when operation="delete" is specified. Each ServiceLevel must contain a single string corresponding to the level of service, such as "overnight", provided by the carrier for this shipment. When multiple ServiceLevel elements appear, all must describe the same level of service in different languages or locales. No two ServiceLevel elements can have the same xml:lang attribute. Elements in such a list can appear in any order.

It has the required attribute xml:lang. For more information, see xmlLangCode [page 43].

#### 13.5.1.2 DocumentReference

The contained DocumentReference element appears only when the operation is "update" or "delete". In that case, the DocumentReference element references the most recent ShipNoticeRequest document for this particular ship notice, usually indicated by a common shipmentID. For example, when a ship notice is created, updated, and then updated again, the final document should contain a DocumentReference referring to the previous ShipNoticeRequest with operation="update". That document, in turn, refers to the original operation="new" ShipNoticeRequest document.

#### 13.5.1.3 Contact

Contact roles can include: technicalSupport, customerService, sales, shipFrom (starting point for this shipment), shipTo (should echo the ShipTo element from the OrderRequest documents), buyerCorporate (details the supplier has about the buying organization), and supplierCorporate. Generally, it is not necessary to copy information from the various OrderRequest documents: the Contact element should be used primarily to add information about an order.
Elements in the Contact list can appear in any order. A Contact role attribute value must not appear more than once within a ShipNoticeHeader element.

13.5.1.4 LegalEntity

Identifies legal entity in the external system. It has an IdReference element.

13.5.1.5 OrganizationalUnit

Identifies Purchase Unit or Purchase group in the external system. It has an IdReference element.

13.5.1.6 Hazard

See Hazard [page 311].

13.5.1.7 Comments

Use the Comments element to include additional information about the shipment. In the ShipNoticeHeader element, that information must be common to all contained items and routes. All such data must be intended for human use.

You can specify up to three Comments elements to specify the following additional information to the ship notice:

- To specify the reason for shipment
- To specify the transit directions
- Any additional information for the shipment

See the example in IdReference [page 299].

13.5.1.8 TermsOfTransport

Specifies shipping terms regarding the transportation of the goods.

The following example shows a TermsOfTransport element:

```xml
<TermsOfTransport>
  <SealID>1231</SealID>
  <EquipmentIdentificationCode>34535</EquipmentIdentificationCode>
</TermsOfTransport>
```
TermsOfTransport has the following elements:

**SealID**

Specifies the unique ID of the seal. A seal is used to preserve the integrity of a transport or cargo shipment. Seals come in a variety of different forms, but share one common characteristic: a unique ID given by the owner or the responsible party. The SealID is used to internationally track a container, truck, vessel, or other cargo property when in transit.

**SealingPartyCode**

Specifies the company code for the party that assigned the SealID. The party is typically the owner of the goods or the freight forwarder that loaded the cargo.

**EquipmentIdentificationCode**

Specifies the equipment identification code. This is mainly for internal transport and storage purposes. The packing equipment is marked with unique codes in order to monitor and manage movement and storage location. The code can be temporarily or permanent.

**TransportTerms**

For more information on TransportTerms, see TermsOfDelivery [page 125].

**Dimension**

Specifies a single dimension for the packaging of the item. See Dimension [page 176].
13.5.1.9 TermsofDelivery

This element allows you to add the TermsofDelivery element to the ShipNoticeHeader element to specify terms of delivery at the header level. For more information, see TermsOfDelivery [page 125].

13.5.1.10 Packaging

For more information, see Packaging [page 174].

13.5.1.11 Extrinsic

Alternately, use the Extrinsic element list to insert additional data about the shipment for application consumption. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order. An extrinsic type, Extrinsic name attribute value, must not appear more than once within a ShipNoticeHeader element. A type must not be mentioned both in this list and in a particular ShipControl or ShipNoticePortion element. The ShipNoticeHeader must not contain a default extrinsic value overridden at either lower level.

13.5.1.12 IdReference

To specify the government issued shipping ID, document name and supplier reference number.

For example:

```xml
<ShipNoticeHeader>
  <Contact role="shipTo">
    <Name xml:lang="en">Acme</Name>
    <PostalAddress>
      <Street>123Anystreet</Street>
      <City>Sunnyvale</City>
      <State>AL</State>
      <PostalCode>35762</PostalCode>
    </PostalAddress>
  </Contact>
  <Comments type="ReasonForShipment" xml:lang="en-US">Low availability at warehouse</Comments>
  <Comments type="TransitDirection" xml:lang="en-US">East</Comments>
</ShipNoticeHeader>
```
13.5.1.13 ReferenceDocumentInfo

Contains additional document reference information. See ReferenceDocumentInfo [page 128].

13.5.2 ShipControl

Specifies the carrier responsible for some portion of the shipment. A ShipControl element contains the CarrierIdentifier, ShipmentIdentifier, TransportInformation, PackageIdentification, Route, Contact, Comments, and Extrinsic elements.

The shipment is tracked using the identifiers provided at this level. Those identifiers should be valid from the startDate of one ShipControl element or the shipment's shipmentDate until the startDate of the next.

ShipControl has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>Specifies the date and time this shipment started this part of the route. Required for all ShipControl elements after the first. This attribute must not appear in the first ShipControl element because it would duplicate the ShipNoticeHeader's shipmentDate attribute.</td>
</tr>
</tbody>
</table>

13.5.2.1 CarrierIdentifier

Identifies the carrier that will transport this shipment. The CarrierIdentifier list can include multiple identifiers for the same carrier. Elements in this list can appear in any order. A particular identification domain (CarrierIdentifier@domain attribute value) must not appear more than once in a ShipControl element. The identification provided by all elements of the CarrierIdentifier list must correspond to the same company.
There is one attribute, called `domain`, which specifies the domain in which `CarrierIdentifier` value has meaning. For example, “SCAC” for Standard Carrier Alpha Code, or the legal company name.

Recognized domains include the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>company name</code></td>
<td>The legal name for this company. In some cases, this can also be provided in a <code>Contact</code> element with role &quot;carrierCorporate&quot;. Using a <code>Contact</code> element should be reserved for cases in which additional detail about the carrier must be conveyed.</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association. <a href="http://www.iata.org">www.iata.org</a></td>
</tr>
<tr>
<td>AAR</td>
<td>Association of American Railroads. <a href="http://www.aar.org">www.aar.org</a></td>
</tr>
<tr>
<td>UIC</td>
<td>International Union of Railways. <a href="http://www.uic.org">www.uic.org</a></td>
</tr>
<tr>
<td>EAN</td>
<td>European Article Numbering. <a href="http://upc-ean-information.com">upc-ean-information.com</a></td>
</tr>
<tr>
<td>DUNS</td>
<td>Dun and Bradstreet's Data Universal Numbering System. <a href="http://www.dnb.com">www.dnb.com</a></td>
</tr>
</tbody>
</table>

### 13.5.2.2 ShipmentIdentifier

A tracking number defined by the carrier that appears on the shipment that can be used to obtain additional detail about the shipment. Has meaning in the domain described by the `CarrierIdentifier` values in the containing `Route` element.

Different carriers have different names for shipment identifiers. This is commonly called a way bill number, a pro number, and also a bill of lading. They all represent tracking numbers.

`ShipmentIdentifier` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>Specifies more precisely what kind of identifier this is. Likely values include <code>trackingNumber</code> and <code>billOfLading</code>.</td>
</tr>
<tr>
<td>trackingNumberDate</td>
<td>The date when the carrier creates the tracking number for this shipment. Required if you have specified a carrier.</td>
</tr>
<tr>
<td>trackingURL</td>
<td>Carrier URL that can be used to track the shipment in conjunction with the tracking number.</td>
</tr>
</tbody>
</table>

The following example shows a `ShipmentIdentifier` that specifies the `trackingNumberDate` for the carrier:

```
<ShipControl>
  <CarrierIdentifier domain="companyName">BlueDart</CarrierIdentifier>
  <ShipmentIdentifier trackingNumberDate="2012-09-27 12:00:00 Asia/Calcutta">99345</ShipmentIdentifier>
</ShipControl>
```

The following example shows a `ShipmentIdentifier` that specifies the `trackingURL` used to track the shipment along with the tracking number:

```
<ShipControl>
```
13.5.2.3 PackageIdentification

Specifies the identifiers that appear on the containers, skids, boxes, or packages that constitute the shipment. The range of numbers described is inclusive at both extremes.

PackageIdentification has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>rangeBegin</td>
<td>Specifies the earliest number that appears on the separate elements in this shipment.</td>
</tr>
<tr>
<td>rangeEnd</td>
<td>Specifies the highest number that appears on the separate elements in this shipment. Must be greater than or equal to rangeBegin.</td>
</tr>
</tbody>
</table>

13.5.2.4 Route

If present, Route elements must be in the order the shipment will travel.

Specifies how the shipment will travel on this segment. If two ShipmentIdentifier values are present, the second defines the end of a contiguous and inclusive range of numbers that appear on the shipment. Route can contain a Contact element.

The only Contact role should be "carrierCorporate", which details the contact information the supplier has about the carrier organization, "shipFrom", and "shipTo".

Each carrier within a segment controlled by a third-party logistics provider provides tracking information to that provider externally. The ShipNoticeRequest includes tracking information at the ShipControl level only.

A Route element can describe only a single mode of travel. If described at all, each mode of a multi-modal route must be described by a separate Route element. It is not necessary to describe every leg of the journey to the buyer’s ShipTo location.

The "carrierCorporate" role is relevant at this level only when a third party is providing tracking information across multiple carriers. A Contact element with role "shipFrom" must appear in all Route elements after the first. Route elements are not required to describe the entire travel under a specific carrier’s control. They can describe a discontinuous stream of events, starting and ending at different times and locations.

Elements in the Contact list can appear in any order. A Contact role attribute value must not appear more than once within a Route element.
**Route has the following attributes:**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>method (required)</td>
<td>Qualifier identifying the transportation type code. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• <strong>ship</strong>—Transportation by boat (ocean).</td>
</tr>
<tr>
<td></td>
<td>• <strong>rail</strong>—Transportation by rail.</td>
</tr>
<tr>
<td></td>
<td>• <strong>motor</strong>—Transportation by land motor craft (common carrier).</td>
</tr>
<tr>
<td></td>
<td>• <strong>air</strong>—Transportation by flight.</td>
</tr>
<tr>
<td></td>
<td>• <strong>mail</strong>—Provided for practical reasons, despite the fact that mail is not a genuine mode of transport. In many countries, the value of merchandise exported and imported by mail is considerable, but the exporter or importer concerned would be unable to state by which mode postal items had passed the national border.</td>
</tr>
<tr>
<td></td>
<td>• <strong>multimodal</strong>—Provided for practical reasons, despite the fact that multimodal transport is not a genuine mode of transport. It can be used when goods are carried by at least two different modes from a place at which the goods are taken in charge by a transport operator to a place designated for delivery, on the basis of one transport contract. (Operations of pick-up and delivery of goods carried out in the performance of a unimodal transport, as defined in such a contract, shall not be considered as multimodal transport.)</td>
</tr>
<tr>
<td></td>
<td>• <strong>fixedTransport</strong>—Applies to installations for continuous transport such as pipelines, ropeways and electric power lines.</td>
</tr>
<tr>
<td></td>
<td>• <strong>inlandWater</strong>—Used only in such cases where the application of waterborne transport is reported separately than maritime transport.</td>
</tr>
<tr>
<td></td>
<td>• <strong>unknown</strong>—Can be used when the mode is not known or when information on it is not available at the time of issuing the document concerned.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>means</td>
<td>Particular vessel, vehicle or other device used for transport of goods. The value of means depends on the value of method.</td>
</tr>
</tbody>
</table>

When the value of method is "ship", the possible values of means are:

- cargoVessel—Vessel designed to carry general cargo.
- unitCarrier—Vessel designed to carry unit loads.
- bulkCarrier—Vessel designed to carry bulk cargo.
- tanker—Vessel solely equipped with tanks to carry cargo.
- liquefiedGasTanker—Tanker designed to carry liquefied gas.
- otherSpecialTanker—Tanker designed to carry other special liquids.
- cargoAndPassengerVessel—Vessel designed to carry cargo and passengers.
- otherVessel—Sea-going vessel, not otherwise specified.
- fishingBoat—Vessel designed for fishing.
- floatingStructure—Any floating structure.

When the value of method is "rail", the possible values of means are:

- train—One or more rail wagons pulled or pushed by one or more locomotive units, or self-propelled, that move over rail tracks.
- freightTrain—Train for carrying freight.

When the value of method is "motor", the possible values of means are:

- truck—Automotive vehicle designed for hauling loads.
- tractor—Automotive vehicle with an engine designed for pulling.
- van—Closed automotive vehicle designed for carrying freight.
- carCarrier—Automotive vehicle designed for carrying motorcars.
- shovelLoader—Automotive vehicle designed for shovelling sand and other bulk material.
- straddleCarrier—Automotive vehicle designed for lifting and transporting containers.
- mobileCrane—Automotive vehicle with cargo crane.
- bus—Automotive vehicle designed for carrying more than 8 passengers including the driver.
- car—Automotive vehicle designed to carry a small number of passengers.
- taxi—Automotive vehicle licensed to ply for hire.

When the value of method is "air", the values for means are specified in the IATA (International Air Transport Association) publication Standard Schedules Information Manual (SSIM) under the section “ATA/IATA Aircraft Types”. The referenced codes cover all aircraft that are flown, or are soon to be flown, for commercial scheduled or chartered services only, or have been announced by the manufacturer and for which airline orders have been placed.

When the value of method is "multimodal", this means there are multiple segments, and each may have different mode and means. Therefore, the only possible value for means is "unknown".

When the value of method is "fixedTransport", the possible values of means are:

- unknown—Fixed transport installation of unknown type.
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• pipeline—A line of one or more pipes for continuous transport of liquid or gas commodity.</td>
</tr>
<tr>
<td></td>
<td>• powerline—A line of one or more cables or wires for continuous transport of electricity.</td>
</tr>
<tr>
<td></td>
<td>When the value of method is &quot;inlandWater&quot;, the possible values of means are:</td>
</tr>
<tr>
<td></td>
<td>• unknownVessel—Vessel of unknown type.</td>
</tr>
<tr>
<td></td>
<td>• motorFreighter—Motorized vessel designed for carrying general cargo.</td>
</tr>
<tr>
<td></td>
<td>• motorTanker—Motorized vessel designed for carrying liquid cargo.</td>
</tr>
<tr>
<td></td>
<td>• containerVessel—Vessel designed for carrying containers.</td>
</tr>
<tr>
<td></td>
<td>• gasTanker—Vessel with tanks designed for carrying gas.</td>
</tr>
<tr>
<td></td>
<td>• tug—Vessel designed to push or pull another vessel.</td>
</tr>
<tr>
<td></td>
<td>• barge—Lighter designed for carrying general cargo.</td>
</tr>
<tr>
<td></td>
<td>• pushTow—Vessel designed for pushing/towing, facilitating the movement of one or more cargo barges.</td>
</tr>
<tr>
<td></td>
<td>• fishingBoat—Vessel designed for fishing.</td>
</tr>
<tr>
<td></td>
<td>• bunkerShip—Vessel designed for carrying and delivering bunkers.</td>
</tr>
<tr>
<td></td>
<td>When the value of method is either &quot;mail&quot; or &quot;unknown&quot;, there are no specific values of means defined.</td>
</tr>
<tr>
<td>startDate</td>
<td>Specifies the date and time this shipment started this part of the trip. Required in all Route elements after the first.</td>
</tr>
<tr>
<td>endDate</td>
<td>Specifies the date and time this shipment ended this part of the trip. Must come after startDate. If any Route elements follow, the startDate of that element must not precede this value.</td>
</tr>
</tbody>
</table>

### 13.5.2.5 TransportInformation

See ShipTo/BillTo [page 113].

### 13.5.2.6 Contact

The most common Contact roles in this element are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>carrierCorporate</td>
<td>Details the contact information the supplier has about the carrier organization.</td>
</tr>
<tr>
<td>shipFrom</td>
<td>A Contact element with role &quot;shipFrom&quot; must appear in all ShipControl elements after the first. This role must not appear in the first ShipControl element because it would duplicate that role in the overall ShipNoticeHeader element.</td>
</tr>
</tbody>
</table>

Do not use role="shipTo" with this element because it would duplicate information in the following ShipControl element or that role in the ShipNoticeHeader. Control passes from one carrier to another at a particular location and estimated time.
List the elements in Contact in any order. A Contact role attribute value must not appear more than once within a ShipControl element.

### 13.5.2.7 Comments

The Comments element can contain additional information about the shipment while under the control of this carrier. In the context of the ShipControl element, that information must be common to all contained routes or made clear which Route is affected. All such data must be intended for human use.

### 13.5.2.8 Extrinsic

Alternately, the Extrinsic element list can be used to insert additional data about this carrier or their period of responsibility for application consumption. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order. An Extrinsic name attribute value must not appear more than once within a ShipControl element. The same type must not be mentioned both in this list and in the overall ShipNoticeHeader element. The ShipNoticeHeader must not contain a default extrinsic value overridden at this lower level.

### 13.5.3 ShipNoticePortion

Contains purchase order and item information. Specifies what will be in the shipment.

### 13.5.3.1 OrderReference

A particular OrderRequest specified in the OrderReference element must be mentioned in at most one ShipNoticePortion element. While multiple shipments can be sent for one order, a ship notice must mention each order only once.

If a ShipNoticePortion element contains no ShipNoticeItem elements, the entire referenced order is included in the shipment. This simplifying option prevents inclusion of hazard and packaging information.

OrderReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>Specifies the buyer system orderID for the ship notice, that is, the PO number. When used, it must be copied directly from the referenced OrderRequest document’s OrderRequestHeader element.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>orderDate</td>
<td>Specifies the date and time the OrderRequest was created. The date format is yyyy-mm-dd per international ISO standard 8601.</td>
</tr>
</tbody>
</table>

**13.5.3.2 MasterAgreementReference**

An optional field. Can contain a reference to the master agreement from which the release is derived.

**13.5.3.3 MasterAgreementIDInfo**

An optional field. Can contain the ID of the master agreement from which the release is derived.

**13.5.3.4 Contact**

Any Contact elements provided at this level describe contacts specific to this portion of the order. The ShipNoticeHeader description mentions roles appropriate at this level as well, though shipFrom, shipTo, buyerCorporate, and supplierCorporate information should not vary at this level. A particular Contact role must not appear in both the ShipNoticePortion and ShipNoticeHeader elements. Therefore, roles such as "technicalSupport", "customerService", and "sales" are most appropriate within the ShipNoticePortion.

Elements in the Contact list can appear in any order. A Contact role attribute value must not appear more than once within a ShipNoticePortion element.

**13.5.3.5 Comments**

The Comments element can contain additional information about the order in this shipment. In this context (the ShipNoticePortion element), that information must be common to all contained items or make it clear which ShipNoticeItem is affected. All such data must be intended for human use.

**13.5.3.6 Extrinsic**

Alternately, the Extrinsic element list can be used to insert additional data about this order for application consumption. These elements can include pre-defined keywords and values affecting workflow in the receiving system.

Elements in the Extrinsic list can appear in any order. An Extrinsic name attribute value must not appear more than once within a ShipNoticePortion element. A type must not be mentioned both in this list and in
the overall ShipNoticeHeader element. The ShipNoticeHeader must not contain a default extrinsic value overridden at this lower level.

## 13.5.3.7 ShipNoticeItem

The portion of a specific line item that is part of this shipment. Each line item from an order must be mentioned in at most one ShipNoticeItem element. ShipNoticeItem contains the following elements:

ShipNoticeItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>Specifies how many items were shipped. Expressed in units given in the UnitOfMeasure element.</td>
</tr>
<tr>
<td>lineNumber (required)</td>
<td>Position, counting from 1, of the item in an order. Matches the corresponding line item, ItemOut, in the document referenced by the OrderReference element.</td>
</tr>
<tr>
<td>parentLineNumber</td>
<td>The line number of the corresponding parent line item. This attribute is applicable only for a line item with itemType=&quot;item&quot;.</td>
</tr>
<tr>
<td>shipNoticeLineNumber</td>
<td>Ship notice line number related to this item. Used when there are multiple ship notice line items for a single purchase order line items.</td>
</tr>
</tbody>
</table>
| itemType              | Specifies the type of item. Possible values:  
  - composite—Identifies an item group.  
  - item—Identifies an independent line item.  
  - lean—Indicates that no child item is expected for the line. |
| compositeItemType     | Specifies whether a parent item uses group-level pricing. Possible values are "groupLevel" or "itemLevel". |

ShipNoticeItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Provides unique identification of an item. See ItemID [page 90].</td>
</tr>
<tr>
<td>ShipNoticeItemDetail</td>
<td>Contains detailed information about an item. See ShipNoticeItemDetail [page 310].</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>Describes how the product is packaged or shipped. See UnitOfMeasure [page 43].</td>
</tr>
<tr>
<td>Packaging</td>
<td>Each line item could be packaged into multiple boxes. Hence the Packaging element at the line item level could correspond with multiple packages belonging to that line item. See Packaging [page 174].</td>
</tr>
<tr>
<td>Hazard</td>
<td>Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment. See Hazard [page 311].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Batch</td>
<td>Identifies a batch of goods. See SupplierBatchID or Batch [page 312].</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Provides asset tag numbers or serial numbers for individual items in a shipment of goods. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>TermsOfDelivery</td>
<td>Specifies terms of delivery at the line-item level. See TermsOfDelivery [page 125].</td>
</tr>
<tr>
<td>OrderedQuantity</td>
<td>Specifies the number of items/products for a given line item in a purchase order. See OrderedQuantity [page 177].</td>
</tr>
<tr>
<td>ShipNoticeItemIndustry</td>
<td>Contains a grouping of industry-specific fields. See ShipNoticeItemIndustry [page 313].</td>
</tr>
<tr>
<td>ComponentConsumptionDetails</td>
<td>Contains detailed information about consumption of components in the manufacturing of final product. See ComponentConsumptionDetails [page 455].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains the ship notice item-specific comments. Could be used to attach quality certificates that were required in OrderRequest. In this case, a comment is provided by attachment, and the certificate type is provided by the Comments@type attribute.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ship notice line item.</td>
</tr>
</tbody>
</table>

The following example shows a ShipNoticeItem element:

```xml
<ShipNoticeItem lineNumber="1" quantity="300" shipNoticeLineNumber="1">
  <ItemID>
    <SupplierPartID>AX4518</SupplierPartID>
  </ItemID>
  <ShipNoticeItemDetail>
    <UnitPrice>
      <Money currency="USD">31.20</Money>
    </UnitPrice>
    <Description xml:lang="en-US">BULLNOSE SHELVES 4 PK</Description>
    <UnitOfMeasure>PK</UnitOfMeasure>
  </ShipNoticeItemDetail>
  <UnitOfMeasure>PK</UnitOfMeasure>
  <Batch expirationDate="2015-11-18T09:00:00-08:00" productionDate="2015-11-10T09:00:00-08:00" batchQuantity="100">
    <SupplierBatchID>BAT-C-1</SupplierBatchID>
  </Batch>
  <Batch expirationDate="2015-11-18T09:00:00-08:00" productionDate="2015-11-10T09:00:00-08:00" batchQuantity="100">
    <SupplierBatchID>BAT-C-2</SupplierBatchID>
  </Batch>
  <Batch expirationDate="2015-11-18T09:00:00-08:00" productionDate="2015-11-10T09:00:00-08:00" batchQuantity="100">
    <SupplierBatchID>BAT-C-3</SupplierBatchID>
  </Batch>
  <ReferenceDocumentInfo>
    <DocumentInfo documentDate="2016-01-10T17:55:20-05:00"/>
  </ReferenceDocumentInfo>
</ShipNoticeItem>
```
13.5.3.7.1 ShipNoticeItemDetail

This element contains detailed information about an item. The item details in a ship notice are inherited from the purchase order that is referenced. For ship notices without reference to a purchase order, item details can be retrieved from this element.

An example of ShipNoticeItemDetail:

```
<ShipNoticeItemDetail>
  <Description type="CU" xml:lang="en">Computer Video Cables</Description>
  <UnitOfMeasure>EA</UnitOfMeasure>
  <Classification domain="UNSPSC">43173610</Classification>
  <ManufacturerPartID>JJ11P29</ManufacturerPartID>
  <Dimension quantity="0.4" type="grossWeight">
    <UnitOfMeasure>MTR</UnitOfMeasure>
  </Dimension>
  <Dimension quantity="0.4" type="grossVolume">
    <UnitOfMeasure>MTR</UnitOfMeasure>
  </Dimension>
  <Extrinsic name="PR No.">PR1026</Extrinsic>
</ShipNoticeItemDetail>
```

UnitPrice

Price per unit of the item. Optional modifications, such as changes due to discounts, may be provided.

Description

Brief description of the item.

UnitOfMeasure

Must be a UN/CEFACT (Recommendation 20) unit of measure code. See UnitOfMeasure [page 43]
**PriceBasisQuantity**

Defines the quantity on which UnitPrice is based. See PriceBasisQuantity [page 336].

**Classification**

A group of similar categories.

**ManufacturerPartID**

ID with which the item’s manufacturer identifies the item.

**ManufacturerName**

Name of the item’s manufacturer.

**Dimension**

Dimensions of the item. See Dimension [page 176].

**ItemDetailIndustry**

Industry-specific item detail information. See ItemDetailIndustry [page 136].

**Extrinsic**

Contains any additional information related to this object.

**13.5.3.7.2 Hazard**

The Hazard element provides a textual description and optional codes about hazards inherent in both an item and an overall shipment. A hazard for an entire shipment can be due to either identical hazards for all items or
to hazards inherent in shipping the various products together. It can also include detailed handling
requirements.

List elements in the Hazard list in any order. Do not list the same hazard more than once in a
ConfirmationItem, or ShipNoticeHeader. Each hazard listed at this level, in a ConfirmationItem element,
must apply to this specific line item. A ConfirmationRequest that updates the status of a single line item
should not include Hazard elements in the ConfirmationItem element. Each hazard listed at this level, in a
ShipNoticeHeader element, should apply to the entire shipment, or to all items contained in this shipment. A
ShipNoticeRequest for a single line item should not include Hazard elements in the ShipNoticeItem
element.

There are two elements: Description, and Classification. Classification is optional and can occur
more than once.

The Description element list, if provided, should include detailed handling requirements. Elements in this list
can appear in any order. A description locale specified by the xml:lang attribute must not appear more than
once. When more than one Description element is present, each must contain translations of a common
description.

Classification elements can appear in any order. A Classification domain attribute must not appear
more than once in a Hazard element.

All listed Classification elements and the Description, if provided, must relate to a single hazard.
Additional hazards must use separate Hazard elements.

The following Classification domain values are expected in this context:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDG</td>
<td>United Nations Dangerous Goods</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Marine Organization Dangerous Goods</td>
</tr>
<tr>
<td>NAHG</td>
<td>North American Hazardous Goods</td>
</tr>
</tbody>
</table>

13.5.3.7.3 SupplierBatchID or Batch

You can specify an optional SupplierBatchID or Batch element to identify the batch of goods.

SupplierBatchID specifies the batch number for goods made or manufactured at the same time
(sometimes called “lot number” or “variant”). For example, a supplier can assign a batch number to a batch of
computer hard drives.

Batch specifies batch information for material or goods produced in a single manufacturing run. See Batch
[page 179].
13.5.3.7.4 AssetInfo

The AssetInfo element provides asset tag numbers or serial numbers for individual items in a shipment of goods. The buyer might want to know this information before receiving the shipment. This element can include the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isReferencedAsset</td>
<td>Indicates whether the asset info is for a referenced asset associated with the item in the document.</td>
</tr>
<tr>
<td>tagNumber</td>
<td>Specifies a buyer-specific asset tag number identifier for the item. In order for the supplier to assign asset tag numbers on behalf of the buyer, the buyer and supplier must agree in advance which asset tag numbers the supplier should use and how they should be assigned.</td>
</tr>
<tr>
<td>serialNumber</td>
<td>Specifies the serial number of the item.</td>
</tr>
<tr>
<td>location</td>
<td>Specifies the location of the item.</td>
</tr>
<tr>
<td>equipmentId</td>
<td>Equipment ID of the unit.</td>
</tr>
</tbody>
</table>

Even though all attributes for AssetInfo are optional, the element should not be used unless at least one attribute is specified. If more than one attribute is specified, they should all refer to the properties of the same item.

13.5.3.7.5 ShipNoticeItemIndustry

This element is a grouping for industry-specific fields.

ShipNoticeItemRetail

Retail-specific field details that can be grouped together for ship notices.

ShipNoticeItemRetail has the following child elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BestBeforeDate</td>
<td>Specifies the date after which the item/goods begin to lose quality. This can be used to indicate best before date for all goods related to food, drugs, chemicals, and so on. This element has a required date attribute.</td>
</tr>
<tr>
<td>ExpiryDate</td>
<td>Specifies a date after which the goods become un-sellable/unusable. This element has a required date attribute.</td>
</tr>
<tr>
<td>FreeGoodsQuantity</td>
<td>Specifies the quantity that will be delivered without any cost to the buyer. See FreeGoodsQuantity [page 178].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PromotionDealID</td>
<td>Specifies an ID assigned by a supplier related to a promotional activity. Promotions affect the forward planning/ordering process (and the related pricing).</td>
</tr>
<tr>
<td>PromotionVariantID</td>
<td>Specifies a specific ID if only one or some variants of an article are promoted. Product variant is a specific code that specifies the characteristic of a product (color, shape, and so on).</td>
</tr>
</tbody>
</table>

**13.5.3.8 ReferenceDocumentInfo**

Contains additional document reference information. See ReferenceDocumentInfo [page 128].

**13.6 ReceiptRequest**

ReceiptRequest represents details about a receipt against a purchase order or a master agreement sent from a buying organization to a supplier. You can use it for any portion of all or selected line items from single or multiple purchase orders.

**Note**
The DTD for this transaction is contained in Fulfill.dtd rather than cXML.dtd.

ReceiptRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReceiptRequestHeader</td>
<td>Contains header information for this receipt. See ReceiptRequestHeader [page 315].</td>
</tr>
<tr>
<td>ReceiptOrder</td>
<td>Defines information related to a purchase order or master agreement. See ReceiptOrder [page 316].</td>
</tr>
<tr>
<td>Total</td>
<td>Summary total amount of all receipt line item amounts.</td>
</tr>
</tbody>
</table>

The following example shows a ReceiptRequest:

```xml
<Request deploymentMode="production">
  <ReceiptRequest>
    <ReceiptRequestHeader operation="new" receiptDate="2017-01-19T12:59:49-05:00" receiptID="ComRec123">
      <Comments xml:lang="en"/>
    </ReceiptRequestHeader>
    <ReceiptOrder>
      <ReceiptOrderInfo>
        <OrderReference orderID="4500003069">
          <DocumentReference payloadID="CSN.20170120.01"/>
        </OrderReference>
      </ReceiptOrderInfo>
    </ReceiptOrder>
  </ReceiptRequest>
</Request>
```
13.6.1 ReceiptRequestHeader

ReceiptRequestHeader contains header information for this receipt. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>receiptID</td>
<td>A buyer-generated unique identifier for this receipt.</td>
</tr>
<tr>
<td>receiptDate</td>
<td>The date and time the items or services were received by the buying organization. This date and time should be earlier than the document’s timestamp.</td>
</tr>
<tr>
<td>operation</td>
<td>The operation described by this receipt document. Possible values are &quot;new&quot; (the default) and &quot;delete&quot;, which cancels an existing receipt specified by the DocumentReference element. The &quot;delete&quot; operation is supported only for component receipts.</td>
</tr>
</tbody>
</table>
ReceiptRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Reference to an earlier ReceiptRequest. If the attribute ReceiptRequestHeader@operation is &quot;delete&quot;, the DocumentReference element is required and it must reference the original ReceiptRequest document during the same receipt process.</td>
</tr>
<tr>
<td>ShipNoticeIDInfo</td>
<td>Contains the Delivery Note of the buyer’s goods receipt, which defaults to the supplier’s ship notice ID.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this object.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

The following example shows a ReceiptRequestHeader that includes ShipNoticeIDInfo:

```xml
<Request deploymentMode="production">
  <ReceiptRequest>
    <ReceiptRequestHeader operation="new"
      receiptDate="2015-04-16T12:00:00+02:00" receiptID="DNS124">
      <ShipNoticeIDInfo shipNoticeDate="2016-04-12T00:00-05:00"
        shipNoticeID="asn-1234">
        ...
      </ShipNoticeIDInfo>
    </ReceiptRequestHeader>
    ...
  </ReceiptRequest>
</Request>
```

The following example shows how to cancel a component receipt:

```xml
<ReceiptRequest>
  <ReceiptRequestHeader operation="delete"
    receiptDate="2016-04-19T16:48:17-05:00" receiptID="RECEIPT002">
    <DocumentReference payloadID="RECEIPT001"/>
    ...
  </ReceiptRequestHeader>
  ...
</ReceiptRequest>
```

### 13.6.2 ReceiptOrder

ReceiptOrder defines information related to a purchase order or master agreement. A ReceiptRequest document may contain multiple ReceiptOrder elements.

ReceiptOrder has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>closeForReceiving</td>
<td>Set to &quot;yes&quot; to indicate whether the underlying order or master agreement should be closed for receiving on approval of this receipt.</td>
</tr>
</tbody>
</table>
ReceiptOrder has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReceiptOrderInfo</td>
<td>Contains the reference information of the purchase order or master agreement. See ReceiptOrderInfo [page 317].</td>
</tr>
<tr>
<td>ReceiptOrderInfo</td>
<td>(required)</td>
</tr>
<tr>
<td>ReceiptItem</td>
<td>Defines a receipt line item using information from the purchase order or master agreement. See ReceiptItem [page 317].</td>
</tr>
<tr>
<td>ReceiptItem</td>
<td>(required)</td>
</tr>
</tbody>
</table>

**13.6.2.1 ReceiptOrderInfo**

ReceiptOrderInfo contains the reference information of the purchase order or master agreement. The various content options are, in order of preference: OrderReference, MasterAgreementReference, MasterAgreementIDInfo, or OrderIDInfo.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrderReference</td>
<td>A reference to the purchase order containing the items or services being received.</td>
</tr>
<tr>
<td>MasterAgreementReference</td>
<td>A reference to the master agreement containing the items or services being received.</td>
</tr>
<tr>
<td>OrderIDInfo</td>
<td>The buyer ID of the corresponding purchase order.</td>
</tr>
<tr>
<td>MasterAgreementIDInfo</td>
<td>The buyer ID of the corresponding master agreement.</td>
</tr>
</tbody>
</table>

**13.6.2.2 ReceiptItem**

ReceiptItem defines a receipt line item using information from the purchase order or master agreement.

When providing receipt line item information, follow these guidelines:

- If this receipt is against a release order, specify both the release order and the master agreement.
- If the receipt is against a no-release master agreement, specify only the master agreement.
- If the receipt is against a purchase order, specify the purchase order.

ReceiptItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>receiptLineNumber</td>
<td>A buyer-defined ID for the current line item. It must be unique across all receipt line items of the same ReceiptRequest document.</td>
</tr>
<tr>
<td>receiptLineNumber</td>
<td>(required)</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>quantity</strong> (required)</td>
<td>The quantity received for the current receipt line. Negative values in the quantity attribute indicate corrective action against an order that was received or returned with errors. For example, if there is an order that has one line item with the quantity as 20, and you originally specified the received quantity as 20; later found out the received quantity was only 15 and not 20, you can do a negative receiving to correct this mistake.</td>
</tr>
<tr>
<td><strong>type</strong></td>
<td>To indicate if the buyer has received or returned the items from the supplier. This attribute can have the following values:</td>
</tr>
<tr>
<td></td>
<td>• <strong>received</strong>: Indicates the goods have been received by the buyer. For example:</td>
</tr>
<tr>
<td></td>
<td>&lt;ReceiptItem receiptLineNumber=&quot;1&quot; quantity=&quot;20&quot; type=&quot;received&quot;&gt;</td>
</tr>
<tr>
<td></td>
<td>• <strong>returned</strong>: Indicates the goods have been returned by the buyer. For example:</td>
</tr>
<tr>
<td></td>
<td>&lt;ReceiptItem receiptLineNumber=&quot;1&quot; quantity=&quot;10&quot; type=&quot;returned&quot;&gt;</td>
</tr>
<tr>
<td><strong>parentReceiptLineNumber</strong></td>
<td>Line number of the parent line item in the receipt request.</td>
</tr>
<tr>
<td><strong>itemType</strong></td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• <strong>composite</strong>—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>• <strong>item</strong>—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>• <strong>lean</strong>—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td><strong>compositeItemType</strong></td>
<td>Specifies whether a parent item uses group-level pricing. Possible values are &quot;groupLevel&quot; or &quot;itemLevel&quot;.</td>
</tr>
<tr>
<td><strong>completedIndicator</strong></td>
<td>Set to &quot;yes&quot; to indicate that a component ship notice item is considered closed and no more component receipts are expected for it.</td>
</tr>
</tbody>
</table>

**ReceiptItem** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ReceiptItemReference</strong> (required)</td>
<td>Indicates the line number of a referenced line item. See ReceiptItemReference [page 320].</td>
</tr>
<tr>
<td><strong>UnitRate</strong> (required)</td>
<td>The amount to be paid per unit of specified measure.</td>
</tr>
</tbody>
</table>
## Element | Description
--- | ---
**ReceivedAmount** (required) | Money amount of goods or services received for the receipt line item. The total received amount must equal to `quantity x UnitRate`.

**AssetInfo** | Contains optional asset data for each quantity of each receipt line item.

**DeliveryAddress** | Address where goods are received.

**Comments** | Contains comments associated with this object.

**Batch** | An element carrying batch information for material or goods produced in a single manufacturing run.

**Classification** | Classification for the receipt, for instance, Receipt Item Movement Type or Stock Type. Can occur more than once to support multiple classifications.

**Extrinsic** | Contains any additional information related to this object.

---

The following example shows a ReceiptItem:

```xml
<ReceiptItem quantity="1" receiptLineNumber="1" type="received">
  <ReceiptItemReference lineNumber="1">
    <ItemID>
      <SupplierPartID>RCA15</SupplierPartID>
    </ItemID>
    <Description xml:lang="en">N160INSTLL</Description>
    <ManufacturerPartID>N160INSTLL</ManufacturerPartID>
    <ManufacturerName>RCA</ManufacturerName>
    <ShipNoticeReference shipNoticeID="ASNDOC_002">
      <DocumentReference payloadID="Payload_ASNDOC_002"/>
    </ShipNoticeReference>
    <ReferenceDocumentInfo>
      <DocumentInfo documentType="SalesOrder" documentDate="2016-01-10T17:55:20-05:00" documentID="QN171226_01"/>
    </ReferenceDocumentInfo>
  </ReceiptItemReference>
  <UnitRate>
    <Money currency="USD">400.00</Money>
    <UnitOfMeasure>EA</UnitOfMeasure>
  </UnitRate>
  <ReceivedAmount>
    <Money currency="USD">240.00</Money>
  </ReceivedAmount>
  <AssetInfo location="Sunnyvale" serialNumber="SER20201" tagNumber="tag000005"/>
  <AssetInfo location="Sunnyvale" serialNumber="SER20202" tagNumber="tag000006"/>
  <Classification domain="movementType" code="101">Goods receipt for purchase order or order</Classification>
  <Classification domain="stockType" code="Q">Quality Inspection</Classification>
</ReceiptItem>
```
13.6.2.2.1 ReceiptItemReference

Indicates the line number of a referenced line item.

ReceiptItemReference has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>The line number of the current line item, copied from the OrderRequest document. The line number can also refer to a line item in the component ship notice referenced by ShipNoticeReference.</td>
</tr>
</tbody>
</table>

ReceiptItemReference has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>The supplier part number of the current line item, copied from the OrderRequest document.</td>
</tr>
<tr>
<td>Description</td>
<td>The line item description, copied from the OrderRequest document.</td>
</tr>
<tr>
<td>ManufacturerPartID</td>
<td>The manufacturer part number.</td>
</tr>
<tr>
<td>ManufacturerName</td>
<td>The name of the manufacturer.</td>
</tr>
<tr>
<td>ShipNoticeReference</td>
<td>Reference to the ShipNoticeRequest document sent from the supplier when this item was shipped.</td>
</tr>
<tr>
<td>ShipNoticeIDInfo</td>
<td>ID of the ShipNoticeRequest known to the buyer system. This ID is used when ShipNoticeReference is omitted.</td>
</tr>
<tr>
<td>ShipNoticeLineItemReference</td>
<td>Reference to the line item in a prior ShipNoticeRequest document.</td>
</tr>
</tbody>
</table>
14 Invoices

The cXML InvoiceDetail transaction enables suppliers to send invoices to buying organizations or marketplaces. This transaction supports invoice details for a wide variety of business scenarios, including standard invoices, credit memos, line-item credit memos, debit memos, and receipts.

- Overview of Invoices [page 321]
- InvoiceDetailRequest [page 324]
- Response [page 361]
- Invoice Status Update [page 362]
- Example Invoices [page 363]

14.1 Overview of Invoices

Suppliers use cXML invoices to bill buying organizations or marketplaces for provided products or services. Invoices can be generated against any portion of any line items from single or multiple purchase orders. The InvoiceDetail transaction supports cancel invoices, credit memos, line-item credit memos, debit memos, and receipts.

Invoices describe purchase orders, line items, partners involved, accounting distribution, payment terms, discounts, shipping and special handling, taxes, deposit and prepayment, and remittance information.

Suppliers send invoices to network hubs. Network hubs route invoices to the buying organization by either querying the buying organization’s ProfileResponse or by looking up routing information in the buying organization’s network account.

The cXML InvoiceDetailRequest document represents an invoice. After a receiving system accepts an invoice document, it responds with a generic cXML Response.

After buying organizations begin processing invoices, they send StatusUpdateRequest documents to notify the network hub about their reconciliation progress. The network hub can forward these documents to suppliers.

14.1.1 Early InvoiceRequest Document

Previously, cXML support for invoicing was provided by the InvoiceRequest document, which contained less detail than InvoiceDetailRequest and did not support line item or summary invoices.

InvoiceRequest is deprecated in cXML 1.2.011. All cXML invoice projects should implement InvoiceDetailRequest.
14.1.2 Debit and Credit Amounts

In invoices, positive amounts are debits the buying organization owes the supplier; negative amounts are credits issued by the supplier to the buying organization. For example, the supplier can specify a SubtotalAmount of 50 USD to issue a credit of fifty US dollars to the buying organization. Debit can be used in both standard invoices and debit memos. Credit can be used in standard invoices, credit memos, and line-item credit memos.

For PCard-enabled purchase orders, suppliers can request payment by using either invoices or the request-to-pay functionality provided by ConfirmationRequest documents.

Related Information

ConfirmationRequest [page 276]

14.1.3 Shipping Information

Invoices can include shipping information such as shipping charges, dates, from/to addresses, and carrier IDs. One of the reasons invoices support shipping information is because it can affect the final prices and taxes for orders shipped internationally.

The shipping information in invoices is not meant to be a substitute for sending ShipNoticeRequest documents.

14.1.4 Types of Invoices

InvoiceDetailRequest has the features and flexibility to support most business scenarios.

14.1.4.1 Individual and Summary Invoices

cXML supports both individual and summary invoices:

<table>
<thead>
<tr>
<th>Invoice Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Invoice</td>
<td>Applies against a single purchase order.</td>
</tr>
<tr>
<td>Summary Invoice</td>
<td>Applies against multiple purchase orders.</td>
</tr>
</tbody>
</table>
14.1.4.2 Invoice Level

cXML supports both header and detailed invoices:

<table>
<thead>
<tr>
<th>Invoice Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Header Invoice</td>
<td>Applies against the entirety of one or more purchase orders, without describing their line</td>
</tr>
<tr>
<td></td>
<td>items. Specify isHeaderInvoice=&quot;yes&quot; and use InvoiceDetailHeaderOrder elements, which do not</td>
</tr>
<tr>
<td></td>
<td>contain line-item information.</td>
</tr>
<tr>
<td>Detailed Invoice</td>
<td>(Line-item level invoice) Applies against specific line items from one or more purchase orders.</td>
</tr>
<tr>
<td></td>
<td>Leave out isHeaderInvoice and use InvoiceDetailOrder elements, which contain line-item information.</td>
</tr>
</tbody>
</table>

14.1.4.3 Invoice Purpose

Use the InvoiceDetailRequestHeader attributes to specify the purpose of the invoice.

<table>
<thead>
<tr>
<th>Invoice Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Invoice</td>
<td>Request for payment after providing products or services. Specify purpose=&quot;standard&quot; and</td>
</tr>
<tr>
<td></td>
<td>operation=&quot;new&quot;.</td>
</tr>
<tr>
<td>Credit Memo</td>
<td>Specifies credit to a buying organization. Specify purpose=&quot;creditMemo&quot; and operation=&quot;new&quot;.</td>
</tr>
<tr>
<td></td>
<td>Must be a header invoice. Amounts must be negative.</td>
</tr>
<tr>
<td>Line-Item Credit Memo</td>
<td>Specifies credit to a buying organization. Specify purpose=&quot;lineLevelCreditMemo&quot; and</td>
</tr>
<tr>
<td></td>
<td>operation=&quot;new&quot;. Must not be a header invoice. Amounts must be negative.</td>
</tr>
<tr>
<td>Debit Memo</td>
<td>Specifies debit to a buying organization. Specify purpose=&quot;debitMemo&quot; and operation=&quot;new&quot;.</td>
</tr>
<tr>
<td></td>
<td>Must be a header invoice. Amounts must be positive.</td>
</tr>
<tr>
<td>Information Only</td>
<td>Provides a record of charges, similar to a receipt. No action is expected. Specify isInformationOnly=&quot;yes&quot; and operation=&quot;new&quot;.</td>
</tr>
<tr>
<td>Cancel Invoice</td>
<td>Cancels a previously sent invoice. Specify operation=&quot;delete&quot;.</td>
</tr>
</tbody>
</table>
14.1.5 Invoice DTD

The cXML standard uses multiple DTDs to optimize the performance of validating parsers. The InvoiceDetail transaction is defined in a separate DTD named InvoiceDetail.dtd, available at:

http://xml.cXML.org/schemas/cXML/<version>/InvoiceDetail.dtd

14.2 InvoiceDetailRequest

InvoiceDetailRequest documents represent invoices.

The structure of the InvoiceDetailRequest document is:

```
<Request>
  <InvoiceDetailRequest>
    <InvoiceDetailRequestHeader>
      header information
    </InvoiceDetailRequestHeader>
    <InvoiceDetailHeaderOrder>
      order-level invoice information
    </InvoiceDetailHeaderOrder>
    . . .
    or
    <InvoiceDetailOrder>
      detailed line-item information
    </InvoiceDetailOrder>
    . . .
    <InvoiceDetailSummary>
      invoice summary
    </InvoiceDetailSummary>
  </InvoiceDetailRequest>
</Request>
```

InvoiceDetailOrder elements are for detailed (line-item level) invoices and InvoiceDetailHeaderOrder elements are for header invoices. Invoices must not contain both types of elements. Both types of elements contain invoice lines.

All invoice line level amounts must add up to the total specified in InvoiceDetailSummary.

14.2.1 InvoiceDetailRequestHeader

Defines header information that applies to the entire invoice.

InvoiceDetailRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceID</td>
<td>A supplier-generated identifier for the Invoice. Identical to the Invoice Number that appears at the top of a physical Invoice.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>isInformationOnly</td>
<td>Indicates whether the buying organization needs to take action. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• yes—Invoice is for the buying organization’s information only (no action needs to be taken by the buying organization).</td>
</tr>
<tr>
<td></td>
<td>• Not specified—(default) Invoice is functional. The buying organization needs to take action upon receiving this document (submit payment or accept credit).</td>
</tr>
<tr>
<td>purpose</td>
<td>Purpose of the invoice. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• standard—(default) A standard billing statement from the supplier to the buying organization.</td>
</tr>
<tr>
<td></td>
<td>• creditMemo—A credit memo for issuing credit to the buying organization. isHeaderInvoice must be yes. Also, the element InvoiceDetailSummary/DueAmount must be a negative amount.</td>
</tr>
<tr>
<td></td>
<td>• debitMemo—A debit memo for billing a balance owed by the buying organization. isHeaderInvoice must be yes. Also, the element InvoiceDetailSummary/DueAmount must be a positive amount.</td>
</tr>
<tr>
<td></td>
<td>• lineLevelCreditMemo—A line-item credit memo for issuing credit to the buying organization. isHeaderInvoice must be false (not specified). Also, the element InvoiceDetailSummary/DueAmount must be a negative amount.</td>
</tr>
<tr>
<td></td>
<td>• lineLevelDebitMemo—A line-item debit memo billing a balance owed by the buyer to the supplier. isHeaderInvoice must be false (not specified). Also, the element InvoiceDetailSummary/DueAmount must be a positive amount.</td>
</tr>
<tr>
<td>operation</td>
<td>How this document is acting on the invoice. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• new—(default) Creates a new invoice.</td>
</tr>
<tr>
<td></td>
<td>• delete—Cancels an existing invoice. The payloadID of the existing invoice must be specified in a DocumentReference.</td>
</tr>
<tr>
<td>invoiceDate</td>
<td>Date and time Invoice was created (should be earlier than the cXML timestamp).</td>
</tr>
<tr>
<td>invoiceOrigin</td>
<td>Indicates the originator of the invoice for categorization. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• supplier — Invoice originated by supplier.</td>
</tr>
<tr>
<td></td>
<td>• buyer — Invoice originated by buying organization.</td>
</tr>
<tr>
<td></td>
<td>• Not specified — Invoice origin is unknown.</td>
</tr>
<tr>
<td>isERS</td>
<td>Whether the invoice is an Evaluated Receipt Settlement (ERS) invoice. The only possible value is &quot;yes&quot;. If not specified, the invoice is a regular invoice.</td>
</tr>
</tbody>
</table>

### 14.2.1.1 InvoiceDetailHeaderIndicator

Defines indicators that describe overall attributes of the invoice. By default, all indicators are false.
InvoiceDetailHeaderIndicator has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isHeaderInvoice</td>
<td>Category of the invoice. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● yes—Header invoice. Invoice uses InvoiceDetailHeaderOrder, which contains header level invoice information without item details.</td>
</tr>
<tr>
<td></td>
<td>● Not specified—Detail invoice. Invoice uses InvoiceDetailOrder, which contains item details.</td>
</tr>
<tr>
<td>isVatRecoverable</td>
<td>yes—The entire invoice is VAT (Value Added Tax)-recoverable.</td>
</tr>
<tr>
<td>priceBasedLineLevelCreditMemo</td>
<td>Set to yes to indicate that the invoice is a price-based, line-level credit memo for an early payment discount granted after the original invoice was issued.</td>
</tr>
</tbody>
</table>

14.2.1.2 InvoiceDetailLineIndicator

Indicates the presence of invoicing details at invoice line level (in InvoiceDetailItem, InvoiceDetailServiceItem, or InvoiceDetailOrderSummary). By default, all indicators are false.

If this element indicates that invoicing details exist at invoice line level, invoice lines that do not provide such information are assumed to have values of zero, or “not available” for that information.

InvoiceDetailLineIndicator has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>isTaxInLine</td>
<td>yes—Tax (Tax) is provided at invoice line level. If header tax is specified, it will be ignored.</td>
</tr>
<tr>
<td>isSpecialHandlingInLine</td>
<td>yes—Special handling (InvoiceDetailLineSpecialHandling) is provided at invoice line level.</td>
</tr>
<tr>
<td>isShippingInLine</td>
<td>yes—Shipping (InvoiceDetailLineShipping) is provided at invoice line level.</td>
</tr>
<tr>
<td>isDiscountInLine</td>
<td>yes—Discount (InvoiceDetailDiscount) is provided at invoice line level.</td>
</tr>
<tr>
<td>isAccountingInLine</td>
<td>yes—Accounting distribution (Distribution) is provided at invoice line level. If isHeaderInvoice is true, this indicator must not be specified, because Distribution is available only at item level.</td>
</tr>
<tr>
<td>isPriceAdjustmentInLine</td>
<td>yes—A line-item credit memo or debit memo has a price adjustment.</td>
</tr>
</tbody>
</table>

14.2.1.3 InvoicePartner

Defines a party involved in invoicing, including the issuer of the invoice and the person sold to.

Invoices support InvoicePartner because the Contact element alone does not support the wide variety of reference identifiers involved in invoicing.

Do not use this element to specify ship from or ship to; instead, use InvoiceDetailShipping.
Contact

Contact information of the invoice partner. Allowed contact roles are from, issuerOfInvoice, soldTo, billTo, billFrom, and remitTo.

**iNote**

from and issuerOfInvoice must be synonymous.

IdReference

Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier).

IdReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>identifier (required)</td>
<td>The unique identifier of the IdReference within the domain.</td>
</tr>
</tbody>
</table>
| domain (required) | The domain of the IdReference. Possible values:  
  - abaRoutingNumber  
  - accountID  
  - accountName  
  - accountPayableID  
  - accountReceivableID  
  - accountType  
  - bankRoutingID  
  - branchName  
  - contactPerson  
  - departmentName  
  - federalTaxID  
  - gstID  
  - ibanID  
  - provincialTaxID  
  - reference  
  - stateTaxID  
  - supplierTaxID  
  - swiftID  
  - taxExemptionID  
  - vatID  

Values can be application-specific, such as 1099ID or courtRegisterID.
IdReference has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creator</td>
<td>The creator of the IdReference (for example, the name of the bank, shipper, or other organization).</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description of the IdReference for human readability.</td>
</tr>
</tbody>
</table>

Related Information

PaymentPartner/IdReference [page 218]

14.2.1.4 DocumentReference

Identifies an earlier InvoiceDetailRequest document. If operation="delete", DocumentReference is required and it must reference the original InvoiceDetailRequest document (with operation="new"). In all other situations, DocumentReference is optional.

DocumentReference has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID (required)</td>
<td>The payloadID attribute of another cXML document.</td>
</tr>
</tbody>
</table>

14.2.1.5 InvoiceIDInfo

Defines the ID of an earlier invoice known to the supplier system. If both DocumentReference and InvoiceIDInfo are provided, they must refer to the same invoice. InvoiceIDInfo is a container for two attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceID (required)</td>
<td>The ID of an invoice known to the supplier system.</td>
</tr>
<tr>
<td>invoiceDate</td>
<td>The invoice date.</td>
</tr>
</tbody>
</table>
14.2.1.6 PaymentProposalIDInfo

Defines the ID of a PaymentProposalRequest known to the supplier and buyer system. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paymentProposalID</td>
<td>The ID of a PaymentProposalRequest known to the buyer and supplier system.</td>
</tr>
</tbody>
</table>

14.2.1.7 InvoiceDetailShipping

The shipping details of the invoice.

InvoiceDetailShipping has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>shippingDate</td>
<td>The date and time this shipment leaves the supplier.</td>
</tr>
</tbody>
</table>

Contact

The ship from and ship to addresses. Both ship from and ship to must be specified. See Contact [page 117].

CarrierIdentifier

This list can include multiple identifiers for the same carrier. Elements in this list can appear in any order. An identification domain (CarrierIdentifier domain) must not appear more than once in an InvoiceDetailShipping element. All identification provided by elements of one CarrierIdentifier list must correspond to the same company.
CarrierIdentifier has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>Domain for this value. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● companyName—The legal name for this company. In some cases, this could also</td>
</tr>
<tr>
<td></td>
<td>be provided in a Contact element with role “carrierCorporate”. That option</td>
</tr>
<tr>
<td></td>
<td>should be reserved for cases in which additional detail about the carrier</td>
</tr>
<tr>
<td></td>
<td>appears in this element.</td>
</tr>
<tr>
<td></td>
<td>● IATA—International Air Transport Association. <a href="http://www.iata.org">www.iata.org</a></td>
</tr>
<tr>
<td></td>
<td>● AAR—Association of American Railroads. <a href="http://www.aar.org">www.aar.org</a></td>
</tr>
<tr>
<td></td>
<td>● UIC—International Union of Railways. <a href="http://www.uic.org">www.uic.org</a></td>
</tr>
<tr>
<td></td>
<td>● EAN—European Article Numbering. upc-ean-information.com</td>
</tr>
<tr>
<td></td>
<td>● DUNS—D&amp;B’s Data Universal Numbering System. <a href="http://www.dnb.com">www.dnb.com</a></td>
</tr>
</tbody>
</table>

ShipmentIdentifier

The tracking number of this shipment. See ShipmentIdentifier [page 301].

DocumentReference

Identifies an earlier ShipNoticeRequest. For more information, see DocumentReference [page 328].

14.2.1.8 ShipNoticeIDInfo

Specifies additional reference IDs for shipment related IDs. See ShipNoticeIDInfo [page 345].

14.2.1.9 InvoiceDetailPaymentTerm (deprecated)

InvoiceDetailPaymentTerm is deprecated in cXML 1.2.011, in favor of PaymentTerm [page 330].

14.2.1.10 PaymentTerm

Defines a payment term in an invoice or order. PaymentTerm defines either the net term (without discount) or the discount term (with discount).
PaymentTerm has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payInNumberOfDays</td>
<td>The number of days after invoice date to pay in full.</td>
</tr>
</tbody>
</table>

**Discount**

The percentage or amount of the discount term. The discount rate applies if the invoice total is paid within the time specified by payInNumberOfDays. Positive rates denote discounts and negative rates denote penalties. Do not use a percentage sign (%) or divide by 100; for example “2” means 2%.

Do not use the Discount element if the PaymentTerm is a net term.

**Extrinsic**

Specifies additional information related to this payment term. This can include ValueDate and DiscountTermsDueDate.

**14.2.1.11 Period**

The period over which the services were rendered. Period has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>The starting date of the service.</td>
</tr>
<tr>
<td>endDate</td>
<td>The ending date of the service.</td>
</tr>
</tbody>
</table>

**14.2.1.12 Comments**

Any comments for the invoice.

**14.2.1.13 IdReference**

Defines an ID reference. See IdReference [page 283].
14.2.1.14 Extrinsic

Specifies additional information related to the invoice. You must ensure that you do not duplicate anything in InvoiceDetailRequestHeader or InvoiceDetailRequest.

14.2.2 InvoiceDetailOrder

Defines the invoice information of an order with item details, used only when isHeaderInvoice is false (not specified).

An invoice line is an InvoiceDetailItem or an InvoiceDetailServiceItem and its invoice line number is specified by the invoiceLineNumber attribute.

14.2.2.1 InvoiceDetailOrderInfo

Defines information related to the corresponding purchase order, including order reference and related master agreement reference, if any. Applications use this information to match the invoice with the corresponding purchase order or master agreement. The more definitive the reference, the more likely applications can successfully perform document matching.

InvoiceDetailOrderInfo can contain several possible elements for referring to documents. OrderReference is strongly recommended, but if that information is not available, use MasterAgreementReference, MasterAgreementIDInfo, OrderIDInfo, or SupplierOrderInfo, in that order.

OrderReference

The reference to the purchase order being invoiced.

MasterAgreementReference

Defines a reference to an earlier MasterAgreementRequest document. This element identifies the master agreement of the release order to be invoiced.

MasterAgreementReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementID</td>
<td>The ID number of a master agreement known to the buying organization’s system.</td>
</tr>
<tr>
<td>agreementDate</td>
<td>The date and time the master agreement request was created.</td>
</tr>
</tbody>
</table>
### Attribute Description

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementType</td>
<td>Indicates whether the referenced agreement is a scheduling agreement release.</td>
</tr>
</tbody>
</table>

### MasterAgreementIDInfo

Defines the buying organization’s ID number of the corresponding master agreement if the order being invoiced is a release. This element identifies the master agreement of the contract or release order to be invoiced.

**MasterAgreementIDInfo** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementID</td>
<td>The ID number of a master agreement known to the buying organization’s system.</td>
</tr>
<tr>
<td>agreementDate</td>
<td>The date and time the master agreement request was created.</td>
</tr>
<tr>
<td>agreementType</td>
<td>Indicates whether the referenced agreement is a scheduling agreement release.</td>
</tr>
</tbody>
</table>

**MasterAgreementIDInfo** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>Specifies additional IDs for the master agreement.</td>
</tr>
</tbody>
</table>

### OrderIDInfo

Identifies a purchase order known to the buying organization.

**OrderIDInfo** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>The ID of a purchase order (purchase order number) known to the buying organization.</td>
</tr>
<tr>
<td>orderDate</td>
<td>The date and time the purchase order was created.</td>
</tr>
</tbody>
</table>

### SupplierOrderInfo

Defines supplier sales order information related to a purchase order.
SupplierOrderInfo has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>Supplier sales order ID of the purchase order.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>orderDate</td>
<td>The date and time of the sales order.</td>
</tr>
</tbody>
</table>

### 14.2.2.2 InvoiceDetailItem

Defines an invoice line item.

The buying organization might require information provided here to match the information provided in the purchase order. For example, the buying organization might require there to be no change in the UnitOfMeasure value.

InvoiceDetailItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceLineNumber</td>
<td>Supplier defined ID for the current invoice line. Should be unique across all invoice lines within an invoice.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>quantity</td>
<td>The quantity being invoiced for the line item.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>referenceDate</td>
<td>The reference date for the blanket order or contract item. The usage of this attribute is optional in most cases, and must be defined by the trading partners involved in the transaction. Procurement software might use this date in reconciling an invoice against a blanket order or contract.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>The date when the transfer of goods or the delivery of services occurs according to legal tax definitions. The usage of this attribute is optional in most cases, and must be defined by the trading partners involved in the transaction.</td>
</tr>
<tr>
<td>parentInvoiceLineNumber</td>
<td>Specifies the line number of the corresponding parent line item. This attribute is applicable only for a line item with itemType=&quot;item&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>● item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>● lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>compositeItemType</td>
<td>Specifies whether a parent item uses group-level pricing. Possible values are &quot;groupLevel&quot; or &quot;itemLevel&quot;.</td>
</tr>
<tr>
<td>reason</td>
<td>Specifies the reason for a line-item credit memo. The only possible value for reason is &quot;return&quot;, which means the credit memo is for a return item.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Set to &quot;yes&quot; to indicate that the item does not exist in the reference document or contract master agreement.</td>
</tr>
</tbody>
</table>

InvoiceDetailItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>The line item’s unit of measure. See UnitOfMeasure [page 43].</td>
</tr>
<tr>
<td>UnitPrice</td>
<td>The unit price.</td>
</tr>
<tr>
<td>PriceBasisQuantity</td>
<td>The quantity-based pricing for a line item. See PriceBasisQuantity [page 336].</td>
</tr>
<tr>
<td>InvoiceDetailItemReference</td>
<td>Defines all references related to an invoice line item. See InvoiceDetailItemReference [page 337].</td>
</tr>
<tr>
<td>ReceiptLineItemReference</td>
<td>Reference to the receipt line related to this line item. See ReceiptLineItemReference [page 338].</td>
</tr>
<tr>
<td>ShipNoticeLineItemReference</td>
<td>Reference to the ship notice line related to this line item. See ShipNoticeLineItemReference [page 338].</td>
</tr>
<tr>
<td>ServiceEntryItemReference</td>
<td>Reference to the service sheet line related to this line item. See ServiceEntryItemReference [page 339].</td>
</tr>
<tr>
<td>ServiceEntryItemIDInfo</td>
<td>References the related ServiceEntryRequest for the invoice. See ServiceEntryItemIDInfo [page 339].</td>
</tr>
<tr>
<td>SubtotalAmount</td>
<td>The invoice subtotal of the current line item: UnitPrice times quantity.</td>
</tr>
<tr>
<td>Tax</td>
<td>The tax for the line item. See Tax [page 340].</td>
</tr>
<tr>
<td>InvoiceDetailLineSpecialHandling</td>
<td>Contains the special handling information for the line item. See InvoiceDetailLineSpecialHandling [page 345].</td>
</tr>
<tr>
<td>InvoiceDetailLineShipping</td>
<td>Contains the shipping information for the line item. See InvoiceDetailLineShipping [page 345].</td>
</tr>
<tr>
<td>ShipNoticeIDInfo</td>
<td>Specifies additional reference IDs for shipment related IDs. See ShipNoticeIDInfo [page 345].</td>
</tr>
<tr>
<td>GrossAmount</td>
<td>The SubtotalAmount plus taxes, shipping, and special handling charges for the line item.</td>
</tr>
<tr>
<td>InvoiceDetailDiscount</td>
<td>The discount for the line item. See InvoiceDetailDiscount [page 346].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>InvoiceItemModifications</td>
<td>Specifies the additional Charges, Allowances, and their taxes that are incurred for the total landed cost of the goods and service for an invoice item. See InvoiceItemModifications [page 346].</td>
</tr>
<tr>
<td>TotalCharges</td>
<td>The total sum of all the charges applied on the goods and services. This can appear at the line-item and summary in an invoice.</td>
</tr>
<tr>
<td>TotalAllowances</td>
<td>The total sum of all the allowances applied on the goods and services. This can appear at the line item and summary in an invoice.</td>
</tr>
<tr>
<td>TotalAmountWithoutTax</td>
<td>Summarizes the total invoice amount without tax. See TotalAmountWithoutTax [page 360].</td>
</tr>
<tr>
<td>NetAmount</td>
<td>The GrossAmount minus discounts for the line item.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Accounting information generated by the buying organization, such as cost center or general ledger category. This information should be copied from the OrderRequest. Ignored if isAccountingInLine is false (not specified).</td>
</tr>
<tr>
<td>Packaging</td>
<td>Details about the packaging of the line item. See Packaging [page 174].</td>
</tr>
<tr>
<td>InvoiceDetailItemIndustry</td>
<td>Specifies the categories for various industries. See InvoiceDetailItemIndustry [page 346].</td>
</tr>
<tr>
<td>Comments</td>
<td>Textual comments for the line item.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Additional information related to the line item. You must ensure that you do not duplicate anything in or InvoiceDetailOrder.</td>
</tr>
</tbody>
</table>

### 14.2.2.2.1 PriceBasisQuantity

The quantity-based pricing for a line item. Quantity-based pricing allows the unit price of an item to be based on a different price unit quantity than 1. In addition to quantity-based pricing, Unit Conversion Pricing allows unit of measure conversion in the pricing calculation, when the unit of measure on the order differs from the pricing unit of measure.

**PriceBasisQuantity** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>The price unit quantity for the unit price. This is a mandatory field.</td>
</tr>
<tr>
<td>conversionFactor</td>
<td>The value used to convert the ordered unit of measure to the price unit while calculating the unit price of the item. This is a mandatory field.</td>
</tr>
</tbody>
</table>
PriceBasisQuantity has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>The unit of measure specified for quoted unit price. This element must exist in the PriceBasisQuantity element.</td>
</tr>
<tr>
<td>Description</td>
<td>This field can store any information for the PriceBasisQuantity element. It can be used to stores the unit conversion values provided by the supplier. This is an optional element.</td>
</tr>
</tbody>
</table>

### 14.2.2.2 InvoiceDetailItemReference

Defines all references related to an invoice line item.

InvoiceDetailItemReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber (required)</td>
<td>The purchase order line number of current line item, copied from the OrderRequest.</td>
</tr>
<tr>
<td>serialNumber (deprecated)</td>
<td>The product serial number for the current line item. This attribute was deprecated in cXML 1.2.009. Use SerialNumber elements, instead.</td>
</tr>
</tbody>
</table>

InvoiceDetailItemReference has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>The supplier part number of current line item, from the OrderRequest. See ItemID [page 90].</td>
</tr>
<tr>
<td>Description</td>
<td>The line item description, from the OrderRequest. This is a mandatory field.</td>
</tr>
<tr>
<td>Classification</td>
<td>Commodity classification of the service. This is a mandatory field and can appear in any order. This element has the domain attribute.</td>
</tr>
<tr>
<td>ManufacturerPartID</td>
<td>The manufacturer part number.</td>
</tr>
<tr>
<td>ManufacturerName</td>
<td>The name of the manufacturer.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of origin of the product listed in the line item.</td>
</tr>
</tbody>
</table>
### Element

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SerialNumber</td>
<td>A serial number that uniquely identifies an accountable item that is being invoiced. You can include multiple SerialNumber elements; the number of SerialNumber elements should match the invoice item quantity. Use SerialNumber elements instead of the InvoiceDetailItemReference@serialNumber attribute, which was deprecated in cXML 1.2.009.</td>
</tr>
<tr>
<td>SupplierBatchID</td>
<td>See SupplierBatchID or Batch [page 312].</td>
</tr>
<tr>
<td>InvoiceDetailItem-ReferenceIndustry</td>
<td>Item-detail information specific to the retail industry.</td>
</tr>
<tr>
<td>InvoiceDetailItem-ReferenceRetail</td>
<td>Specifies the details for the retail industry. Contains the following elements: • EANID—Specifies an ID assigned to a manufacturer’s product according to the International Article Numbering Association or UPC (Universal Product Code) for an article. This is an optional element. • EuropeanWasteCatalogID—Specifies a unique ID for articles listed in the EU Waste Catalog (EWC) if it requires special handling. This is an optional element. • Characteristics—Specifies detailed information about an item that can be used across several different industries. This is an optional element.</td>
</tr>
</tbody>
</table>

#### 14.2.2.2.3 ReceiptLineItemReference

Reference to the receipt line related to this line item. It has the following attribute:

<table>
<thead>
<tr>
<th><strong>Attribute</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>receiptLineNumber</td>
<td>Specifies the receipt line number of the current line item, copied from ReceiptRequest.</td>
</tr>
</tbody>
</table>

#### 14.2.2.4 ShipNoticeLineItemReference

Reference to the ship notice line related to this line item. It has the following attribute:

<table>
<thead>
<tr>
<th><strong>Attribute</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>shipNoticeLineNumber</td>
<td>Specifies the ship notice line number of the current line item, copied from ShipNoticeRequest.</td>
</tr>
</tbody>
</table>
### 14.2.2.2.5 ServiceEntryItemReference

Reference to the service sheet line related to this line item.

**ServiceEntryItemReference** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceLineNumber</td>
<td>Refers to the line number in the related ServiceEntryRequest for the item.</td>
</tr>
<tr>
<td>serviceEntryID</td>
<td>The ID for the related ServiceEntryRequest. If present, it must be copied from the ServiceEntryRequestHeader.</td>
</tr>
<tr>
<td>serviceEntryDate</td>
<td>The date and time when the supplier created the service sheet. If present, it must be copied from the ServiceEntryRequestHeader.</td>
</tr>
</tbody>
</table>

**ServiceEntryItemReference** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
</table>

**DocumentReference** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID</td>
<td>The value of the payloadID attribute for the earlier ServiceEntryRequest.</td>
</tr>
</tbody>
</table>

### 14.2.2.2.6 ServiceEntryItemIDInfo

References the related ServiceEntryRequest for the invoice.

**ServiceEntryItemIDInfo** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceLineNumber</td>
<td>Refers to the line number in the related ServiceEntryRequest for the item.</td>
</tr>
<tr>
<td>serviceEntryID</td>
<td>The ID for the related ServiceEntryRequest.</td>
</tr>
<tr>
<td>serviceEntryDate</td>
<td>The date and time when the supplier created the service sheet.</td>
</tr>
</tbody>
</table>
ServiceEntryItemIDInfo has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>References a unique identifier for the service sheet. It has the following attributes:</td>
</tr>
<tr>
<td></td>
<td><strong>Attribute</strong></td>
</tr>
<tr>
<td></td>
<td>identifier (required)</td>
</tr>
<tr>
<td></td>
<td>domain (required)</td>
</tr>
</tbody>
</table>

14.2.2.2.7 Tax

The tax for the line item. Ignored if isTaxInLine is false (not specified). Tax has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money (required)</td>
<td>The amount owed for tax.</td>
</tr>
<tr>
<td>TaxAdjustmentAmount</td>
<td>The adjustment amount for the total tax for the document or in other words the adjustment amount corresponding to tax represented by this Tax element and is optional (this is supposedly the sum of the amounts in TaxAdjustmentAmount elements under the TaxDetail children of this Tax element). Currently, this element is ONLY supported for the PaymentProposalRequest document. It is used instead of the TaxAdjustment element (now deprecated). See PaymentProposalRequest Examples [page 237].</td>
</tr>
<tr>
<td>Description (required)</td>
<td>Textual description of the tax. See TaxDetail [page 341].</td>
</tr>
<tr>
<td>TaxDetail</td>
<td>Detailed information about the tax. See TaxDetail [page 341].</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the combination of a Charge against an Accounting element.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Additional information related to Tax. This information should not duplicate any information in Tax.</td>
</tr>
</tbody>
</table>
## 14.2.2.2.7.1 TaxDetail

Detailed information about the tax. **TaxDetail** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>purpose</td>
<td>The purpose of the tax. For example, &quot;tax&quot; or &quot;custom duty&quot;.</td>
</tr>
<tr>
<td>category</td>
<td>The category of the tax. For example, &quot;sales&quot;, &quot;usage&quot;, &quot;vat&quot;, &quot;gst&quot;, or &quot;withholdingTax&quot;.</td>
</tr>
<tr>
<td></td>
<td>If the category is &quot;withholdingTax&quot;, you can additionally specify the</td>
</tr>
<tr>
<td></td>
<td>&quot;withholdingTaxType&quot; extrinsic.</td>
</tr>
<tr>
<td></td>
<td>Possible values:</td>
</tr>
<tr>
<td></td>
<td>• ISR</td>
</tr>
<tr>
<td></td>
<td>• IVA</td>
</tr>
<tr>
<td>percentageRate</td>
<td>The tax rate percentage. Do not include a percent symbol (%).</td>
</tr>
<tr>
<td>isVatRecoverable</td>
<td>Set to &quot;true&quot; if the tax amount is recoverable.</td>
</tr>
<tr>
<td>taxPointDate</td>
<td>The date on which VAT becomes due.</td>
</tr>
<tr>
<td>paymentDate</td>
<td>The date on which payment must be made (used only for transactions in</td>
</tr>
<tr>
<td></td>
<td>France).</td>
</tr>
<tr>
<td>isTriangularTransaction</td>
<td>Set to &quot;true&quot; to indicate that the transaction occurred between three</td>
</tr>
<tr>
<td></td>
<td>parties in three different countries, but the movement of goods did not</td>
</tr>
<tr>
<td></td>
<td>follow the invoicing route. Add a Contract element with</td>
</tr>
<tr>
<td></td>
<td>role=&quot;subsequentBuyer&quot; to identify the subsequent buying organization in</td>
</tr>
<tr>
<td></td>
<td>triangular transactions.</td>
</tr>
<tr>
<td>exemptDetail</td>
<td>When the tax rate is zero percentage, regulations may require that</td>
</tr>
<tr>
<td></td>
<td>suppliers specify if the tax is required, or if the goods or services are</td>
</tr>
<tr>
<td></td>
<td>exempt from taxations.</td>
</tr>
<tr>
<td></td>
<td>Possible values:</td>
</tr>
<tr>
<td></td>
<td>• zeroRated—This indicates the goods and services are taxable, but the</td>
</tr>
<tr>
<td></td>
<td>tax rate is zero percent.</td>
</tr>
<tr>
<td></td>
<td>• exempt—This indicates the goods and services are tax exempt.</td>
</tr>
<tr>
<td>isWithholdingTax</td>
<td>Set to yes if the tax is a withholding tax.</td>
</tr>
<tr>
<td>taxRateType</td>
<td>Specifies the tax rate type (a string) that corresponds to a specific tax</td>
</tr>
<tr>
<td></td>
<td>type. For example, in Germany the tax rate of 19% for value-added tax (VAT)</td>
</tr>
</tbody>
</table>
|                            |   corresponds to the "Standard" tax rate type. In different EU member states, different VAT rates are allowed. The tax rate type makes it easy for the backend system to handle different rates that result from changes in tax law.
### Attribute

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>basePercentageRate</td>
<td>The base tax rate in number of percentage. For some Tax categories (for example, ICMS for Brazil) TaxAmount is calculated considering the basePercentageRate along with percentageRate. TaxAmount = TaxableAmount * percentageRate * basePercentageRate. Used only in Quote messages.</td>
</tr>
<tr>
<td>isIncludedInPrice</td>
<td>Set to &quot;yes&quot; (true) if the TaxAmount is included in the price. The default is &quot;no&quot; (false). Used only in Quote messages.</td>
</tr>
</tbody>
</table>

**TaxDetail** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TaxableAmount</td>
<td>The amount that is taxable.</td>
</tr>
<tr>
<td>TaxAmount (required)</td>
<td>The amount of tax.</td>
</tr>
<tr>
<td>TaxLocation</td>
<td>The locale in which the tax applies.</td>
</tr>
<tr>
<td>TaxAdjustmentAmount</td>
<td>The adjustment amount for the tax for the specific tax line (tax for a specific category and location) or in other words the adjustment amount corresponding to tax represented by this TaxDetail element. Currently, this element is ONLY supported for the PaymentProposalRequest document. It is used instead of the TaxAdjustmentDetail element (now deprecated). See PaymentProposalRequest Examples [page 237].</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description of the tax.</td>
</tr>
<tr>
<td>TriangularTransaction-LawReference</td>
<td>Reference to the relevant EU law covering the VAT for triangular transactions. For example, “VAT - EC Article 28 Simplification Invoice”.</td>
</tr>
</tbody>
</table>
### Element: TaxRegime

Specifies the tax classification related to the type of supplier activities and commodities in invoices. Suppliers pay taxes based on the tax regime.

This is an optional element.

An invoice can have one or more tax regimes but suppliers can associate only one tax regime in the TaxDetail element. This element is applicable to all countries.

For example:

```xml
<Tax>
  <Money currency = "USD">1.87</Money>
  <Description xml:lang = "en-US"/>
  <TaxDetail category = "vat" percentageRate = "2" taxPointDate = "2013-06-19T00:00:00+05:30">
    <TaxableAmount>
      <Money currency = "USD">93.60</Money>
    </TaxableAmount>
    <TaxAmount>
      <Money currency = "USD">1.87</Money>
    </TaxAmount>
    <Description xml:lang = "en-US"/>
    <TaxRegime>Regimen de Asalariados</TaxRegime>
  </TaxDetail>
</Tax>
```

### Element: TaxExemption

Contains a tax exemption code and reason, which is required to claim an exemption from taxes for some tax authorities, such as Portugal SAF-T.

For example:

```xml
<TaxDetail category="vat" percentageRate="0" exemptDetail="exempt" taxRateType="RED">
  <TaxExemption exemptCode="M02">
    <ExemptReason xml:lang="pt-BR">
      Artigo 6.º do Decreto-Lei n.º 198/90, de 19 de junho
    </ExemptReason>
  </TaxExemption>
</TaxDetail>
```

### Element: Extrinsic

Additional information related to TaxDetail. This information should not duplicate any information in TaxDetail.

The following example shows a QuoteMessage that uses TaxDetail:

```xml
<Message>
  <QuoteMessage>
    <QuoteMessageHeader currency="USD" quoteDate="2016-09-20T15:31:10+05:30" quoteId="10000000000000000000003563" type="accept" xml:lang="en_US">
      <OrganizationID>
        <Credential domain="NetworkID">
          <Identity>AN02000005132</Identity>
        </Credential>
      </OrganizationID>
    </QuoteMessageHeader>
  </QuoteMessage>
</Message>
```
<OrganizationID></OrganizationID>
<Total>
  <Money currency="USD">11000</Money>
</Total>
<QuoteRequestReference requestDate="2013-11-20T05:30:00+05:30" requestID="reqID-6634853691153124390"/>
</QuoteRequestReference>
</QuoteMessageHeader>
<QuoteItemIn lineNumber="1" quantity="10" rank="1" requestedDeliveryDate="2016-10-07T17:00:00+05:30" type="accept">
  <ItemID>
    <SupplierPartID>SupplierPartId2</SupplierPartID>
  </ItemID>
  <ItemDetail>
    <UnitPrice>
      <Money currency="USD">1000</Money>
    </UnitPrice>
    <Description xml:lang="en_US">Digital cameras</Description>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Classification domain="unspsc">45121504</Classification>
    <ManufacturerPartID/>
    <ManufacturerName/>
    <URL/>
    <LeadTime>0</LeadTime>
  </ItemDetail>
  <Shipping>
    <Money currency="USD">0</Money>
  </Shipping>
  <Tax>
    <Money currency="USD">500</Money>
    <TaxDetail category="ICMS" percentageRate="10.00" basePercentageRate="50.00">
      <TaxableAmount>
        <Money currency="USD">10000.00</Money>
      </TaxableAmount>
      <TaxAmount>
        <Money currency="USD">500</Money>
      </TaxAmount>
      <TaxLocation xml:lang="en-US">Brasilia</TaxLocation>
      <Description xml:lang="en-US"></Description>
    </TaxDetail>
    <TaxDetail category="ISS" percentageRate="5.00" isIncludedInPrice="yes">
      <TaxableAmount>
        <Money currency="USD">10000.00</Money>
      </TaxableAmount>
      <TaxAmount>
        <Money currency="USD">500</Money>
      </TaxAmount>
      <TaxLocation xml:lang="en-US">Brasilia</TaxLocation>
      <Description xml:lang="en-US"></Description>
    </TaxDetail>
  </Tax>
  <Total>
    <Money currency="USD">10500</Money>
  </Total>
</QuoteItemIn>
</QuoteMessage>
</Message>
14.2.2.8 InvoiceDetailLineSpecialHandling

Contains the special handling information for the line item. Ignored if isSpecialHandlingInLine is false (not specified). It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Contains an optional description of the charge.</td>
</tr>
<tr>
<td>Money (required)</td>
<td>Monetary amount of the special handling charge.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the combination of a Charge against an Accounting element.</td>
</tr>
</tbody>
</table>

14.2.2.9 InvoiceDetailLineShipping

Contains the shipping information for the line item. Ignored if isShippingInLine is false (not specified). It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>InvoiceDetailShipping (required)</td>
<td>The shipping details. See InvoiceDetailShipping [page 329].</td>
</tr>
<tr>
<td>Money (required)</td>
<td>Monetary amount of the shipping charge.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the combination of a Charge against an Accounting element.</td>
</tr>
</tbody>
</table>

14.2.2.10 ShipNoticeIDInfo

Specifies additional reference IDs for shipment related IDs (for example, DispatchAdviceID, ReceivingAdviceID, DeliveryNotetld, ProofOfDeliveryID, IdReference). This element has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>shipNoticeID (required)</td>
<td>Specifies the unique ID for the shipping document that identifies the physical conveyance/transport of goods.</td>
</tr>
<tr>
<td>shipNoticeDate</td>
<td>Specifies the date and time of the ship notice.</td>
</tr>
</tbody>
</table>
ShipNoticeIDInfo has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>Specifies shipment-related document identifiers. For example, DispatchAdviceID, ReceivingAdviceID, DeliveryNoteID, or ProofOfDeliveryID.</td>
</tr>
</tbody>
</table>

### 14.2.2.11 InvoiceDetailDiscount

The discount for the line item. Ignored if `isDiscountInLine` is false (not specified). It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>percentageRate</td>
<td>The discount rate as a percentage. Positive rates denote discounts and negative rates denote penalties. Do not include a percentage sign (%) or divide by 100. For example, “2” means 2%.</td>
</tr>
</tbody>
</table>

InvoiceDetailDiscount has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the discount.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the combination of a Charge against an Accounting element.</td>
</tr>
</tbody>
</table>

### 14.2.2.12 InvoiceItemModifications

Specifies the additional Charges, Allowances, and their taxes that are incurred for the total landed cost of the goods and service for an invoice item.

This element can store one or more Modification elements. For more information on the Modification element, see Total [page 110].

### 14.2.2.13 InvoiceDetailItemIndustry

Specifies the categories for various industries.
**InvoiceDetailItemIndustry** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>InvoiceDetailItemRetail</td>
<td>Specifies the information about the retail industry. This element has the following elements:</td>
</tr>
</tbody>
</table>
|                          | • AdditionalPrices  
  Additional prices for the retail industry-specific item. This element has the following optional elements: |
|                          | • UnitGrossPrice  
  The gross price per unit. This element has **Money** and the **PriceBasisQuantity** [page 336] element. |
|                          | • InformationalPrice  
  Price excluding allowances or charges, and taxes. The price is for information purposes only. This element has the **Money** and **PriceBasisQuantity** [page 336] element. |
|                          | • InformationalPriceExclTax  
  Price excluding taxes. The price is for information purposes only. This element has the **Money** and **PriceBasisQuantity** [page 336] element. |
|                          | • UnitNetPriceCorrection  
  The new price to correct the unit net price. This element has the **Money** and **PriceBasisQuantity** [page 336] element. |
|                          | • TotalRetailAmount  
  Total retail amount or the retail industry-specific item. This element has the **Money** element. |
|                          | • ItemIndicator  
  Indicator for the product or item level. This element has the following attributes: |
|                          | **Attribute** | **Description**                                                                                                                                 |
|                          | domain        | Specifies the type of the Indicator. Possible values: |
|                          | (required)    | ○ InvoiceUnitIndicator—Indicator to specify the unit for invoicing (“price per unit”) |
|                          |              | ○ ConsumerUnitIndicator—This indicator is set if the specified unit is used from the consumer/consumption process. For example, “gallons” or “liters”. |
|                          |              | ○ ReturnableContainerIndicator—This indicator is set if the packaging/container is returned to the sender and will be used again later. |
|                          |              | ○ TradeUnitIndicator—Indicator set if the specified unit is used to describe the trading unit (for instance “barrel” for oil) |
|                          |              | ○ DutyIndicator—Indicator to specify that the current line item has a special fee. |
### 14.2.2.3 InvoiceDetailServiceItem

InvoiceDetailServiceItem specifies a service being invoiced. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceLineNumber</td>
<td>Supplier defined ID for the current invoice line. Should be unique across all invoice lines within an invoice.</td>
</tr>
<tr>
<td>quantity</td>
<td>The quantity being invoiced for the line item. For service items, quantity represents the number of units of service rendered. For example, 2 hours of service, where UnitOfMeasure is &quot;HUR&quot;</td>
</tr>
<tr>
<td>referenceDate</td>
<td>The reference date for the service item. This can indicate the date at which the service line item is being invoiced.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>The date when the transfer of goods or the delivery of services occurs according to legal tax definitions. The usage of this attribute is optional in most cases, and must be defined by the trading partners involved in the transaction.</td>
</tr>
<tr>
<td>parentInvoiceLineNumber</td>
<td>To specify the line number of the corresponding parent line item. This field is applicable only for a line item with itemType=&quot;item&quot;.</td>
</tr>
<tr>
<td>itemType</td>
<td>Specifies the type of item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- composite—Identifies an item group.</td>
</tr>
<tr>
<td></td>
<td>- item—Identifies an independent line item.</td>
</tr>
<tr>
<td></td>
<td>- lean—Indicates that no child item is expected for the line.</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Set to &quot;yes&quot; to indicate that the item does not exist in the reference document or contract master agreement.</td>
</tr>
</tbody>
</table>
**InvoiceDetailServiceItemReference**

*InvoiceDetailServiceItemReference* defines all references related to a service line item in this invoice. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>The line number of current line item on the master agreement. This value is required if the item being invoiced is part of a detailed master agreement that specifies detailed pricing terms at the line item or commodity level. It is optional if the item being invoiced is part of a master supplier agreement or blanket purchase order which do not contain detailed line item pricing information.</td>
</tr>
</tbody>
</table>

*InvoiceDetailServiceItemReference* has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Commodity classification of the service.</td>
</tr>
<tr>
<td>ItemID</td>
<td>The Supplier’s part number for the service.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the service.</td>
</tr>
</tbody>
</table>

**ServiceEntryItemReference**

*ServiceEntryItemReference* explicitly references the related *ServiceEntryRequest* for the invoice. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceLineNumber</td>
<td>Refers to the line number in the related <em>ServiceEntryRequest</em> for the item.</td>
</tr>
<tr>
<td>serviceEntryID</td>
<td>The ID for the related <em>ServiceEntryRequest</em>. If present, it must be copied from the <em>ServiceEntryRequestHeader</em>.</td>
</tr>
<tr>
<td>serviceEntryDate</td>
<td>The date and time when the supplier created the service sheet. It present, it must be copied from the <em>ServiceEntryRequestHeader</em>.</td>
</tr>
</tbody>
</table>

*ServiceEntryItemReference* has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Identifies an earlier <em>ServiceEntryRequest</em> document. DocumentReference has the following attribute:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>payloadID</td>
<td>The value of the payloadID attribute for the earlier <em>ServiceEntryRequest</em>.</td>
</tr>
</tbody>
</table>
ServiceEntryItemIDInfo

References the related ServiceEntryRequest for the invoice. ServiceEntryItemIDInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceLineNumber</td>
<td>Refers to the line number in the related ServiceEntryRequest for the item.</td>
</tr>
<tr>
<td>serviceEntryID</td>
<td>The ID for the related ServiceEntryRequest.</td>
</tr>
<tr>
<td>serviceEntryDate</td>
<td>The date and time when the supplier created the service sheet.</td>
</tr>
</tbody>
</table>

ServiceEntryItemIDInfo has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdReference</td>
<td>References a unique identifier for the service sheet. It has the following attributes:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>identifier</td>
<td>The unique identifier for the service sheet.</td>
</tr>
<tr>
<td>domain</td>
<td>The domain or context in which the identifier has meaning.</td>
</tr>
</tbody>
</table>

SubtotalAmount

The subtotal amount of the service item. If unit price and invoiced quantity are specified, then subtotal should be the product of them.

Period

The period during which the service was rendered. See Period [page 331].

UnitRate

The rate at which the service item is charged. In cXML version 2.1.011 or later, use the UnitRate element rather than UnitOfMeasure and UnitPrice, because UnitRate includes the rate code. For some services, such as temporary labor, UnitRate is required.

UnitRate represents the amount to be paid per unit of time (or of some other measure). In the case of multiple UnitRates, each UnitRate should include a TermReference to distinguish it from others.
TermReference is a generic base element that identifies the definition of the UnitRate in question. See UnitRate [page 141].

**UnitOfMeasure (deprecated)**

UnitOfMeasure is deprecated in cXML 1.2.011, and should not be used in new cXML documents. Use UnitRate instead. UnitOfMeasure is the unit of measure for the service. For example, HUR for per hour or MON for per month.

**UnitPrice (deprecated)**

UnitPrice is deprecated in cXML 1.2.011, and should not be used in new cXML documents. Use UnitRate instead. UnitPrice is the price, per unit of measure.

**Tax**

The tax for the line item. Ignored if isTaxInLine is false (not specified). See Tax [page 340].

**GrossAmount**

The SubtotalAmount plus taxes, shipping, and special handling charges for the line item.

**InvoiceDetailDiscount**

The discount for the line item. Ignored if isDiscountInLine is false (not specified). See InvoiceDetailDiscount [page 346].

**InvoiceItemModification**

Specifies the additional charges, allowances, and their taxes that are incurred for the total landed cost of the goods and service for an invoice item.

This element can store one or more Modification elements. For more information on the Modification element, see Total [page 110].
TotalCharges

The total sum of all the charges applied on the goods and services. This can appear at the line-item and summary in an invoice.

TotalAllowances

The total sum of all the allowances applied on the goods and services. This can appear at the line item and summary in an invoice.

NetAmount

The GrossAmount minus discounts for the line item.

Distribution

Accounting information generated by the buying organization, such as cost center or general ledger category. This information should be copied from the OrderRequest. Ignored if isAccountingInLine is false (not specified).

Comments

Textual comments for the line item.

InvoiceLaborDetail

Contains information about an item related to temporary labor. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor</td>
<td>The contractor whose work is being invoiced.</td>
</tr>
<tr>
<td>JobDescription</td>
<td>A text description of the job being performed.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Specifies contact information for the person who supervises the contractor.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WorkLocation</td>
<td>The address of the place where the work is performed.</td>
</tr>
<tr>
<td>InvoiceTimeCardDetail</td>
<td>Invoice details about a temporary labor service. The pay code for this invoice line item is in the UnitRate of the containing InvoiceDetailServiceItem.</td>
</tr>
<tr>
<td>TimeCardReference</td>
<td>Provides a clear reference to a prior TimeCard cXML document. TimeCardReference has the following attribute:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
</tr>
<tr>
<td></td>
<td>timeCardID</td>
</tr>
<tr>
<td>TimeCardIDInfo</td>
<td>Defines the unique ID of the timecard known to the buyer and supplier systems. TimeCardIDInfo has the following attribute:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
</tr>
<tr>
<td></td>
<td>timeCardID</td>
</tr>
</tbody>
</table>

**Extrinsic**

Additional information related to this line item. Do not duplicate information in InvoiceDetailItem or InvoiceDetailOrder.

Use Extrinsic elements to specify line item related attributes such as service location, overtime/regular, and union/non-union.

For simple attributes such as overtime/regular, use a simple name, value pair, for example:

```xml
<Extrinsic name="serviceType">Temporary</Extrinsic>.
```

For structured attributes such as service location, use a structured element, for example:

```xml
<Extrinsic name="serviceLocation">
  <Contact role="serviceLocation">
    <Name>XYZ Inc</Name>
    <Street>123 Easy St</Street>
    <City>Sunnyvale</City>
    <State>California</State>
    <PostalCode>94089</PostalCode>
    <Country isoCountryCode="US">USA</Country>
  </Contact>
</Extrinsic>
```
14.2.2.4 InvoiceDetailReceiptInfo

Contains reference information of the receipt.

The following cXML excerpt shows an invoice with a reference to a receipt:

```xml
<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderReference orderID="po123">
    </OrderReference>
  </InvoiceDetailOrderInfo>
  <InvoiceDetailReceiptInfo>
    <ReceiptReference receiptDate="2014-10-13T14:02:00-07:00" receiptID="grn4567">
      <DocumentReference payloadID="grn4567-2014-10-13"></DocumentReference>
    </ReceiptReference>
  </InvoiceDetailReceiptInfo>
  <InvoiceDetailItem invoiceLineNumber="1" quantity="10">
    <UnitOfMeasure>PK</UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">31.20</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>AX4518</SupplierPartID>
      </ItemID>
      <Description xml:lang="en">BULLNOSE SHELVES 4 PK</Description>
      <ManufacturerPartID>AX4518</ManufacturerPartID>
      <ManufacturerName>20008496</ManufacturerName>
    </InvoiceDetailItemReference>
    <SubtotalAmount>
      <Money currency="USD">312.00</Money>
    </SubtotalAmount>
    <GrossAmount>
      <Money currency="USD">312.00</Money>
    </GrossAmount>
    <NetAmount>
      <Money currency="USD">312.00</Money>
    </NetAmount>
    <Distribution>
      <Accounting name="DistributionCharge">
        <AccountingSegment id="2323">
          <Name xml:lang="en">Cost Center</Name>
          <Description xml:lang="en">Western Region Sales</Description>
        </AccountingSegment>
        <AccountingSegment id="23456">
          <Name xml:lang="en">G/L Account</Name>
          <Description xml:lang="en">Entertainment</Description>
        </AccountingSegment>
      </Accounting>
      <Charge>
        <Money currency="USD">312.00</Money>
      </Charge>
    </Distribution>
    <ReceiptLineItemReference receiptLineNumber="4"/>
  </InvoiceDetailItem>
  ...
</InvoiceDetailOrder>
```
InvoiceDetailReceiptInfo has the following elements:

ReceiptReference

Reference to the receipt being invoiced.

ReceiptIDInfo

Buyer system receipt ID.

14.2.2.5 InvoiceDetailShipNoticeInfo

Contains reference information of the ship notice.

The following cXML excerpt shows an invoice with a reference to a ship notice:

```xml
<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderReference orderID="po123">
    </OrderReference>
  </InvoiceDetailOrderInfo>
  <InvoiceDetailShipNoticeInfo>
    <ShipNoticeReference shipNoticeDate="2014-10-13T14:02:00-07:00" shipNoticeID="asn7890">
      <DocumentReference payloadID="asn7890-2014-10-13"></DocumentReference>
    </ShipNoticeReference>
  </InvoiceDetailShipNoticeInfo>
  <InvoiceDetailItem invoiceLineNumber="1" quantity="10">
    <UnitOfMeasure>PK</UnitOfMeasure>
    <UnitPrice><Money currency="USD">31.20</Money></UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID><SupplierPartID>AX4518</SupplierPartID></ItemID>
      <Description xml:lang="en">BULLNOSE SHELVES 4 PK</Description>
      <ManufacturerPartID>AX4518</ManufacturerPartID>
      <ManufacturerName>20008496</ManufacturerName>
    </InvoiceDetailItemReference>
    <SubtotalAmount><Money currency="USD">312.00</Money></SubtotalAmount>
    <GrossAmount><Money currency="USD">312.00</Money></GrossAmount>
    <NetAmount><Money currency="USD">312.00</Money></NetAmount>
    <Distribution>
      <Accounting name="DistributionCharge">
        <AccountingSegment id="2323">
          <Name xml:lang="en">Cost Center</Name>
          <Description xml:lang="en">Western Region Sales</Description>
        </AccountingSegment>
        <AccountingSegment id="23456">
          <Name xml:lang="en">G/L Account</Name>
          <Description xml:lang="en">Entertainment</Description>
        </AccountingSegment>
      </Accounting>
      <Charge>
        <Money currency="USD">312.00</Money>
      </Charge>
    </Distribution>
  </InvoiceDetailItem>
</InvoiceDetailOrder>
```
InvoiceDetailShipNoticeInfo has the following elements:

**ShipNoticeReference**

Reference to the ship notice being invoiced.

**ShipNoticeIDIDInfo**

Buyer system ship notice ID.

### 14.2.3 InvoiceDetailHeaderOrder

Defines the header invoice information of a purchase order, without item details, used only when `isHeaderInvoice="yes"`.

In this case, an invoice line is an InvoiceDetailHeaderOrder and its invoice line number is specified by the `invoiceLineNumber` attribute.

#### 14.2.3.1 InvoiceDetailOrderInfo

Defines information related to the corresponding purchase order. See InvoiceDetailOrderInfo [page 332]

#### 14.2.3.2 InvoiceDetailOrderSummary

Defines header level summary info of an order in an invoice line.

InvoiceDetailOrderSummary has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoiceLineNumber</td>
<td>Supplier defined ID for the current invoice line. It should be unique across all invoice lines of the same InvoiceDetailRequest.</td>
</tr>
</tbody>
</table>
### Attribute

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>inspectionDate</td>
<td>The date when the transfer of goods or the delivery of services occurs according to legal tax definitions. The usage of this attribute is optional in most cases, and must be defined by the trading partners involved in the transaction.</td>
</tr>
</tbody>
</table>

### SubtotalAmount

The invoice subtotal of the this order.

### Period

The period over which the services were rendered. See Period [page 331].

### Tax

The tax for this order. Ignored if isTaxInLine is false (not specified). See Tax [page 340].

### InvoiceDetailLineSpecialHandling

InvoiceDetailLineSpecialHandling contains the special handling information for this order. Ignored if isSpecialHandlingInLine is false (not specified). See InvoiceDetailLineSpecialHandling [page 345].

### InvoiceDetailLineShipping

InvoiceDetailLineShipping contains the shipping information for this invoice line. Ignored if isShippingInLine is false (not specified). See InvoiceDetailLineShipping [page 345].

### GrossAmount

The SubtotalAmount plus taxes, shipping, and special handling charges.
**InvoiceDetailDiscount**

The discount for the line item. Ignored if `isDiscountInLine` is false (not specified). See InvoiceDetailDiscount [page 346].

**NetAmount**

The GrossAmount minus discount amount.

**Comments**

Textual comments for the line item.

**Extrinsic**

Additional information related to the line item. Should not duplicate anything in InvoiceDetailOrderSummary or InvoiceDetailHeaderOrder.

### 14.2.4 InvoiceDetailSummary

Defines the summary information of an invoice.

#### 14.2.4.1 SubtotalAmount

Sum of line item quantities multiplied by unit price.

#### 14.2.4.2 Tax

Total tax information. See Tax [page 340].

This element also includes the taxes on allowances and charges at both the header-level and line-item level for the line-items in an invoice. For more information, see Total [page 110].

Suppliers can add a maximum of three tax elements for the charges added to credit memos.
14.2.4.3 SpecialHandlingAmount

SpecialHandlingAmount is the total special handling charge. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the special handling charge.</td>
</tr>
<tr>
<td>Description</td>
<td>Contains an optional description of the charge.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a Charge against an Accounting element.</td>
</tr>
</tbody>
</table>

14.2.4.4 ShippingAmount

ShippingAmount is the total shipping charge. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the shipping charge.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a Charge against an Accounting element.</td>
</tr>
</tbody>
</table>

14.2.4.5 GrossAmount

Sum of subtotal, taxes, special handling charges, and shipping charges, before discounts.

14.2.4.6 InvoiceDetailDiscount

The total discount or penalty applied in the invoice. See InvoiceDetailDiscount [page 346].

14.2.4.7 InvoiceHeaderModifications

Specifies the additional charges, allowances, and their taxes that are incurred for the total landed cost of the goods and services at the invoice header-level.

This element can store one or more Modification elements. For more information on the Modification element, see Total [page 110].
14.2.4.8 TotalCharges

The total sum of all the charges applied on the goods and services. This can appear at the line-item and summary in an invoice.

14.2.4.9 TotalAllowances

The total sum of all the allowances applied on the goods and services. This can appear at the line item and summary in an invoice. For more information on allowance and charges, see Total [page 110].

14.2.4.10 TotalAmountWithoutTax

This element is used to summarize the total invoice amount without tax. The total amount includes:

- SubTotal
- Shipping Amount
- Special Handling
- Charges

Allowances and Discounts are subtracted from the sum of the above four amounts.

This element does not include taxes.

14.2.4.11 NetAmount

Total GrossAmount minus discounts.

14.2.4.12 DepositAmount

Total deposit or prepayment amount.

14.2.4.13 DueAmount

Total amount due and payable: NetAmount minus DepositAmount. If purpose="creditMemo", this amount must be negative. If purpose="debitMemo", this amount must be positive.
**14.2.4.14 InvoiceDetailSummaryIndustry**

InvoiceDetailSummaryIndustry contains summary-level information for the industry-specific data. It has the following element:

**InvoiceDetailSummaryRetail**

InvoiceDetailSummaryRetail specifies the retail industry-specific data. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdditionalAmounts</td>
<td>Specifies the summary amount for all the retail industry-specific fields.</td>
</tr>
</tbody>
</table>

AdditionalAmounts has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TotalRetailAmount</td>
<td>Specifies the total retail value of all items. The element has the Money element.</td>
</tr>
<tr>
<td>InformationalAmount</td>
<td>Specifies the information price, excluding allowances or charges, and taxes. This price is only for informational purposes. The element has the Money element.</td>
</tr>
<tr>
<td>GrossProgressPaymentAmount</td>
<td>Specifies the gross monetary amount paid (or to be paid) at intervals. The element has the Money element.</td>
</tr>
<tr>
<td>TotalReturnableItemsDepositAmount</td>
<td>Specifies the deposit amount charged for returnable items. For example, boxes, containers, pallets, etc. The element has the Money element.</td>
</tr>
<tr>
<td>GoodsAndServicesAmount</td>
<td>Specifies the total amount paid for goods and services excluding deposits for returnable goods. The element has the Money element.</td>
</tr>
<tr>
<td>ExactAmount</td>
<td>Specifies the exact amount derived from 'sum' information. The element has the Money element.</td>
</tr>
</tbody>
</table>

**14.3 Response**

Immediately after receiving an invoice, the receiving system should respond with a generic cXML Response document, for example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/InvoiceDetail.dtd">
<cXML timestamp="2001-10-31T23:07:22-08:00" payloadID="1004598442900-8367273815197467070@10.10.13.100">
  <Response>
    <Status code="201" text="Accepted">Acknowledged</Status>
  </Response>
</cXML>
```
Related Information

Status [page 33]

14.4 Invoice Status Update

After buying organizations receive invoices, they can perform reconciliation to match the charges within them to amounts within purchase orders or master agreements. They can then set invoice status to indicate whether charges reconciled successfully.

Buying organizations update the status of invoices by sending StatusUpdateRequest documents to network hubs, which can forward them to suppliers.

StatusUpdateRequest documents for invoices contain InvoiceStatus elements. Invoice status can be processing, reconciled, rejected, paying, or paid, which refers to the action taken by the buying organization on the invoice:

<table>
<thead>
<tr>
<th>InvoiceStatus type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>processing</td>
<td>The invoice was received by the buying organization and is being processed.</td>
</tr>
<tr>
<td>canceled</td>
<td>The invoice was received by the buying organization and was canceled.</td>
</tr>
<tr>
<td>reconciled</td>
<td>The invoice reconciled. The amounts in the invoice have not yet been paid.</td>
</tr>
<tr>
<td>rejected</td>
<td>The invoice failed to reconcile. The buying organization is rejecting the invoice. The Comments element should contain free text explaining why the invoice was rejected, and the actions the supplier should take. The supplier can resubmit a corrected invoice (a new invoice document with a new invoice number).</td>
</tr>
<tr>
<td>paying</td>
<td>The invoice is in the payment process or has been partially paid.</td>
</tr>
<tr>
<td>paid</td>
<td>The invoice amounts have been paid by the buying organization.</td>
</tr>
</tbody>
</table>

The PartialAmount element enables buying organizations to specify different amounts paid than the amounts specified in invoices. PartialAmount should not appear for invoices that are paid in full. The existence of PartialAmount alerts the supplier to read the Comments elements, which should explain the differences.

The DocumentReference within the StatusUpdateRequest must refer to the InvoiceDetailRequest document. The Status element should have status code 200.

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2001-09-05T16:34:28-07:00"
payloadID="999732868377--681956365911302107@10.11.128.161">
</cXML>
<Header>
  <From>
    <Credential domain="AribaNetworkUserId">
      <Identity>jill@buyerorg.com</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="AribaNetworkUserId">
      <Identity>jack@supplierorg.com</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="AribaNetworkUserId">
      <Identity>jill@buyerorg.com</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Procurement Application V1.0</UserAgent>
  </Sender>
</Header>

<Request>
  <StatusUpdateRequest>
    <DocumentReference payloadID="Inv123"></DocumentReference>
    <Status code="200" text=""></Status>
    <InvoiceStatus type="paid">
      <PartialAmount>
        <Money currency="USD">10.99</Money>
      </PartialAmount>
      <Comments>This charge is paid, minus $2.00 due to missing items.</Comments>
    </InvoiceStatus>
  </StatusUpdateRequest>
</Request>
</cXML>

Related Information

**StatusUpdateRequest** [page 267]

### 14.5 Example Invoices

The following examples illustrate several types of invoices.

- Standard Header Invoice [page 364]
- Standard Detail Invoice [page 366]
- Service Invoice [page 370]
- Marketplace Invoice [page 373]
14.5.1 Standard Header Invoice

This example shows a header invoice against a single purchase order.

```xml
<?xml version="1.0" encoding="UTF-8"?> <!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.020/InvoiceDetail.dtd">
<Header>
  <From>
    <Credential domain="AribaNetworkUserID">
      <Identity>jack@supplierorg.com</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="AribaNetworkUserID">
      <Identity>jill@buyerorg.com</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="AribaNetworkUserID">
      <Identity>jack@supplierorg.com</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Supplier’s Super Invoice Generator</UserAgent>
  </Sender>
</Header>

<Request>
  <InvoiceDetailRequestHeader invoiceDate="2009-03-09T00:00:00-07:00" invoiceID="Mar102009_0447pm" purpose="creditMemo" operation="new" invoiceOrigin="supplier">
    <InvoiceDetailHeaderIndicator isHeaderInvoice="yes" />
    <InvoiceDetailLineIndicator isTaxInLine="yes" isShippingInLine="yes" isSpecialHandlingInLine="yes" isDiscountInLine="yes" />
    <InvoicePartner>
      <Contact role="billTo">
        <Name xml:lang="en-US">Buyer Headquarters</Name>
        <PostalAddress>
          <Street>111 Main Street</Street>
          <City>Anytown</City>
          <State>CA</State>
          <PostalCode>94089</PostalCode>
        </PostalAddress>
      </Contact>
    </InvoicePartner>
    <InvoicePartner>
      <Contact role="remitTo">
        <Name xml:lang="en-US">Supplier Accts. Receivable</Name>
        <PostalAddress>
          <Street>One Bank Avenue</Street>
          <City>Any City</City>
          <State>CA</State>
          <PostalCode>94087</PostalCode>
        </PostalAddress>
      </Contact>
    </InvoicePartner>
    <IdReference identifier="123456789" domain="bankRoutingID"/>
    <IdReference identifier="3456" domain="accountID"/>
  </InvoiceDetailRequestHeader>
  <InvoiceDetailHeaderOrder>
    <Comments xml:lang="en-US">This is an invoice for DO789</Comments>
  </InvoiceDetailHeaderOrder>
</Request>
```
<InvoiceDetailOrderSummary invoiceLineNumber="1">
  <SubtotalAmount>
    <Money currency="USD">5000.00</Money>
  </SubtotalAmount>
  <Tax>
    <Money currency="USD">500.00</Money>
    <Description xml:lang="en-US">State Tax</Description>
  </Tax>
  <InvoiceDetailLineSpecialHandling>
    <Money currency="USD">110.00</Money>
  </InvoiceDetailLineSpecialHandling>
  <InvoiceDetailLineShipping>
    <Contact role="shipFrom" addressID="1000487">
      <Name xml:lang="en">Main Shipping Dock</Name>
      <PostalAddress name="default">
        <Street>15 Oak Road</Street>
        <City>Bigtown</City>
        <State>CA</State>
        <PostalCode>95032</PostalCode>
      </PostalAddress>
      <Email name="default">shipper@supplierorg.com</Email>
      <Phone name="work">
        <AreaOrCityCode>888</AreaOrCityCode>
        <Number>1234567</Number>
      </Phone>
    </Contact>
    <Contact role="shipTo" addressID="1000487">
      <Name xml:lang="en">Main Receiving</Name>
      <DeliverTo>Jason Lynch</DeliverTo>
      <PostalAddress name="default">
        <Street>77 Nowhere Street</Street>
        <City>Industrial Town</City>
        <State>CA</State>
        <PostalCode>95035</PostalCode>
      </PostalAddress>
      <Email name="default">jlynch@buyerorg.com</Email>
      <Phone name="work">
        <AreaOrCityCode>999</AreaOrCityCode>
        <Number>3582000</Number>
      </Phone>
    </Contact>
    <Money currency="USD">200.00</Money>
  </InvoiceDetailLineShipping>
  <GrossAmount>
    <Money currency="USD">5810.00</Money>
  </GrossAmount>
  <InvoiceDetailDiscount percentageRate="10">
    <Money currency="USD">581.00</Money>
  </InvoiceDetailDiscount>
  <NetAmount>
14.5.2 Standard Detail Invoice

This example shows a detail invoice for two line items in a single purchase order. It contains payment terms that define discounts for early payment and penalties for late payment. It also contains the buying organization’s accounting information copied from the purchase order.
<table>
<thead>
<tr>
<th>Pay In Days</th>
<th>Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>-5</td>
</tr>
<tr>
<td>50</td>
<td>-9</td>
</tr>
</tbody>
</table>

**InvoiceDetailRequestHeader**

**InvoiceDetailOrder**

**InvoiceDetailOrderInfo**

<table>
<thead>
<tr>
<th>OrderReference</th>
<th>&lt;DocumentReference payloadID=&quot;99576652.982.090.136&quot;/&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MasterAgreementReference</td>
<td>&lt;DocumentReference payloadID=&quot;99576652.980.000.423&quot;/&gt;</td>
</tr>
</tbody>
</table>
| SupplierOrderInfo | orderID="DO1234"/>

**InvoiceDetailOrderInfo**

<table>
<thead>
<tr>
<th>InvoiceDetailItem</th>
<th>invoiceLineNumber=&quot;1&quot; quantity=&quot;1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>TEX08134/SupplierPartID</td>
</tr>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>

**InvoiceDetailItem**

<table>
<thead>
<tr>
<th>ItemID</th>
<th>TEX08134/SupplierPartID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>

**InvoiceDetailItem**

<table>
<thead>
<tr>
<th>ItemID</th>
<th>TEX08134/SupplierPartID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>

**InvoiceDetailItem**

<table>
<thead>
<tr>
<th>ItemID</th>
<th>TEX08134/SupplierPartID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>

**InvoiceDetailItem**

<table>
<thead>
<tr>
<th>ItemID</th>
<th>TEX08134/SupplierPartID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>

**InvoiceDetailItem**

<table>
<thead>
<tr>
<th>ItemID</th>
<th>TEX08134/SupplierPartID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Texas Instruments Superview Calculator - 12-Digit Print/Display</td>
</tr>
<tr>
<td>SerialNumber</td>
<td>45993823469876/SupplierOrderInfo</td>
</tr>
</tbody>
</table>
<TaxLocation xml:lang="en">US</TaxLocation>
</TaxDetail>
</Tax>
<InvoiceDetailLineShipping>
<InvoiceDetailShipping>
Ship From and Ship To contact information
</InvoiceDetailShipping>
</InvoiceDetailLineShipping>
</TaxDetail>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="2" quantity="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">4.95</Money></UnitPrice>
<ItemID>
<SupplierPartID>PENCIL123</SupplierPartID>
</ItemID>
<Description xml:lang="en">One dozen wood #2 pencils with eraser</Description>
</InvoiceDetailItemReference>
</InvoiceDetailItem>
<SubtotalAmount>
<Money currency="USD">4.95</Money>
</SubtotalAmount>
<Tax>
<Money currency="USD">0.50</Money>
<Description xml:lang="en">total item tax</Description>
<TaxDetail purpose="tax" category="sales" percentageRate="8">
<TaxableAmount>
<Money currency="USD">0.40</Money>
</TaxableAmount>
</TaxDetail>
</Tax>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">2.00</Money></UnitPrice>
</InvoiceDetailItem>
<InvoiceDetailLineShipping>
<InvoiceDetailShipping>
Ship From and Ship To contact information
</InvoiceDetailShipping>
</InvoiceDetailLineShipping>
</TaxDetail>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="2" quantity="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">4.95</Money></UnitPrice>
<ItemID>
<SupplierPartID>PENCIL123</SupplierPartID>
</ItemID>
<Description xml:lang="en">One dozen wood #2 pencils with eraser</Description>
</InvoiceDetailItemReference>
</InvoiceDetailItem>
<SubtotalAmount>
<Money currency="USD">18.94</Money>
</SubtotalAmount>
<NetAmount>
<Money currency="USD">18.94</Money>
</NetAmount>
</Distribution>
<Accounting name="Buyer assigned accounting code 15">
<AccountingSegment id="ABC123456789">
<Name xml:lang="en">Purchase</Name>
<Description xml:lang="en">Production Control</Description>
</AccountingSegment>
</Accounting>
<Charge>
<Money currency="USD">18.94</Money>
</Charge>
</Distribution>
<Accounting name="Buyer assigned accounting code 16">
<AccountingSegment id="ABC000000001">
<Name xml:lang="en">Trade</Name>
<Description xml:lang="en">Misc (Expensed)</Description>
</AccountingSegment>
</Accounting>
<Charge>
<Money currency="USD">18.94</Money>
</Charge>
</Distribution>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="2" quantity="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">4.95</Money></UnitPrice>
<ItemID>
<SupplierPartID>PENCIL123</SupplierPartID>
</ItemID>
<Description xml:lang="en">One dozen wood #2 pencils with eraser</Description>
</InvoiceDetailItemReference>
</InvoiceDetailItem>
<SubtotalAmount>
<Money currency="USD">4.95</Money>
</SubtotalAmount>
<Tax>
<Money currency="USD">0.50</Money>
<Description xml:lang="en">total item tax</Description>
<TaxDetail purpose="tax" category="sales" percentageRate="8">
<TaxableAmount>
<Money currency="USD">0.40</Money>
</TaxableAmount>
</TaxDetail>
</Tax>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="2" quantity="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">4.95</Money></UnitPrice>
<ItemID>
<SupplierPartID>PENCIL123</SupplierPartID>
</ItemID>
<Description xml:lang="en">One dozen wood #2 pencils with eraser</Description>
</InvoiceDetailItemReference>
</InvoiceDetailItem>
<SubtotalAmount>
<Money currency="USD">18.94</Money>
</SubtotalAmount>
<NetAmount>
<Money currency="USD">18.94</Money>
</NetAmount>
</Distribution>
<Accounting name="Buyer assigned accounting code 15">
<AccountingSegment id="ABC123456789">
<Name xml:lang="en">Purchase</Name>
<Description xml:lang="en">Production Control</Description>
</AccountingSegment>
</Accounting>
<Charge>
<Money currency="USD">18.94</Money>
</Charge>
</Distribution>
<Accounting name="Buyer assigned accounting code 16">
<AccountingSegment id="ABC000000001">
<Name xml:lang="en">Trade</Name>
<Description xml:lang="en">Misc (Expensed)</Description>
</AccountingSegment>
</Accounting>
<Charge>
<Money currency="USD">18.94</Money>
</Charge>
</Distribution>
</InvoiceDetailItem>
<InvoiceDetailItem invoiceLineNumber="2" quantity="1">
<UnitOfMeasure>PK</UnitOfMeasure>
<UnitPrice><Money currency="USD">4.95</Money></UnitPrice>
<ItemID>
<SupplierPartID>PENCIL123</SupplierPartID>
</ItemID>
<Description xml:lang="en">One dozen wood #2 pencils with eraser</Description>
</InvoiceDetailItemReference>
</InvoiceDetailItem>
<SubtotalAmount>
<Money currency="USD">4.95</Money>
</SubtotalAmount>
<Tax>
<Money currency="USD">0.50</Money>
<Description xml:lang="en">total item tax</Description>
<TaxDetail purpose="tax" category="sales" percentageRate="8">
<TaxableAmount>
<Money currency="USD">0.40</Money>
</TaxableAmount>
</TaxDetail>
</Tax>
<cXML>
  <Request>
    <InvoiceDetailRequest>
      <InvoiceDetailOrder>
        <InvoiceDetailItem>
          <InvoiceDetailShipping>
            <Ship From and Ship To contact information/>
          </InvoiceDetailShipping>
          <GrossAmount>
            <Money currency="USD">1.00</Money>
          </GrossAmount>
          <NetAmount>
            <Money currency="USD">6.45</Money>
          </NetAmount>
        </InvoiceDetailItem>
      </InvoiceDetailOrder>
      <InvoiceDetailSummary>
        <SubtotalAmount>
          <Money currency="USD">20.35</Money>
        </SubtotalAmount>
        <Tax>
          <Money currency="USD">2.04</Money>
          <Description xml:lang="en">total tax</Description>
          <TaxDetail purpose="tax" category="sales" percentageRate="8">
            <TaxableAmount>
              <Money currency="USD">20.35</Money>
            </TaxableAmount>
            <TaxAmount>
              <Money currency="USD">1.63</Money>
            </TaxAmount>
            <TaxLocation xml:lang="en">CA</TaxLocation>
          </TaxDetail>
        </Tax>
        <ShippingAmount>
          <Money currency="USD">3.00</Money>
        </ShippingAmount>
        <GrossAmount>
          <Money currency="USD">25.39</Money>
        </GrossAmount>
        <NetAmount>
          <Money currency="USD">25.39</Money>
        </NetAmount>
        <DueAmount>
          <Money currency="USD">25.39</Money>
        </DueAmount>
      </InvoiceDetailSummary>
    </InvoiceDetailRequest>
  </Request>
</cXML>
14.5.3 Service Invoice

The following invoice is for both regular items and service items.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/InvoiceDetail.dtd">
cXML payloadID="combo-1@supplier.com" timestamp="2001-04-20T23:59:45-07:00">
  <Header>
    From, To, and Sender credentials
  </Header>
  <Request deploymentMode="test">
    <InvoiceDetailRequest>
      <InvoiceDetailRequestHeader
        invoiceID="123456"
        purpose="standard"
        operation="new"
        invoiceDate="2001-04-20T23:59:20-07:00">
        <InvoiceDetailHeaderIndicator/>
        <InvoiceDetailLineIndicator
          isTaxInLine="yes"
          isShippingInLine="yes"
          isAccountingInLine="yes"/>
        <InvoicePartner>
          <Contact role="soldTo" addressID="B2.4.319">
            <Name xml:lang="en">Mike Smith</Name>
          </Contact>
        </InvoicePartner>
        <InvoicePartner>
          <Contact role="remitTo" addressID="Billing">
            <Name xml:lang="en">Lisa King</Name>
          </Contact>
          <IdReference identifier="00000-11111" domain="accountReceivableID">
            <Creator xml:lang="en">Supplier ERP</Creator>
          </IdReference>
          <IdReference identifier="123456789" domain="bankRoutingID">
            <Creator xml:lang="en">Supplier Bank</Creator>
          </IdReference>
        </InvoicePartner>
        <PaymentTerm payInNumberOfDays="10">
          <Discount>10</Discount>
        </PaymentTerm>
        <PaymentTerm payInNumberOfDays="20">
          <Discount>5</Discount>
        </PaymentTerm>
        <PaymentTerm payInNumberOfDays="30">
          <Discount>0</Discount>
        </PaymentTerm>
        <PaymentTerm payInNumberOfDays="40">
          <Discount>-5</Discount>
        </PaymentTerm>
      </InvoiceDetailRequestHeader>
      <InvoiceDetailOrder>
        <InvoiceDetailOrderInfo>
          <MasterAgreementIDInfo agreementID="MA-1234"/>
        </InvoiceDetailOrderInfo>
        <InvoiceDetailItem invoiceLineNumber="1" quantity="100">
          <UnitOfMeasure>EA</UnitOfMeasure>
          <UnitPrice>
            <Money currency="USD">57.13</Money>
          </UnitPrice>
        </InvoiceDetailItem>
      </InvoiceDetailOrder>
    </InvoiceDetailRequest>
  </Request>
</cXML>
```
<InvoiceDetailItemReference lineNumber="2">  
<ItemID>  
<SupplierPartID>TOW08134</SupplierPartID>  
</ItemID>  
<Description xml:lang="en">Roll Towel Series 2000</Description>  
</InvoiceDetailItemReference>  
<SubtotalAmount>  
<Money currency="USD">5713</Money>  
</SubtotalAmount>  
<Tax>  
<Money currency="USD">287</Money>  
<Description xml:lang="en">total item tax</Description>  
<TaxDetail purpose="tax" category="State sales tax" percentageRate="8">  
<TaxableAmount>  
<Money currency="USD">5713</Money>  
</TaxableAmount>  
<TaxAmount>  
<Money currency="USD">200</Money>  
</TaxAmount>  
</TaxDetail>  
</Tax>  
<GrossAmount>  
<Money currency="USD">6000</Money>  
</GrossAmount>  
<NetAmount>  
<Money currency="USD">6000</Money>  
</NetAmount>  
</InvoiceDetailItem>  
<InvoiceDetailServiceItem invoiceLineNumber="2" quantity="100">  
<InvoiceDetailServiceItemReference lineNumber="1">  
<Classification domain="UNSPC">76111501</Classification>  
<Description xml:lang="en">Window cleaning services at $30/hour</Description>  
</InvoiceDetailServiceItemReference>  
<SubtotalAmount>  
<Money currency="USD">3000.00</Money>  
</SubtotalAmount>  
<Period startDate="2001-02-01T12:00:00-00:00" endDate="2001-03-30T12:00:00-00:00"/>  
<UnitOfMeasure>HUR</UnitOfMeasure>  
<UnitPrice>  
<Money currency="USD">30</Money>  
</UnitPrice>  
<Charge>  
<Money currency="USD">3000</Money>  
</Charge>  
</Distribution>  
<Accounting name="Buyer assigned accounting code 1">  
<AccountingSegment id="ABC123456789">  
<Name xml:lang="en">Facilities</Name>  
</AccountingSegment>  
</Accounting>  
<Extrinsic name="serviceLocation">  
<Contact role="serviceLocation">  
<Name xml:lang="en">Jerry Seinfeld : NEW YORK</Name>  
<PostalAddress>  
<Street>2345 S. SAN PEDRO</Street>  
</PostalAddress>  
</Contact>  
</Extrinsic>
<Money currency="USD">13713</Money>
</SubtotalAmount>
<Tax>
    <Money currency="USD">287</Money>
    <Description xml:lang="en">total tax</Description>
    <TaxDetail purpose="tax"
        category="State sales tax"
        percentageRate="8">
        <TaxableAmount>
            <Money currency="USD">5713</Money>
        </TaxableAmount>
        <TaxAmount>
            <Money currency="USD">200</Money>
        </TaxAmount>
    </TaxDetail>
    <TaxDetail purpose="tax"
        category="Federal sales tax"
        percentageRate="2">
        <TaxableAmount>
            <Money currency="USD">5713</Money>
        </TaxableAmount>
        <TaxAmount>
            <Money currency="USD">87</Money>
        </TaxAmount>
    </TaxDetail>
</Tax>
<GrossAmount>
    <Money currency="USD">14000.00</Money>
</GrossAmount>
<NetAmount>
    <Money currency="USD">14000.00</Money>
</NetAmount>
<DueAmount>
    <Money currency="USD">14000.00</Money>
</DueAmount>
</InvoiceDetailSummary>
</InvoiceDetailRequest>
</Request>
</cXML>

### 14.5.4 Marketplace Invoice

This example shows the header of an invoice sent to a marketplace. It illustrates how to generate correct credentials for a marketplace.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/InvoiceDetail.dtd">
<cXML payloadID="123344-2001@.supplierorg.com"
    timestamp="2001-04-20T23:59:45-07:00">
    <Header>
        <From>
            <!-- Supplier -->
            <Credential domain="AribaNetworkUserId">
                <Identity>chef@supplierorg.com</Identity>
            </Credential>
        </From>
        <To>
            <!-- Marketplace -->
            <Credential domain="AribaNetworkUserId" type="marketplace">
                <Identity>bigadmin@marketplace.org</Identity>
            </Credential>
        </To>
    </Header>
```
**14.5.5 Line Item Credit Memo for a Return Item**

This example shows a line item credit memo for a return item:

```
<InvoiceDetailRequest>
  <InvoiceDetailRequestHeader invoiceDate="2016-02-12T14:49:57-05:00" 
    invoiceID="CM_2" invoiceOrigin="supplier" operation="new" 
    purpose="lineLevelCreditMemo">
    ...
  </InvoiceDetailRequestHeader>
```

**14.5.6 Invoice with Accounting Distributions**

This example shows an invoice with accounting distributions for tax, shipping, and handling.

```
<InvoiceDetailItem>
  ...
  <Tax>
    <Money currency="CAD">140.00</Money>
    <Description xml:lang="en">Sales Tax</Description>
    <TaxDetail percentageRate="21" category="sales">
      <TaxableAmount>
        <Money currency="USD">1111.00</Money>
      </TaxableAmount>
      <TaxAmount>
        <Money currency="USD">233.31</Money>
      </TaxAmount>
    </TaxDetail>
    <Distribution>
      <Accounting name="DistributionCharge">
        <AccountingSegment id="100">
          <Name xml:lang="en">Percentage</Name>
          <Description xml:lang="en"></Description>
        </AccountingSegment>
      </Accounting>
    </Distribution>
  </Tax>
```
<AccountingSegment id="6460">
  <Name xml:lang="en">Account</Name>
  <Description xml:lang="en"></Description>
</AccountingSegment>
</Accounting>
<Charge>
  <Money currency="USD">1111.00</Money>
</Charge>
</Distribution>
</Tax>

<InvoiceDetailLineSpecialHandling>
  <Money currency="USD">15.00</Money>
  <Distribution>
    <Accounting name="DistributionCharge">
      <AccountingSegment id="100">
        <Name xml:lang="en">Percentage</Name>
        <Description xml:lang="en"></Description>
      </AccountingSegment>
    </Accounting>
  </Distribution>
</InvoiceDetailLineSpecialHandling>

<InvoiceDetailLineShipping>
  <Money currency="USD">5.00</Money>
  <Distribution>
    <Accounting name="DistributionCharge">
      <AccountingSegment id="100">
        <Name xml:lang="en">Percentage</Name>
        <Description xml:lang="en"></Description>
      </AccountingSegment>
    </Accounting>
  </Distribution>
</InvoiceDetailLineShipping>

<InvoiceDetailDiscount>
  <Money currency="USD">10.00</Money>
  <Distribution>
    <Accounting name="DistributionCharge">
      <AccountingSegment id="100">
        <Name xml:lang="en">Percentage</Name>
        <Description xml:lang="en"></Description>
      </AccountingSegment>
    </Accounting>
  </Distribution>
</InvoiceDetailDiscount>
<AccountingSegment/>
</Accounting>
<Charge>
  <Money currency="USD">7.00</Money>
</Charge>
</Distribution>
</ShippingAmount>
<GrossAmount>
  <Money alternateCurrency="" alternateAmount=""
currency="USD">63.00</Money>
</GrossAmount>
</InvoiceDetailDiscount>
<Money alternateCurrency="" alternateAmount=""
currency="USD">1.00</Money>
</Distribution>
<Accounting name="DistributionCharge">
  <AccountingSegment id="100">
    <Name xml:lang="en">Percentage</Name>
    <Description xml:lang="en"></Description>
  </AccountingSegment>
  <AccountingSegment id="6460">
    <Name xml:lang="en">Account</Name>
    <Description xml:lang="en"></Description>
  </AccountingSegment>
</Accounting>
<Charge>
  <Money currency="USD">1.00</Money>
</Charge>
</Distribution>
</InvoiceDetailDiscount>
<NetAmount>
  <Money alternateCurrency="" alternateAmount=""
currency="USD">62.00</Money>
</NetAmount>
</DueAmount>
<Money alternateCurrency="" alternateAmount=""
currency="USD">62.00</Money>
</DueAmount>
</InvoiceDetailSummary>
15 Service Sheets

The cXML ServiceEntryRequest transaction allows suppliers to send descriptions of services provided to buying organizations or marketplaces. It also describes how buying organizations and marketplaces can send service sheet status messages to suppliers.

- Overview of Service Sheets [page 378]
- ServiceEntryRequest [page 378]
- Service Sheet Status Updates [page 391]

15.1 Overview of Service Sheets

Suppliers use cXML service sheets (sometimes called “service entry sheets”) to describe specific items that they fulfilled in response to a purchase order for services. Suppliers can generate service sheets against any line in a purchase order that requires a service sheet. Suppliers can specify either material goods or services in service entry sheet lines.

Service sheets describe purchase orders, line items, accounting distributions, and partners involved in fulfilling the service. ServiceEntryRequest documents do not provide updates to tax and shipping amounts. This information should be transmitted with ConfirmationRequest documents. If necessary, you can send a ConfirmationRequest with operation="update" with this information after the shipment has been delivered.

ConfirmationRequest documents with operation="update" must include all relevant information from the original OrderRequest document.

i Note
The DTD for this transaction is contained in Fulfill.dtd rather than cXML.dtd.

15.2 ServiceEntryRequest

The ServiceEntryRequest element represents service sheets.

The structure of a ServiceEntryRequest document is:

```
<ServiceEntryRequest>
  <ServiceEntryRequestHeader>
    <PartnerContact/>
    (<DocumentReference/> | </DocumentInfo>)
  </ServiceEntryDetailLineIndicator/>
  <ServiceEntryDetailShipping/>
```
15.2.1 ServiceEntryRequestHeader

The `<ServiceEntryRequestHeader>` element describes header-level information for the service sheet and has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceEntryDate (required)</td>
<td>The date when the supplier created the service sheet, which should be earlier than the document’s timestamp.</td>
</tr>
<tr>
<td>serviceEntryID  (required)</td>
<td>A supplier-generated identification number for the service sheet.</td>
</tr>
</tbody>
</table>
### Attribute Description

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>supplierReferenceNumber</td>
<td>A reference to the supplier associated with the service sheet, which is implied.</td>
</tr>
<tr>
<td>operation</td>
<td>Specifies how the ServiceEntryRequest behaves. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new—The ServiceEntryRequest creates a new service sheet. The default value is operation=&quot;new&quot;.</td>
</tr>
<tr>
<td></td>
<td>● delete—The ServiceEntryRequest cancels an existing service sheet, which must be specified by referencing its payloadID in the DocumentReference element.</td>
</tr>
<tr>
<td>isFinal</td>
<td>Set to &quot;yes&quot; to indicate that this item is closed, and no more deliveries are expected for it</td>
</tr>
</tbody>
</table>

The ServiceEntryRequestHeader element can contain the following elements:

### 15.2.1.1 PartnerContact

You should use the PartnerContact element to add new information about the parties directly involved with the fulfillment, receipt, and validation of services described in the service sheet. This element is required.

The PartnerContact element can contain Contact elements with the following possible values for the role attribute:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fieldEngineer</td>
<td>The buying organization or marketplace entity that supervises the service.</td>
</tr>
<tr>
<td>fieldContractor</td>
<td>The supplier entity that provides the service.</td>
</tr>
<tr>
<td>requester</td>
<td>The buying organization or marketplace entity that ordered or approves the service.</td>
</tr>
</tbody>
</table>

List the Contact elements in a PartnerContact element in any order. A Contact role attribute value must not appear more than once within a ServiceEntryRequestHeader element.

### 15.2.1.2 DocumentReference

The DocumentReference element identifies an earlier ServiceEntryRequest document. Either DocumentReference or DocumentInfo is required if the ServiceEntryRequestHeader operation is delete.
**DocumentReference** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>payloadID</td>
<td>The value of the payloadID attribute for the earlier ServiceEntryRequest.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

If both DocumentReference and DocumentInfo are used, they must refer to the same ServiceEntryRequest.

### 15.2.1.3 DocumentInfo

The DocumentInfo element identifies an earlier ServiceEntryRequest document. Either DocumentReference or DocumentInfo is required if the ServiceEntryRequestHeader operation is delete. If both DocumentReference and DocumentInfo are used, they must refer to the same ServiceEntryRequest.

### 15.2.1.4 ServiceEntryDetailLineIndicator

The ServiceEntryDetailLineIndicator element provides header-level indicators indicating certain information is provided at service sheet line level (in ServiceEntryItem).

### 15.2.1.5 ServiceEntryDetailShipping

The ServiceEntryDetailShipping element provides the shipping details related to a service sheet. It is ignored if isShippingInLine is true.

### 15.2.1.6 ShipNoticeIDInfo

The ShipNoticeIDInfo element references shipment-related document identifiers.

### 15.2.1.7 PaymentTerm

Describes either the net term, the discount, or penalty term in an invoice.
15.2.1.8 Period

The **Period** element specifies the time period over which the supplier rendered the services.

**Attribute** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>The start date for the service.</td>
</tr>
<tr>
<td>endDate</td>
<td>The end date for the service.</td>
</tr>
</tbody>
</table>

15.2.1.9 Comments

The **Comments** element contains human-readable information that the supplier can send with the service sheet. This string data is not intended for the automated systems at buyer sites.

The **Comments** element can contain an **Attachment** element for including external files.

You can add multiple **Comments** elements. They can be used to attach quality certificates that were required in a service order. In this case, one comment will be provided by attachment, and the certificate type will be provided in the **Comments@type** attribute.

**Attachment Element**

**Comments** can attach external files to augment service sheets. The **Attachment** element appears within **Comments**, and it contains only a reference to the external MIME part of the attachment. All attachments should be sent in a single multipart transmission with the **ServiceEntryRequest** document. Even if this is not possible, the **contentID** provided by the **Attachment** element must be usable to retrieve the attachment.

For details about the transfer of attached files, see **Attachments** [page 21].

Attachment contains a single **URL** with scheme “cid:”. An attached file in a cXML document might appear as:

```xml
<Comments>
    <Attachment>
        <URL>cid: uniqueCID@cxml.org</URL>
    </Attachment>
    See the attached file for equipment specifications.
</Comments>
```

15.2.1.10 IdReference

Defines an ID reference. See **IdReference** [page 283].
15.2.1.11 Extrinsic

The Extrinsic element contains machine-readable information related to the service sheet, but not defined by the cXML protocol. In contrast, the Comments element passes information for human use.

Each named Extrinsic can appear only once within the list associated with the ServiceEntryRequestHeader and individual ItemReference elements (within the contained ServiceEntryItem elements). The same name must not appear in both the ServiceEntryRequestHeader list and any list associated with the ItemReference elements. If the same Extrinsic name and value is repeated in all ItemReference lists, it should be moved to the ServiceEntryRequestHeader.

The Extrinsic element can also appear in the ItemOut, IndexItem, PunchOutSetupRequest, ContractItem, and PostalAddress elements. Extrinsic values are case-insensitive.

15.2.2 ServiceEntryOrder

The ServiceEntryOrder element describes details for the service entry sheet and can contain the following elements.

15.2.2.1 ServiceEntryOrderInfo

The ServiceEntryOrderInfo element refers to a prior OrderRequest document using either an OrderReference or OrderIDInfo element. OrderReference is strongly recommended, but if that information is not available, use OrderIDInfo.

OrderReference Element

The OrderReference element contains a DocumentReference element with a payloadID attribute that provides a specific reference to a prior OrderRequest.

The OrderReference element also includes the following two attributes, which might allow the ServiceEntryRequest to be viewed independently:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>The ID from the buying organization or marketplace's purchase order. If present, it must be copied from the OrderRequestHeader.</td>
</tr>
<tr>
<td>orderDate</td>
<td>The date and time the purchase order was created. If present, it must be copied from the OrderRequestHeader.</td>
</tr>
</tbody>
</table>
**OrderIDInfo Element**

The `OrderIDInfo` element references a purchase order known to the buyer’s system. It includes the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>orderID</td>
<td>The ID of a purchase order known to the buyer’s system.</td>
</tr>
<tr>
<td>orderDate</td>
<td>The date and time the purchase order was created.</td>
</tr>
</tbody>
</table>

**15.2.2.2 ServiceEntryItem**

The `ServiceEntryItem` element describes individual line items in a `ServiceEntryRequest`. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>serviceLineNumber</td>
<td>The supplier-defined ID for the current service line, which should be unique for every <code>ServiceEntryItem</code> in a <code>ServiceEntryRequest</code>.</td>
</tr>
<tr>
<td>quantity</td>
<td>The quantity serviced for the current service line.</td>
</tr>
<tr>
<td>type</td>
<td>Specifies the type for the <code>ServiceEntryItem</code>. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● material—Material goods delivered as part of a service order.</td>
</tr>
<tr>
<td></td>
<td>● service—Services delivered as part of a service order.</td>
</tr>
<tr>
<td>referenceDate</td>
<td>The reference date for the blanket order or contract item. The usage of this attribute is optional in most cases and must be defined by the trading partners involved in the transaction. Procurement software might use this date in reconciling an invoice against a blanket order or contract.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>The date when the transfer of goods or the delivery of services occurs ac-</td>
</tr>
<tr>
<td></td>
<td>cording to legal tax definitions. The usage of this attribute is optional in most cases, and must be defined by the trading partners involved in the transaction.</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Indicates the item does not exist in the reference document or contract master agreement.</td>
</tr>
</tbody>
</table>

`ServiceEntryItem` can contain the following elements.
**ItemReference**

The `ItemReference` element references the related item in the OrderRequest and is required. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>The purchase order line number referenced by the current service sheet line. For planned service sheet items, <code>lineNumber</code> refers to the corresponding purchase order line. For unplanned service sheet items, <code>lineNumber</code> refers to the parent purchase order line.</td>
</tr>
</tbody>
</table>

`ItemReference` can contain the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>The part number for the service line.</td>
</tr>
<tr>
<td>IdReference</td>
<td>A unique ID for the part number.</td>
</tr>
<tr>
<td>Classification</td>
<td>The classification code for the service line.</td>
</tr>
<tr>
<td>Description</td>
<td>A text description of the service line.</td>
</tr>
</tbody>
</table>

**MasterAgreementReference**

The `MasterAgreementReference` element references a contract master agreement for the release purchase order against which the service sheet is created.

`MasterAgreementReference` contains a `DocumentReference` element with a `payloadID` attribute that explicitly references a prior `MasterAgreementRequest` document.

The `MasterAgreementReference` element also includes the following two attributes to reference master agreements:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementID</td>
<td>The ID of a master agreement known to the buyer’s system.</td>
</tr>
<tr>
<td>agreementDate</td>
<td>The date and time when the master agreement was created.</td>
</tr>
<tr>
<td>agreementType</td>
<td>The type of the master agreement being referenced, for example,</td>
</tr>
<tr>
<td></td>
<td>“scheduling_agreement”.</td>
</tr>
</tbody>
</table>
**MasterAgreementIDInfo**

The **MasterAgreementIDInfo** defines the buyer system ID for the contract master agreement associated with the release purchase order against which the service sheet is created. It includes the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>agreementID</td>
<td>The ID of a master agreement known to the buyer’s system.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>agreementDate</td>
<td>The date and time when the master agreement was created.</td>
</tr>
<tr>
<td>agreementType</td>
<td>The type of the master agreement being referenced, for example, &quot;scheduling_agreement&quot;.</td>
</tr>
</tbody>
</table>

**UnitRate**

The **UnitRate** element describes the rate charged for a service. Use of **UnitRate** is recommended over the **UnitOfMeasure** and **UnitPrice** pair because **UnitRate** includes the rate code. For some services, such as temporary labor, **UnitRate** is required.

**UnitRate** represents the amount charged per unit of time or some other measure. It can include the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>The money amount of the rate. See [Money][page 44]</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>Describes the unit in which the service is provided. See [UnitOfMeasure][page 43].</td>
</tr>
<tr>
<td>PriceBasisQuantity</td>
<td>The quantity on which the price is based. See [PriceBasisQuantity][page 336].</td>
</tr>
<tr>
<td>TermReference</td>
<td>TermReference is a generic base element that identifies the definition of the <strong>UnitRate</strong> in question. See [UnitRate][page 140].</td>
</tr>
</tbody>
</table>

In the case of multiple **UnitRate** elements, each **UnitRate** should include a **TermReference** to distinguish it from the others.

**UnitOfMeasure (Deprecated)**

The **UnitOfMeasure** element is the unit of measure for a service, such as HUR for hour or MON for month. It is always paired with **UnitPrice**. It is deprecated in cXML 1.2.011. Use **UnitRate** instead.
UnitPrice (Deprecated)

The UnitPrice element is the price per unit of measure for a service, and is always paired with UnitOfMeasure. It is deprecated in cXML 1.2.011. Use UnitRate instead.

PriceBasisQuantity

The quantity on which the price is based. See PriceBasisQuantity [page 336].

Period

The Period element specifies the time period over which the supplier rendered the services.

Period has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startDate</td>
<td>The start date for the service.</td>
</tr>
<tr>
<td>endDate</td>
<td>The end date for the service.</td>
</tr>
</tbody>
</table>

SubtotalAmount

The SubtotalAmount element describes the subtotal for the current item, either UnitPrice or UnitRate x serviced quantity. It contains a Money element. See Money [page 44].

Tax

The tax info for this line item. It is ignored if isTaxInLine is false. See Tax [page 340].

GrossAmount

The SubtotalAmount plus taxes, shipping, and special handling charges.
**ServiceEntryDetailLineSpecialHandling**

The special handling information for this line item. It is ignored if `isSpecialHandlingInLine` is `false`.

**ServiceEntryDetailLineShipping**

The shipping information for this line item. It is ignored if `isShippingInLine` is `false`.

**ShipNoticeIDInfo**

References shipment related document identifiers. See [ShipNoticeIDInfo](page 345).

**ServiceEntryDetailDiscount**

The discount information for this line item. It is ignored if `isDiscountInLine` is `false`.

**ServiceEntryItemModifications**

The additional charges, allowances and their taxes that are incurred for the total landed cost of the goods and service contained in this service sheet item.

**TotalCharges**

The total sum of all the charges applied on the goods and services at the line item level in a service sheet.

**TotalAllowances**

The total sum of all the allowances applied on the goods and services at the line item level in a service sheet.
**TotalAmountWithoutTax**

The total sum of the subtotal, charges (including special handling charges and shipping charges), allowances (including discounts) applied at the line item level in a service sheet. This does not include taxes.

**NetAmount**

The GrossAmount minus the discount amount.

**Distribution**

The Distribution element defines how the cost of a service are distributed among various parties. See Distribution [page 143].

**Comments**

The Comments element contains human-readable information that the supplier can send with the service sheet. This string data is not intended for the automated systems at buyer sites.

The Comments element can contain an Attachment element for including external files.

**Extrinsic**

The Extrinsic element contains machine-readable information related to the service sheet, but not defined by the cXML protocol. In contrast, the Comments element passes information for human use.

**15.2.2.3 ServiceEntrySummary**

The ServiceEntrySummary element describes the sum of all ServiceEntryItem Subtotal amounts for the ServiceEntryRequest. It contains a SubtotalAmount element as well as several other optional elements.

**SubtotalAmount**

The sum of amounts for all quantities.
**Tax**

Total tax information. See Tax [page 340].

**SpecialHandlingAmount**

Special handling charge.

**ShippingAmount**

Shipping charge.

**GrossAmount**

Sum of subtotal, taxes, special handling charges, and shipping charges, before discounts

**ServiceEntryDetailDiscount**

The total discount applied in this ServiceEntryRequest. Its percentageRate attribute is ignored if isDiscountInLine is true.

**ServiceEntryHeaderModifications**

The additional charges, allowances and their taxes that are incurred for the total landed cost of the goods and services within the service sheet header. This value specified at the header-level is not the aggregated value towards the charges or allowances available for the line items.

**ServiceEntrySummaryLineItemModifications**

Summary of all modifications applied on the goods and services at the line item level in a service entry.
**TotalCharges**

The total sum of all the charges applied on the goods and services at the header-level and line item level in a service sheet.

**TotalAllowances**

The total sum of all the allowances applied on the goods and services at the header-level and line item level in a service sheet.

**TotalAmountWithoutTax**

The total sum of the subtotal, charges (including special handling charges and shipping charges), allowances (including discounts) applied at the header-level and line item level in a service sheet. This does not include taxes.

**NetAmount**

Gross amount minus discounts.

**DepositAmount**

Total deposit/prepayment amount.

**DueAmount**

Total amount due and payable. It equals NetAmount minus DepositAmount. If ServiceEntryRequest@purpose is "creditMemo" or "lineLevelCreditMemo", this amount must be negative. If ServiceEntryRequest@purpose is "debitMemo", this amount must be positive.

### 15.3 Service Sheet Status Updates

After buying organizations receive service sheets, they can approve or reject them, and can set the service sheet status accordingly.
Buying organizations update the status of a service sheet by sending StatusUpdateRequest documents to network hubs, which can forward them to suppliers.

The DocumentReference element within the StatusUpdateRequest must refer to the ServiceEntryRequest document. The Status element should have status code 200.

StatusUpdateRequest documents for service sheets contain a DocumentStatus element. Service sheet status can be processing, approved, or rejected, which refers to the action taken by the buying organization on the service sheet.

Related Information

DocumentStatus [page 272]
16 Catalogs

Catalogs are documents that convey product and service content to buying organizations. Suppliers use them to describe the products and services they offer and their prices.

- Catalog Definitions [page 393]
- Type Definitions [page 397]
- Subscription Management Definitions [page 402]
- Catalog Upload Transaction [page 411]

16.1 Catalog Definitions

The cXML catalog definitions consist of two main elements: Supplier and Index. These elements describe data intended for persistent or cached use within a hub or a buying organization’s procurement system.

- **Supplier**—Contains basic data about the supplier, such as address, contact, and ordering information.
- **Index**—Describes data about the supplier’s inventory of goods and services, such as description, part numbers, and classification codes.

The catalog Contract element was deprecated in cXML 1.2.008.

Note that Index uses several sub-elements to describe line items in suppliers’ inventories. Suppliers can send either price information for caching within buyers’ systems or PunchOut information to enable buyers to punch out to remote websites for pricing and other information.

These elements are unusual in cXML because they commonly appear as the top level element in a compliant XML document. In fact, Index rarely appears elsewhere in a cXML document.

16.1.1 Supplier

The Supplier element encapsulates a named supplier of goods or services. It must have a Name element and a SupplierID element. Additionally, it describes optional address and ordering information for the supplier:

```xml
<Supplier>
  <Name/>
  <SupplierID/>
  <SupplierLocation>
    <Address/>
    <OrderMethods>
      <OrderMethod>
        <OrderTarget/>
        <OrderProtocol/>
      </OrderMethod>
    </OrderMethods>
    <Contact/>
  </SupplierLocation>
</Supplier>
```
Supplier has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>corporateURL</td>
<td>URL for supplier’s website.</td>
</tr>
<tr>
<td>storeFrontURL</td>
<td>URL for website for shopping or browsing.</td>
</tr>
</tbody>
</table>

The following example shows an outline of the Supplier element:

```xml
<Supplier>
  <Name xml:lang="en-US">Workchairs</Name>
  <SupplierID domain="oracle107">29</SupplierID>
  <SupplierID domain="DUNS">765545454</SupplierID>
  <SupplierLocation>
    <Address>
      <Name xml:lang="en-US">Main Office</Name>
      <PostalAddress>
        ...
      </PostalAddress>
      <Email>bobw@workchairs.com</Email>
      <Phone name="Office">
        ...
      </Phone>
      <Fax name="Order">
        ...
      </Fax>
    </Address>
    <URL>http://www.workchairs.com/Support.htm</URL>
    <OrderMethods>
      <OrderMethod>
        <OrderTarget>
          <URL>http://www.workchairs.com/cxmlorders</URL>
        </OrderTarget>
      </OrderMethod>
      <Contact>
        <Name xml:lang="en-US">Mr. Smart E. Pants</Name>
        <Email>sepants@workchairs.com</Email>
        <Phone name="Office">
          ...
        </Phone>
      </Contact>
    </OrderMethods>
  </SupplierLocation>
</Supplier>
```

### 16.1.1.1 SupplierLocation

Some suppliers conduct business from more than one location. A SupplierLocation element can be used for each location. This element also encapsulates how that location does business or the ways that it can accept orders. A SupplierLocation element contains an Address and a set of OrderMethods.
OrderMethods and OrderMethod

The OrderMethods element is a grouping of one or more OrderMethod elements for the given SupplierLocation element. The position of OrderMethods in the list is significant—the first element is the preferred ordering method, the second element is the next priority, and so on in decreasing order of preference.

OrderMethod encapsulates ordering information in the form of an order target (such as phone, fax, or URL) and an optional protocol to further clarify the ordering expectations at the given target; for example, “cxml” for a URL target.

16.1.2 Index

This element is the root element for updating catalogs within buying organizations’ procurement systems.

An Index element is associated with a single supplier. The Index element allows for a list of supplier IDs, where each ID is considered a synonym for that supplier.

The Index contains one or more IndexItem elements. The IndexItem element contains elements that add or delete from the buying organization’s cached catalog. The following example shows an outline of an Index element:

```xml
<Index loadmode="Incremental">
    <SupplierID> ... </SupplierID>
    ...
    <IndexItem>
        <IndexItemAdd>
            <ItemID> ... </ItemID>
            <ItemDetail> ... </ItemDetail>
        </IndexItemAdd>
    </IndexItem>
    <IndexItemDelete>
        <ItemID> ... </ItemID>
    </IndexItemDelete>
    <IndexItemPunchout>
        <ItemID> ... </ItemID>
        <PunchOutDetail>
            <SearchGroupData> ... </SearchGroupData>
        </PunchOutDetail>
    </IndexItemPunchout>
</Index>
```
Index has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>loadmode</td>
<td>The mode in which the target application should load the Index. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● Full—Completely replaces a previously loaded index.</td>
</tr>
<tr>
<td></td>
<td>● Incremental—Imports the index on top of the existing index, replacing or deleting existing items and adding new items. The recommended application default is incremental.</td>
</tr>
</tbody>
</table>

### 16.1.2.1 IndexItem, IndexItemAdd, IndexItemDelete, and IndexItemPunchout

The `IndexItem` element is a container for the list of items in an index. It contains three types of elements:

- **IndexItemAdd**—Inserts a new item or updates an existing item in the index. It contains an `ItemID` element, an `ItemDetail` element, and an `IndexItemDetail` element.
- **IndexItemDelete**—Removes an item from the index. It contains an `ItemID` element identifying the item.
- **IndexItemPunchout**—Inserts an item for initiating punchout to the supplier’s website. It contains a `PunchoutDetail` element and an `ItemID` element. It is similar to an `IndexItemAdd` element except that it does not require price information. Buyers acquire item details in real-time from the supplier’s website.

### ItemID

The basic `ItemID` element, which provides unique identification of an item. See `ItemID [page 90]`.

### ItemDetail

`ItemDetail` contains detailed information about an item, or all the data that a user might want to see about an item beyond the essentials represented in the `ItemID`. It must contain a `UnitPrice`, a `UnitOfMeasure`, one or more `Description` elements, and a `Classification`, and it can optionally contain a `ManufacturerPartID`, a `ManufacturerName`, a `URL`, a `LeadTime`, and any number of `Extrinsic` elements. See `ItemDetail [page 90]`.

The optional `LeadTime` element describes the number of days needed for the buyer to receive the product. For example:

```xml
<LeadTime>14</LeadTime>
```
Note that in an `IndexItemAdd` element, duplicate `LeadTime` information might come from both `ItemDetail`, where it is optional, and `IndexItemDetail`, where it is mandatory. If the `LeadTime` elements are defined in both cases, then they should be identical.

In the context of an `IndexItemAdd`, `Extrinsic` elements extend information about a particular item. These extensions should not be transmitted to a supplier within an `OrderRequest`, because the supplier can retrieve the same data using the unique `ItemID`.

**IndexItemDetail**

The `IndexItemDetail` element contains index-specific elements that define additional aspects of an item, such as `LeadTime`, `ExpirationDate`, `EffectiveDate`, `SearchGroupData`, or `TerritoryAvailable`.

**PunchoutDetail**

`PunchoutDetail` is similar to `ItemDetail`, except it requires only one or more `Description` elements and a `Classification`. It can also contain `UnitPrice`, `UnitOfMeasure`, `URL`, `ManufacturerName`, `ManufacturerPartID`, `ExpirationDate`, `EffectiveDate`, `SearchGroupData`, `TerritoryAvailable`, `LeadTime`, and `Extrinsic` elements. Price values are approximate; users can punch out to the supplier's website to obtain the current pricing information.

`PunchoutDetail` has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| `punchoutLevel` | Specifies how the procurement application should present the PunchOut item to users. This attribute can have the value store, aisle, shelf, or product.  

Procurement applications might display these items differently, depending on how they are tagged by suppliers. For example, they might display store-level items differently than product-level items. |

Use `punchoutLevel="aisle"` for top level product categories; for example, Computer Accessories or Electrical Component Supplies. Use `punchoutLevel="shelf"` for similar products from which a user would choose while shopping; for example, if multiple manufacturers make the same product or a single product is available in multiple configurations. Use `punchoutLevel="product"` for specific items that appear by themselves on PunchOut site pages.

**16.2 Type Definitions**

Types allow type providers such as content aggregators, suppliers, and marketplaces to extend root catalog item definitions and to define named groupings of commodity-specific attributes such as parametric types.

Types are named collections of named attributes. Each attribute is further defined in terms of a type, that is, types can contain other types. Types can also derive from or extend other types.
Type definitions describe supplemental catalog attributes and parametric data types. They provide a rich framework for defining parametric types, and they allow the definition and standardization of parametric types from type provider organizations independent of index data.

Use the SearchGroupData and SearchDataElement elements to specify the actual parametric data for a given catalog item. SearchGroupData must reference a defined type, and SearchDataElement specifies data for each type attribute within that type.

A TypeDefinition document contains a TypeProvider element and either Type or PrimitiveType elements.

### 16.2.1 TypeProvider

TypeProvider specifies the provider of the types being defined, identified by a name and one or more IDs (for example, NetworkId or DUNS).

TypeProvider has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The canonical name used to reference the type provider when fully qualifying the name of a type (for example, in a SearchGroupData element reference).</td>
</tr>
</tbody>
</table>

#### 16.2.1.1 Name

The Name element is for localized display purposes, allowing different names to be provided per locale.

#### 16.2.1.2 OrganizationID

Unique identifier for the type provider organization.

### 16.2.2 Type

Type elements are named elements containing one or more TypeAttribute elements. Types can extend (or derive from) other types, thus inheriting their parents’ TypeAttribute elements.

There is one important distinction between type inheritance and standard object-oriented inheritance models: child TypeAttributes cannot override parent TypeAttributes.

It is illegal to define a TypeAttribute of the same name as a parent TypeAttribute.
Type has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Canonical name of the type. (required)</td>
</tr>
<tr>
<td>extends</td>
<td>Name of the type that is being extended.</td>
</tr>
</tbody>
</table>

### 16.2.2.1 Name

Type names are always scoped by `TypeProvider` names, allowing for the existence of multiple type taxonomies. Applications should respect the following notation for a fully-qualified type name outside a defined `TypeProvider` scope:

```
Type Provider Name:Type Name
```

For example, if an organization named Acme provides a type definition named Pipes, that type would be referenced as "Acme:Pipes" in `SearchGroupData` names.

### 16.2.2.2 Description

You can provide names in multiple locales through the optional `Description` element list. The `ShortName` element within that `Description` should be used to provide an alternative locale specific name for the type. The required `name` attribute should be used within the `SearchGroupData` element to reference a given type.

### 16.2.3 TypeAttribute

`TypeAttribute` elements define attributes within a type. The `name` attribute is required and is the name used in the `SearchDataElement` element. Optional `Name` elements provide locale-specific alternative names for this attribute.

`TypeAttribute` elements themselves are of a named type, as indicated by the "type" attribute. The name can be another `Type`, or a `PrimitiveType`, defined below.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Specifies the canonical name of this attribute. (required)</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>type (required)</td>
<td>Specifies the data type of this attribute. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● integer—A whole number, with no fraction.</td>
</tr>
<tr>
<td></td>
<td>● string—A group of characters with words that can be individually indexed for free text searching.</td>
</tr>
<tr>
<td></td>
<td>● literal—A group of characters with words that cannot be individually indexed for free text searching.</td>
</tr>
<tr>
<td></td>
<td>● double—A floating point number.</td>
</tr>
<tr>
<td></td>
<td>● date—A date of the form yyyy-mm-dd; for example, 2002-01-25</td>
</tr>
<tr>
<td></td>
<td>● boolean—A Boolean value; yes, no, 1, 0, true, false, t, or f.</td>
</tr>
<tr>
<td>shortTag</td>
<td>Alias for this attribute.</td>
</tr>
<tr>
<td>mappedFrom</td>
<td>Specifies the name of another object in the system that implicitly defines this attribute.</td>
</tr>
<tr>
<td>isRequired</td>
<td>Indicates whether this attribute requires a (non-empty) value.</td>
</tr>
<tr>
<td>isRequiredForOrdering</td>
<td>Indicates that the value for an attribute must be provided (usually by the requisitioner) before the item can be included in an order for the supplier. Typically used for ad-hoc or partially specified catalog items.</td>
</tr>
<tr>
<td>isRefinable</td>
<td>Indicates whether this attribute is refinable in search queries.</td>
</tr>
<tr>
<td>isSearchable</td>
<td>Indicates whether this attribute is searchable in search queries.</td>
</tr>
<tr>
<td>isCollection</td>
<td>Indicates whether this attribute allows repeating values.</td>
</tr>
<tr>
<td>isCaseSensitive</td>
<td>Indicates whether this attribute preserves letter case. This property applies only to attributes of type string or literal. It has no effect on numeric, boolean, or date attributes, nor does it apply to attributes of complex type.</td>
</tr>
<tr>
<td>isInKey</td>
<td>Indicates whether this attribute is part of the unique key for the type.</td>
</tr>
<tr>
<td>isInFreeTextSearch</td>
<td>Indicates whether this attribute should be indexed to be a candidate in a free-text (All) query.</td>
</tr>
<tr>
<td>isHidden</td>
<td>Indicates whether this attribute is displayed to users.</td>
</tr>
<tr>
<td>isSortable</td>
<td>Indicates whether this attribute can be sorted.</td>
</tr>
<tr>
<td>isReadOnly</td>
<td>Indicates whether values assigned to this attribute are frozen and cannot be changed by the receiving application.</td>
</tr>
<tr>
<td>unit</td>
<td>Specifies the unit of this attribute, if applicable. For example, if the TypeAttribute is of a PrimitiveType with a scalar type of &quot;integer&quot;, this unit might be &quot;IN” to indicate inches.</td>
</tr>
</tbody>
</table>

### 16.2.3.1 Name

Localized name of the TypeAttribute.
16.2.3.2 Description

Localized description of the TypeAttribute.

16.2.3.3 EnumerationValue

EnumerationValue allows you to optionally specify a set of one or more valid data values for the TypeAttribute.

For example:

```xml
<TypeAttribute name="COLOR"
    type="Name"
    isRefinable="yes">
    <Name xml:lang="en">Color</Name>
    <EnumerationValue>Red</EnumerationValue>
    <EnumerationValue>Yellow</EnumerationValue>
    <EnumerationValue>Black</EnumerationValue>
</TypeAttribute>
```

16.2.3.4 Range

Range allows you to optionally specify a range of valid data values for the TypeAttribute. It contains RangeBegin, RangeEnd, or both.

For example:

```xml
<TypeAttribute name="WEIGHT"
    type="Number"
    isRefinable="yes">
    <Name xml:lang="en">Weight</Name>
    <Range>
        <RangeBegin>12</RangeBegin>
        <RangeEnd inclusive="no">100</RangeEnd>
    </Range>
</TypeAttribute>
```

Both RangeBegin and RangeEnd can optionally specify the attribute inclusive="no", which excludes the specified beginning or ending value as legal values.

16.2.4 PrimitiveType

PrimitiveType is a named scalar type, where the list of recognized scalar types is given above. These types are building blocks for defining simple TypeAttributes. For example a PrimitiveType could define a TypeAttribute that is a string of length 255.
PrimitiveType has the following optional attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The name for a TypeAttribute.</td>
</tr>
<tr>
<td>type</td>
<td>The scalar type. Possible values are &quot;integer&quot;, &quot;string&quot;, &quot;literal&quot;, &quot;double&quot;, &quot;date&quot;, and &quot;boolean&quot;.</td>
</tr>
<tr>
<td>min</td>
<td>The minimum length for a TypeAttribute of scalarType &quot;string&quot; or &quot;literal&quot;.</td>
</tr>
<tr>
<td>max</td>
<td>The maximum length for a TypeAttribute of scalarType &quot;string&quot; or &quot;literal&quot;.</td>
</tr>
<tr>
<td>maxPrecision</td>
<td>The maximum precision for a TypeAttribute of scalarType &quot;double&quot;.</td>
</tr>
<tr>
<td>maxScale</td>
<td>The maximum scale for a TypeAttribute of scalarType &quot;double&quot;.</td>
</tr>
</tbody>
</table>

### 16.3 Subscription Management Definitions

Intermediaries such as network hubs can manage supplier information and catalogs used by procurement systems.

This section describes request-response elements for managing supplier data and catalogs. In all cases, the requests are initiated by the procurement system.

This section discusses:

- Supplier Data [page 402]
- Supplier Profile Information [page 405]
- Catalog Subscriptions [page 408]

### 16.3.1 Supplier Data

Supplier data management uses three types of transactions:

- SupplierList – Returns the names of suppliers with which the buyer has relationships.
- SupplierData – Returns supplier details.
- SupplierChange – Returns the names of suppliers whose information has changed.

### 16.3.1.1 SupplierListRequest

SupplierListRequest requests a list of the suppliers with whom the buyer has established trading relationships.

```xml
<Request>
  <SupplierListRequest/>
</Request>
```
16.3.1.2 SupplierListResponse

SupplierListResponse lists the suppliers with whom the buyer has established trading relationships.

```xml
<Response>
  <Status code="200" text="OK"/>
  <SupplierListResponse>
    <Supplier corporateURL="http://www.workchairs.com" storeFrontURL="http://www.workchairs.com">
      <Name xml:lang="en-US">Workchairs, Inc.</Name>
      <Comments xml:lang="en-US">this is a cool company</Comments>
      <SupplierID domain="DUNS">123456</SupplierID>
    </Supplier>
    <Supplier corporateURL="http://www.computersRus.com" storeFrontURL="http://www.computersRus.com">
      <Name xml:lang="en-US">Computers R us</Name>
      <Comments xml:lang="en-US">another cool company</Comments>
      <SupplierID domain="DUNS">123456789</SupplierID>
    </Supplier>
  </SupplierListResponse>
</Response>
```

16.3.1.3 SupplierDataRequest

SupplierDataRequest requests data about a supplier.

```xml
<Response>
  <Status code="200" text="OK"/>
  <SupplierDataRequest>
    <SupplierID domain="DUNS">123456789</SupplierID>
  </SupplierDataRequest>
</Response>
```

16.3.1.4 SupplierDataResponse

SupplierDataResponse contains data about a supplier.

```xml
<Response>
  <Status code="200" text="OK"/>
  <SupplierDataResponse>
    <Supplier corporateURL="http://www.workchairs.com" storeFrontURL="http://www.workchairs.com">
      <Name xml:lang="en-US">Workchairs, Inc.</Name>
      <Comments xml:lang="en-US">this is a cool company</Comments>
      <SupplierID domain="DUNS">123456</SupplierID>
      <SupplierLocation>
        <Address>
          <Name xml:lang="en-US">Main Office</Name>
          <PostalAddress>
            <DeliverTo>Bob A. Worker</DeliverTo>
            <Street>123 Front Street</Street>
            <City>Toosunny</City>
            <State>CA</State>
            <PostalCode>95000</PostalCode>
            <Country isoCountryCode="US">USA</Country>
          </PostalAddress>
        </Address>
      </SupplierLocation>
    </Supplier>
  </SupplierDataResponse>
</Response>
```
<Email>bobw@workchairs.com</Email>
<Phone name="Office">
  <TelephoneNumber>
    <AreaOrCityCode>800</AreaOrCityCode>
    <Number>5551212</Number>
  </TelephoneNumber>
</Phone>
<Fax name="Order">
  <TelephoneNumber>
    <AreaOrCityCode>408</AreaOrCityCode>
    <Number>5551234</Number>
  </TelephoneNumber>
</Fax>
<URL>http://www.workchairs.com/Support.htm</URL>
</Address>
<OrderMethods>
  <OrderMethod>
    <OrderTarget>
      <URL>http://www.workchairs.com/cxmlorder</URL>
    </OrderTarget>
    <OrderProtocol>cXML</OrderProtocol>
  </OrderMethod>
</OrderMethods>
</SupplierLocation>
</Supplier>
</SupplierDataResponse>

For information about the Supplier element, see Supplier [page 393].

### 16.3.1.5 SupplierChangeEventMessage

This element is for notification of changes to supplier data.

This message relies on the GetPending transaction. The buying organization sends a GetPendingRequest to query for waiting messages. If the network hub has a message waiting, it includes it within the GetPendingResponse.

<Message>
  <SupplierChangeMessage type="new">
    <Supplier corporateURL="http://www.workchairs.com"
      storeFrontURL="http://www.workchairs.com">
      <Name xml:lang="en-US">Workchairs, Inc.</Name>
      <Comments xml:lang="en-US">this is a cool company</Comments>
      <SupplierID domain="DUNS">123456</SupplierID>
      <SupplierLocation>
        <Address>
          <Name xml:lang="en-US">Main Office</Name>
          <PostalAddress>
            <DeliverTo>Bob A. Worker</DeliverTo>
            <Street>123 Front Street</Street>
            <City>Toosunny</City>
            <State>CA</State>
            <PostalCode>95000</PostalCode>
            <Country isoCountryCode="US">USA</Country>
          </PostalAddress>
          <Email>bobw@workchairs.com</Email>
          <Phone name="Office">
            <TelephoneNumber>
              <AreaOrCityCode>800</AreaOrCityCode>
              <Number>5551212</Number>
            </TelephoneNumber>
          </Phone>
        </Address>
      </SupplierLocation>
    </Supplier>
  </SupplierChangeMessage>
</Message>
Related Information

Get Pending/Data Download Transaction [page 418]

16.3.2 Supplier Profile Information

Supplier profile management uses three types of transactions:

- **OrganizationDataRequest** – Requests profile information for suppliers with which the buyer has relationships.
- **OrganizationDataResponse** – Returns supplier profile information.
- **OrganizationChangeMessage** – Returns profile information for suppliers whose profile has changed.

16.3.2.1 OrganizationDataRequest

OrganizationDataRequest requests profile information for suppliers with whom the buyer has established trading relationships.
16.3.2.2 OrganizationDataResponse

OrganizationDataResponse returns profile information for suppliers with whom the buyer has established trading relationships.

```xml
<Response>
  <Status code="200" text="OK"/>
  <OrganizationDataResponse>
    <Organization>
      <Name xml:lang="en-US">Workchairs</Name>
      <Credential domain="NetworkID">
        <Identity>AN01022222222222</Identity>
      </Credential>
      <Credential domain="DUNS">
        <Identity>123456789</Identity>
      </Credential>
      <OrganizationRole name="supplier"/>
      <Address>
        <Name xml:lang="en-US">Workchairs</Name>
        <PostalAddress>
          <Street>123 Front Street</Street>
          <City>Toosunny</City>
          <State>CA</State>
          <PostalCode>95000</PostalCode>
        </PostalAddress>
        <Email>bobw@workchairs.com</Email>
        <Phone>
          <TelephoneNumber>
            <AreaOrCityCode>800</AreaOrCityCode>
            <Number>555-1212</Number>
          </TelephoneNumber>
        </Phone>
        <Fax>
          <TelephoneNumber>
            <AreaOrCityCode>408</AreaOrCityCode>
            <Number>555-1234</Number>
          </TelephoneNumber>
        </Fax>
        <URL>http://www.workchairs.com/Support.htm</URL>
      </Address>
      <Person>
        <Contact>
          <Name xml:lang="en-US">Joe Hannyman</Name>
          <PostalAddress>
            <Street>321 The Main Street</Street>
            <City>Sunnyvale</City>
            <State>CA</State>
            <PostalCode>90488</PostalCode>
          </PostalAddress>
        </Contact>
      </Person>
    </Organization>
  </OrganizationDataResponse>
</Response>
```
16.3.2.3 OrganizationChangeMessage

OrganizationChangeMessage returns updated profile information for suppliers with whom the buyer has established trading relationships.

```xml
<Message>
  <OrganizationChangeMessage type="update">
    <Organization>
      <Name xml:lang="en-US">BOISE CASCADE OFFICE PRODUCTS CORPORATION</Name>
      <Credential domain="NetworkID">
        <Identity>AN01000000125</Identity>
      </Credential>
      <Credential domain="DUNS">
        <Identity>178923231</Identity>
      </Credential>
      <OrganizationRole name="supplier"/>
      <Address>
        <Name xml:lang="en-US">BOISE CASCADE OFFICE PRODUCTS CORPORATION</Name>
        <PostalAddress>
          <Street>800 W BRYN MAWR AVE</Street>
          <City>ITASCA</City>
          <State>IL</State>
          <PostalCode>60143</PostalCode>
        </PostalAddress>
        <Email>nramani@ariba.com</Email>
        <Phone name=""></Phone>
        <Fax name=""></Fax>
        <URL name="website1">http://main.url.com</URL>
      </Address>
    </Organization>
  </OrganizationChangeMessage>
</Message>
```
### 16.3.3 Catalog Subscriptions

Catalog subscription management uses four types of transactions:

- **SubscriptionList** – Returns the names of catalogs to which the buyer has subscribed.
- **SubscriptionContent** – Returns catalog contents.
- **SubscriptionChange** – Returns the names of catalogs that have changed.
- **SubscriptionStatusUpdateRequest** – Returns the catalog subscription status from the buyer.

#### 16.3.3.1 Subscription

All catalog subscription transactions use the `Subscription` element to describe metadata about a catalog subscription.

For example:

```xml
<Subscription>
  <InternalID>1234</InternalID>
  <Name xml:lang="en-US">Q2 Prices</Name>
  <Changetime>2002-03-12T18:39:09-08:00</Changetime>
  <SupplierID domain="DUNS">123456789</SupplierID>
  <Format version="2.1">CIF</Format>
  <Description xml:lang="en-US">The best prices for software</Description>
</Subscription>
```

`Subscription` has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>InternalID</td>
<td>A unique ID internal to the intermediary. Contains an optional domain attribute.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the subscription.</td>
</tr>
<tr>
<td>Changetime</td>
<td>The date and time when any aspect of the subscription last changed.</td>
</tr>
<tr>
<td>SupplierID</td>
<td>The ID of the supplier.</td>
</tr>
<tr>
<td>Format</td>
<td>The format of the catalog.</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the catalog.</td>
</tr>
</tbody>
</table>
16.3.3.2 SubscriptionListRequest

This element requests the buyer’s current list of catalog subscriptions.

```xml
<Request>
  <SubscriptionListRequest/>
</Request>
```

16.3.3.3 SubscriptionListResponse

This element lists the buyer’s current list of catalog subscriptions.

```xml
<Response>
  <Status code="200" text="OK"/>
  <SubscriptionListResponse>
    <Subscription>
      <InternalID>1234</InternalID>
      <Name xml:lang="en-US">Q2 Software Prices</Name>
      <Changetime>1999-03-12T18:39:09-08:00</Changetime>
      <SupplierID domain="DUNS">123456789</SupplierID>
      <Format version="2.1">CIF</Format>
      <Description xml:lang="en-US">The best prices for software</Description>
    </Subscription>
    <Subscription>
      <InternalID>1235</InternalID>
      <Name xml:lang="en-US">Q2 Hardware Prices</Name>
      <Changetime>1999-03-12T18:15:00-08:00</Changetime>
      <SupplierID domain="DUNS">555555555</SupplierID>
      <Format version="2.1">CIF</Format>
      <Description xml:lang="en-US">The best prices for hardware</Description>
    </Subscription>
  </SubscriptionListResponse>
</Response>
```

16.3.3.4 SubscriptionContentRequest

This element requests the contents of a subscribed catalog. The request includes the InternalID and SupplierID for the catalog.

```xml
<SubscriptionVersion versionNumber="4"/>
```

is an optional parameter. If this parameter is provided, the requested version number of the catalog is fetched. If this parameter is not provided, the latest available version of the catalog is fetched.

```xml
<Request>
  <SubscriptionContentRequest>
    <InternalID>1234</InternalID>
    <SubscriptionVersion versionNumber="4"/>
    <SupplierID domain="DUNS">123456789</SupplierID>
  </SubscriptionContentRequest>
</Request>
```
16.3.3.5 SubscriptionContentResponse

This element contains the contents of a catalog. The catalog format can be either CIF (Catalog Interchange Format) or cXML. If it is CIF, it is base64 encoded and included as the content of a CIFContent element. If it is cXML, the Index element is directly included.

```xml
<Response>
  <Status code="200" text="OK"/>
  <SubscriptionContentResponse>
    <Subscription>
      <InternalID>1234</InternalID>
      <Name xml:lang="en-US">Q2 Software Prices</Name>
      <Changetime>1999-03-12T18:39:09-08:00</Changetime>
      <SupplierID domain="DUNS">123456789</SupplierID>
      <Format version="3.0">CIF</Format>
      <Description xml:lang="en-US">The best prices for software</Description>
    </Subscription>
    <SubscriptionContent filename="april_prices.cif">
      <CIFContent>
        <!-- base64 encoded data -->
        ABCDBBDBDBDBD...
      </CIFContent>
    </SubscriptionContent>
  </SubscriptionContentResponse>
</Response>
```

16.3.3.6 SubscriptionChangeMessage

This element signals to the buyer’s procurement system that a subscribed catalog has changed.

This message relies on the GetPending transaction. The buying organization sends a GetPendingRequest to query for waiting messages. If the network hub has a message waiting, it includes it within the GetPendingResponse. For more information, see Get Pending/Data Download Transaction [page 418]

```xml
<Message>
  <SubscriptionChangeMessage type="new">
    <Subscription>
      <InternalID>1234</InternalID>
      <Name xml:lang="en-US">Q2 Software Prices</Name>
      <Changetime>1999-03-12T18:39:09-08:00</Changetime>
      <SupplierID domain="DUNS">123456789</SupplierID>
      <Format version="2.1">CIF</Format>
    </Subscription>
  </SubscriptionChangeMessage>
</Message>
```

The type attribute describes the type of change: new, delete, or update.

16.3.3.7 SubscriptionStatusUpdateRequest

This element requests the subscription status of a catalog. It enables buying organizations to send the catalog subscription status to suppliers through the network hub.
On a buying organization’s system, a catalog can have various status updates from the time it is downloaded until it is activated. Each catalog status on the buying organization’s system can be sent to the supplier using this element. The network hub receives and updates the subscription status of the catalog using the InternalID.

A SubscriptionStatusUpdateRequest includes the InternalID of the catalog, and the SubscriptionVersion and SubscriptionStatus elements.

```xml
<Request>
  <SubscriptionStatusUpdateRequest>
    <InternalID>1234</InternalID>
    <SubscriptionVersion versionNumber="2"/>
    <SubscriptionStatus status="activated"/>
  </SubscriptionStatusUpdateRequest>
</Request>
```

**SubscriptionVersion**

This element stores the version number of the catalog.

When a supplier edits a catalog, the network hub creates a new version of the catalog and assigns a version number. This version number is used with the InternalID in all messages sent from the buyer to the network hub. This is an optional attribute. When it is not defined, the network hub uses the last published version of the catalog as the InternalID.

**SubscriptionStatus**

This element stores the status of the catalog. Catalog status values are: approved, rejected, validation error, deleted, received, validated, activated, deactivated, and changed.

### 16.4 Catalog Upload Transaction

The cXML Catalog Upload transaction enables suppliers to programmatically upload and publish catalogs on network hubs.

The Catalog Upload transaction gives you an alternative to logging on to network hubs to interactively upload and publish catalogs. You can use it to automatically distribute updated catalogs whenever you change pricing or availability of your products or services.

The Catalog Upload transaction supports both CIF and cXML catalogs.

The Catalog Upload transaction consists of two cXML documents:

- **CatalogUploadRequest**
  
  Sent by suppliers to upload a catalog. It contains the catalog as an attachment and specifies whether the catalog is new or an update, and whether to automatically publish it after upload.
Response
Sent by the network hub to acknowledge the receipt of a CatalogUploadRequest.

16.4.1 CatalogUploadRequest

The CatalogUploadRequest element contains all the information related to the catalog upload. The following example shows a CatalogUploadRequest:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2000-12-28T16:56:03-08:00" payloadID="155556789@10.10.83.39">
  <Header>
    <From>
      <Credential domain="DUNS">
        <Identity>123456789</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkID">
        <Identity>AN01000000001</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="DUNS">
        <Identity>123456789</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>My Homemade Catalog Manager V2.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <CatalogUploadRequest operation="update">
      <CatalogName xml:lang="en">Winter Prices</CatalogName>
      <Description xml:lang="en">This catalog contains our premiere-level prices for office chairs and other durable furniture.</Description>
      <Attachment>
        <URL>cid:part2.PCO28.975529413154@saturn.workchairs.com</URL>
      </Attachment>
      <Commodities>
        <CommodityCode>52</CommodityCode>
      </Commodities>
      <AutoPublish enabled="true"/>
      <Notification>
        <Email>judy@workchairs.com</Email>
        <URLPost enabled="true"/>
      </Notification>
    </CatalogUploadRequest>
  </Request>
</cXML>
```
CatalogUploadRequest has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| operation | Specifies the type of upload to perform. Possible values:  
| (required) | ● new—Uploads a new catalog. A catalog with the same name must not exist.  
|           | ● update—Overwrites an exiting catalog. A catalog with the same name must exist. |

CatalogUploadRequest contains the following elements.

**CatalogName**

CatalogName specifies the name of the uploaded catalog. This value is the user-visible name, not the file name of the catalog.

CatalogName has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| xml:lang  | Specifies the language used for the catalog name.  
| (required) | Language codes are defined in the XML 1.0 Specification (at [www.w3.org/TR/1998/REC-xml-19980210.html](http://www.w3.org/TR/1998/REC-xml-19980210.html)). In the most common case, this includes an ISO 639 Language Code and, optionally, an ISO 3166 Country Code separated by a hyphen.  
|           | The recommended cXML language code format is xx[-YY[-zzz]] where xx is an ISO 639 Language code, YY is an ISO 3166 Country Code, and zzz is an IANA or private subcode for the language in question. Again, use of the Country Code is always recommended. By convention, the language code is lowercase and the country code is uppercase. This is not required for correct matching of the codes. |
Description

Description briefly describes the catalog contents. Buying organizations can search and view this information.

Description has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xml:lang (required)</td>
<td>Specifies a language used for the catalog name. For more information, see the description of xml:lang for CatalogName, above.</td>
</tr>
<tr>
<td>type (required)</td>
<td>The qualifier of the description.</td>
</tr>
</tbody>
</table>

Attachment

Attachment specifies the URL of the attached catalog.

The Attachment element contains one URL element with the scheme “cid:”.

For more information about attachments, see Attaching Your Catalog [page 415].

Commodities

Commodities specifies the top-level commodity codes for the items in your catalog. Buying organizations use these codes to search for new catalogs.

The Commodities element contains one or more CommodityCode elements.

Use two-digit UNSPSC (United Nations Standard Products and Services Code) segment codes.

For a list of UNSPSC segment codes, go to the UNSPSC website at www.unspsc.org.

AutoPublish

AutoPublish automatically publishes the catalog to buyers after upload.

You can automatically publish only if both of the following requirements are met:

1. A previous version of the catalog exists in your account and you are performing an update operation.
2. The previous version is in the “published” state. It must have been published private (with a list of buyers) or public.
**AutoPublish** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| enabled       | Specifies whether to automatically publish the catalog. Possible values:  
| (required)    |  
|               | - true—Publishes the catalog. It must be an update to a previously published catalog.  
|               | - false—Does not publish the catalog. You can log on to your account and manually publish the catalog. |

**Notification**

Notification sends catalog-status notifications through email or cXML POST. For examples of these messages, see [Receiving Later Catalog Status][1].

Notification contains either one **Email** element or one **URLPost** element, or both elements.

**Email** specifies the mailbox to the network hub emails status messages. You can use only one **Email** element, and it can contain only one email address.

**URLPost** specifies whether the network hub sends catalog status messages as cXML **StatusUpdateRequest** documents.

The URL destination of the **StatusUpdateRequest** is determined by your website’s response to the **ProfileRequest** transaction. See [Profile Transaction][2].

**URLPost** has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| enabled       | Specifies whether the network sends catalog-status notifications through **StatusUpdateRequest**. Possible values:  
| (required)    |  
|               | - true—Enables this feature.  
|               | - false—Disables this feature. |

### 16.4.1.1 Attaching Your Catalog

Send your catalog attached to the **CatalogUploadRequest** document. Large catalogs must be zipped to compress them before uploading.

**Using a MIME envelope**

Include the catalog file in the **CatalogUpdateRequest** as a MIME (Multipurpose Internet Mail Extensions) attachment. cXML contains only references to external MIME parts sent within one multipart MIME envelope.

[1]: #Receiving-Later-Catalog-Status
[2]: #Profile-Transaction
The referenced catalog file must reside within a multipart MIME envelope with the cXML document. A cXML requirement for this envelope (over the basics described in RFC 2046 “Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types”) is the inclusion of Content-ID headers with the attached file.

**Note**
The cXML specification allows attachments to reside outside of the MIME envelope, but the Catalog Upload transaction does not support that attachment method.

The Attachment element contains only a reference to the external MIME part of the attachment. Attachment contains a single URL with the scheme “cid:”.

Catalog files can be zipped to compress them.

**Related Information**

Attachment [page 119]

### 16.4.2 Response

After you send a CatalogUploadRequest, the network hub replies with a standard cXML Response document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<XML payloadID="980306507433-6714998277961341012@10.10.83.39" timestamp="2001-01-23T19:21:47-08:00">
  <Response>
    <Status code="201" text="Accepted">The catalog upload request is processing</Status>
  </Response>
</cXML>
```

**Related Information**

Status [page 33]

### 16.4.2.1 Receiving Later Catalog Status

If you include the Notification element to request later catalog-status notification, the network sends a message when the catalog reaches its final status. The possible final catalog states are:

- **Validated**: The catalog contains no syntax errors.
• **BadZipFormat**: The zip format is incorrect.
• **HasErrors**: The catalog contains syntax errors, and it cannot be published.
• **Published**: The catalog has been published (private or public).

### 16.4.2.2 URLPost

The following example shows a `StatusUpdateRequest` notification sent by a network hub:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2001-01-23T18:39:44-08:00" payloadID="980303984882--3544419350291593786@10.10.83.39">
  <Header>
    <From>
      <Credential domain="NetworkID">
        <Identity>AN01000000001</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="DUNS">
        <Identity>123456789</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkID">
        <Identity>AN01000000001</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>ANValidator</UserAgent>
    </Sender>
  </Header>
  <Request>
    <StatusUpdateRequest>
      <DocumentReference payloadID="123456669131--1234567899555567890@10.10.83.39">
        <Status text="Success" code="200">
          Validated
        </Status>
      </DocumentReference>
    </StatusUpdateRequest>
  </Request>
</cXML>
```

The possible status codes are:

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 Success</td>
<td>The catalog-upload request succeeded.</td>
</tr>
<tr>
<td>463 Bad Catalog Format</td>
<td>The zip file is invalid.</td>
</tr>
<tr>
<td>470 Catalog Has Errors</td>
<td>The message is the status of the catalog. (HasErrors)</td>
</tr>
</tbody>
</table>
17 Get Pending/Data Download Transaction

Some organizations do not have an HTTP entry point for receiving cXML documents posted by entities outside of their corporate firewalls. The cXML get pending and data download transactions enables these organizations to poll for waiting documents and download them.

Introduction to Get Pending/Data Download Transaction [page 418]
GetPendingRequest [page 418]
GetPendingResponse [page 419]
DataRequest [page 422]
DataResponse [page 422]

17.1 Introduction to Get Pending/Data Download Transaction

Client systems use the get pending and data download transactions to pull documents at their convenience. The get pending transaction indicates whether there are waiting documents. If there are waiting documents, they either appear in the response, or the client retrieves them with the data download transaction.

Examples of documents that depend on this polling for transmission are:

- **SupplierChangeMessage** — Notifies buying organizations about changes to supplier data.
- **SubscriptionChangeMessage** — Notifies buying organizations about changes to supplier catalogs.
- **DataAvailableMessage** — Notifies any organization about waiting documents that can be retrieved using the data download transaction.

17.2 GetPendingRequest

This element pulls a set of messages that are waiting for the requester. The MessageType element and the lastReceivedTimestamp and maxMessages attributes control the type and count of the fetched documents.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lastReceivedTimestamp</td>
<td>The timestamp of the most recent document received.</td>
</tr>
<tr>
<td>maxMessages</td>
<td>Maximum number of documents in a single response that the requester can handle.</td>
</tr>
</tbody>
</table>

Upon receiving the request, the receiver returns the oldest documents, of the specified types, with timestamps equal to or later than the specified timestamp. If there are multiple documents meeting this criterion, they are
returned, subject to the \texttt{maxMessages} attribute. The queuing system discards all pending documents of the specified message types with timestamps earlier than the specified timestamp.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
cXML payloadID="1105574416.19583@hydra.buyer.com"
timestamp="2005-01-13T00:00:16+00:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN13000000259</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="SystemID">
        <Identity>ERP01</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN13000000259</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Our Buyer App 1.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <GetPendingRequest lastReceivedTimestamp="2005-03-12T18:39:09-08:00"
      maxMessages="5">
      <MessageType>SubscriptionChangedMessage</MessageType>
    </GetPendingRequest>
  </Request>
</cXML>
```

### 17.3 GetPendingResponse

The server returns a \texttt{Response} document in the same HTTP connection. If the \texttt{Response} contains no \texttt{GetPendingResponse} document, no documents are waiting. If it contains a \texttt{GetPendingResponse} document, there are documents waiting.

#### 17.3.1 No Documents Waiting

The following example indicates that there are no waiting documents of the requested message type:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
cXML payloadID="1105574420906--45126634000288275@10.10.13.125"
timestamp="2005-01-12T16:00:25-08:00">
  <Response>
    <Status code="200" text="OK"/>
  </Response>
</cXML>
```
17.3.2 Documents Waiting

If there is a GetPendingResponse document, there are documents waiting. The GetPendingResponse document can contain waiting documents in-line or contain a DataAvailableMessage element that refers to waiting documents.

17.3.2.1 Documents In-Line

The server can send waiting document in-line in the GetPendingResponse document, in which case the client does not need to use the data download transaction.

The following example contains a waiting SubscriptionChangeMessage document:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2005-01-12T16:00:25-08:00" payloadID="1105574420906--451266344000288275@10.10.13.125">
  <Response>
    <Status code="200" text="OK="/>
    <GetPendingResponse>
      <cXML xml:lang="en-US" payloadID="456778@hub.com" timestamp="2005-01-12T16:00:25-08:00">
        <Header>
          <From>
            <Credential domain="NetworkId">
              <Identity>AN0100000001</Identity>
            </Credential>
          </From>
          <To>
            <Credential domain="NetworkId">
              <Identity>AN13000000259</Identity>
            </Credential>
          </To>
          <Sender>
            <Credential domain="NetworkId">
              <Identity>AN0100000001</Identity>
            </Credential>
            <UserAgent>Network Hub 2.0</UserAgent>
          </Sender>
        </Header>
        <Message>
          <SubscriptionChangeMessage type="new">
            <Subscription>
              <InternalID>1234</InternalID>
              <Name xml:lang="en-US">Q2 Prices</Name>
              <Changetime>2002-03-12T18:39:09-08:00</Changetime>
              <SupplierID domain="DUNS">123456789</SupplierID>
              <Format version="2.1">CIF</Format>
            </Subscription>
          </SubscriptionChangeMessage>
        </Message>
      </cXML>
    </GetPendingResponse>
  </Response>
</cXML>
```
17.3.2.2 Documents Referenced through DataAvailableMessage

GetPendingResponse documents can refer to waiting documents with a DataAvailableMessage element, instead of including them in-line. This element contains an internal identifier, which the client uses to retrieve the documents. The client uses the data download transaction, which transports documents as Multipurpose Internet Mail Extensions (MIME) attachments, not embedded in cXML documents.

There are several reasons why servers might use the MIME attachment method used by the data download transaction instead of the in-line method used by the GetPendingResponse document:

- MIME can transport documents that use different DTDs or DTD versions than the GetPendingResponse document.
- MIME attachments are simpler to process than nested documents with multiple parent and child elements.
- MIME is better for large documents, which transport as separate files, rather than one very large document.

The following example contains a DataAvailableMessage element, which indicates that there documents waiting for retrieval through the data download transaction.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML>
  <Response>
    <GetPendingResponse>
      <DataAvailableMessage>
        <InternalID domain="PendingMessages">3738</InternalID>
      </DataAvailableMessage>
    </GetPendingResponse>
  </Response>
</cXML>
```
The `DataAvailableMessage` element contains an internal ID, which corresponds to one or more documents waiting for download. Use the data download transaction to retrieve them.

### 17.4 DataRequest

After you obtain a `DataAvailableMessage`, use its internal ID value to download the waiting documents by sending a cXML `DataRequest` document. For example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="1105574421.19583@hydra.buyer.com" timestamp="2005-01-13T00:00:21+00:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN13000000259</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN01000000001</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN13000000259</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Our Buyer App 1.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <DataRequest>
      <InternalID domain="PendingMessages">3738</InternalID>
    </DataRequest>
  </Request>
</cXML>
```

### 17.5 DataResponse

The server responds with a cXML `DataResponse` document and the requested documents together in a MIME envelope in the same HTTP connection. The `Content-Type` HTTP header defines the MIME boundary.

The following `DataResponse` document has one `StatusUpdateRequest` document attached.

```plaintext
Content-Type: multipart/mixed; boundary="-----_Part_0_10550230.1105574425445"

```

---

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Get Pending/Data Download Transaction
For more information on MIME attachments, see Attachments [page 21].

You do not need to authenticate documents downloaded through the data download transaction if they come from a trusted source.
18 Provider PunchOut Transaction

Provider PunchOut enables applications to punch out to a remote application that supplies some service to the originating application, such as credit card validation, single login, or self registration.

Message Flow [page 424]
ProviderSetupRequest Document [page 425]
ProviderSetupResponse Document [page 428]
ProviderDoneMessage Document [page 430]

18.1 Message Flow

cXML documents provide a means for the originator and the provider to communicate during Provider PunchOut. These cXML documents are ProviderSetupRequest, ProviderSetupResponse, and ProviderDoneMessage and are tailored specifically to handle the interaction between an originating application and a service provider. They pass details such as what service is to be provided, session information, the return URL of the originator, and status or followup information.

The order of cXML message flow in the Provider PunchOut transaction is shown in the following diagram.

1. Provider Setup Request

Figure 16: Provider PunchOut Transaction Message Flow

To initiate a Provider PunchOut, the originating application sends a ProviderSetupRequest document to the provider. This document includes credential information for the user and the user’s organization, the return URL, and the service requested from the provider. To acknowledge the request, the provider sends a ProviderSetupResponse document to the originating application and includes a URL for the start page indicating where the user should be redirected. When the user has finished, the provider sends a ProviderDoneMessage document back to the originating application, indicating that the user has completed their session at the provider’s site.
18.2 ProviderSetupRequest Document

The ProviderSetupRequest document initiates a Provider PunchOut transaction and passes several items of information to the provider, including information about the member organization and user, the return URL, and which service is being requested.

The document contains two sections, one specified by a Header element, the other by a Request element. The Header contains credential information about the user and the requesting organization and the Request contains the actual ProviderSetupRequest element that contains information needed to initiate the Provider PunchOut.

18.2.1 Header

The Header portion of the document contains addressing and authentication information. The following sample is the header portion taken from a ProviderSetupRequest document. The UserAgent element contains the digital signature of the provider, a string that corresponds to the application and the version making the request. For example, “www.triton.com” or “Procurement Application 7.0.” The two parties must agree on a common certificate format and authority.

```
<Header>
  <From>
    <!-- Triton Bank -->
    <Credential domain="NetworkId" type="marketplace">
      <Identity>AN01000001709</Identity>
    </Credential>
    <Credential domain="triton.com">
      <Identity>9999</Identity>
    </Credential>
  </From>
  <To>
    <!-- Marketplace -->
    <Credential domain="NetworkId">
      <Identity>AN01000000003</Identity>
    </Credential>
  </To>
  <Sender>
    <!-- Triton Bank -->
    <Credential domain="NetworkId">
      <Identity>AN01000001709</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>www.triton.com</UserAgent>
  </Sender>
</Header>
```

Because the Header element is similar for each message type, see Header [page 29] for specifics on how to construct this portion of the message.

18.2.2 Request

The Request portion of the document contains a ProviderSetupRequest, which has several items of information about the transaction from the originator, including a cookie to track the session for the originator.
a return URL, what service is being requested from the provider, and other information contingent upon the
type of service and the provider.

```
<Request>
  <ProviderSetupRequest>
    <OriginatorCookie>iTRk9bG49EJOGhJC</OriginatorCookie>
    <BrowserFormPost>
      <URL>https://www.triton.com/providerdone.asp</URL>
    </BrowserFormPost>
    <SelectedService>signin</SelectedService>
    <Extrinsic name="Brand">Triton</Extrinsic>
    <Extrinsic name="User">
      <Identity>0001</Identity>
      <Extrinsic name="QueryString">req=R532&login=gtou</Extrinsic>
    </Extrinsic>
  </ProviderSetupRequest>
</Request>
```

The following table provides guidelines for the structure of the request section of the Provider PunchOut message.

<table>
<thead>
<tr>
<th>Element</th>
<th>Instances</th>
<th>Parent Elements</th>
<th>Child Elements</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProviderSetupRequest</td>
<td>1</td>
<td>Request</td>
<td>OriginatorCookie, BrowserFormPost, SelectedService, Extrinsic</td>
<td>None</td>
</tr>
<tr>
<td>OriginatorCookie</td>
<td>1</td>
<td>ProviderSetupRequest, ProviderDoneMessage</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>BrowserFormPost</td>
<td>0 or 1</td>
<td>ProviderSetupRequest</td>
<td>URL</td>
<td>None</td>
</tr>
<tr>
<td>URL</td>
<td>0 or 1</td>
<td>BrowserFormPost, Followup</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>SelectedService</td>
<td>1</td>
<td>ProviderSetupRequest</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Any</td>
<td>ProviderSetupRequest</td>
<td>Varies</td>
<td>name</td>
</tr>
</tbody>
</table>

The elements in the header section are:

### 18.2.2.1 Request

Contains a request to initiate a Provider PunchOut transaction, and in this case contains a ProviderSetupRequest element.

### 18.2.2.2 ProviderSetupRequest

A request from an originating application to a provider to initiate a transaction.
18.2.2.3 **OriginatorCookie**

OriginatorCookie is tied to the user’s session on the requestor’s site and is returned to the requestor later with the ProviderDoneMessage. This implements a one-time key allowing the user to return to the same session on the originating application.

18.2.2.4 **BrowserFormPost URL**

The originating application provides the BrowserFormPost location so that the provider can display a “Done” button, and provide information, such as a Status, at the end of the interactive session. Inclusion should lead to a ProviderDoneMessage document being sent from the provider at the end of each session. URL contains the location on the requestor’s site to return the user when they have finished at the provider site.

18.2.2.5 **SelectedService**

Identifies the service requested by the originating application and offered by the provider.

18.2.2.6 **Extrinsic**

The extrinsics for the Provider PunchOut depend upon what service the provider supplies. Please see specific documentation for your specific ProviderSetupRequest.

**Note**

XML content, elements, and their attributes must be defined in the cXML DTD or XML escaped.

18.2.3 **Sample**

To demonstrate a typical ProviderSetupRequest document, the following is a request from a marketplace member named Triton Bank, to a marketplace.

```xml
<cXML timestamp="2000-07-11T15:03:14-07:00"
payloadID="963352994214--8721789825238347285@10.10.83.151">
  <Header>
    <From>
      <Credential domain="NetworkId" type="marketplace">
        <Identity>AN01000001709</Identity>
      </Credential>
      <Credential domain="triton.com">
        <Identity>9999</Identity>
      </Credential>
    </From>
  </Header>
  <To>
  </To>
</cXML>
```
18.3 ProviderSetupResponse Document

The ProviderSetupResponse document notifies the originating application of the results of the request. Status and start page information is included.

The following table provides guidelines for the structure of the ProviderSetupResponse document of the Provider PunchOut transaction.

<table>
<thead>
<tr>
<th>Element</th>
<th>Instances</th>
<th>Parent Elements</th>
<th>Child Elements</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>1</td>
<td>cXML</td>
<td>Status, ProviderSetupResponse</td>
<td>None</td>
</tr>
<tr>
<td>Status</td>
<td>1</td>
<td>Response</td>
<td>None</td>
<td>code, text</td>
</tr>
<tr>
<td>ProviderSetupResponse</td>
<td>1</td>
<td>Response</td>
<td>StartPage</td>
<td>None</td>
</tr>
</tbody>
</table>
### 18.3.1 Response

Contains the **Status** and **ProviderSetupResponse** elements.

### 18.3.2 Status

Provides information on the success or failure of the provider request. The content of the **Status** element can be any data needed by the requestor and can describe the error in more detail. **Status** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>The status code of the request. This follows the HTTP status code model. For example, 200 represents a successful request.</td>
</tr>
<tr>
<td>text</td>
<td>The text of the status message. This text aids user readability in logs, and it consists of canonical strings in English.</td>
</tr>
<tr>
<td>xml:lang</td>
<td>Specifies a language used for the provider request. See Locale Specified by xml:lang [page 26].</td>
</tr>
</tbody>
</table>

For a 200/OK status code, there might be no data. However, for a 500/Internal Server Error status code, it is strongly recommended that the actual XML parse error or application error be presented. This error allows better one-sided debugging and inter-operability testing.

The provider should not include the **ProviderSetupResponse** element unless the status code is in the 200 range. See **Status** [page 33] for a list of all possible status code values.

### 18.3.3 ProviderSetupResponse

If the request was successful, the **ProviderSetupResponse** element is included in the response document and contains the **StartPage** and **URL** elements which indicate where the user should be redirected.

### 18.3.4 StartPage URL

This element contains a **URL** element that specifies the URL to pass to the browser to initiate the Provider PunchOut browsing session requested in the **ProviderSetupRequest** element. This URL must contain enough state information to bind to a session context on the provider website.
18.3.5 Sample

The following ProviderSetupResponse document is in reply to Triton Bank from a provider from the previous ProviderSetupRequest section.

```xml
<ProviderSetupResponse>
  <StartPage>
    <URL>http://sun@marketplace.com/enter?23423SDFSDF23</URL>
  </StartPage>
</ProviderSetupResponse>
```

18.4 ProviderDoneMessage Document

The ProviderDoneMessage document contains any information the originating application must know about the completed operation at the provider site.

18.4.1 Header

The ProviderDoneMessage Header section is similar to the header sections in the Request and Response messages; however, because this message is sent with a Form Post, you should not include a SharedSecret in the Sender element. The UserAgent element contains the digital signature of the provider. The two parties must agree on a common certificate format and authority.

```xml
<Header>
  <From>
    <Credential domain="NetworkId">
      <Identity>AN01000000003</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain="NetworkId">
      <Identity>AN01000001709</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain="NetworkId">
      <Identity>AN01000000003</Identity>
    </Credential>
    <UserAgent>Purchase</UserAgent>
  </Sender>
</Header>
```

Because the Header element is similar for each message type, see Header [page 29] for the specifics on how to construct this portion of the message.
18.4.2 Message

The Message portion of the document contains the ProviderDoneMessage element, which contains any information requested by the originating application, and information to return to the user to their session at the originating application’s site.

```xml
<Message>
  <Status code="200" text="OK"/>
  <ProviderDoneMessage>
    <OriginatorCookie>c546794949</OriginatorCookie>
    <ReturnData name="method">
      <ReturnValue>Triton.transact</ReturnValue>
      <Name xml:lang="en-US">Triton OM transact</Name>
    </ReturnData>
  </ProviderDoneMessage>
</Message>
```

The following table details guidelines for the structure of the message section of the ProviderDoneMessage document.

<table>
<thead>
<tr>
<th>Element</th>
<th>Instances</th>
<th>Parent Elements</th>
<th>Child Elements</th>
<th>Attributes</th>
</tr>
</thead>
</table>
| Message                | 1         | None            | Status,
ProviderDoneMessage | None       |
| Status                 | 1         | Message         | None           | text, code |
| ProviderDoneMessage    | 1         | Message         | OriginatorCookie,
ReturnData,
ReturnValue,
Name | None       |
| OriginatorCookie       | 1         | ProviderDoneMessage | None           | None       |
| ReturnData             | Any       | ProviderDoneMessage | ReturnValue,
Name | name       |
| ReturnValue            | 1         | ProviderSetupRequest | None           | None       |
| Name                   | 1         | BrowserFormPost,
Followup | None           | xml:lang     |

The elements in the message section are:

18.4.3 OriginatorCookie

The same element that was passed in the original ProviderSetupRequest document. It must be returned here to allow the requesting application to match the ProviderDoneMessage document with an earlier ProviderSetupRequest document and return the user to the correct session.
18.4.4 ReturnData

Contains any information the originator must know about the completed operation at the provider site. The name attribute identifies the type (domain) of the ReturnData to the requestor.

18.4.5 ReturnValue

A value that is used by the originating application. This value depends on what service the provider supplies.

18.4.5.1 Name

An identifier for the data returned. Provides a description for the contents of the ReturnData element.

When displaying values, keep in mind that Name and ReturnValue have similar semantics, but different uses in the originating application.

18.4.6 Sample

The provider sends the following ProviderDoneMessage document, which notifies the originating application, Triton Bank, that the user has finished with their session on the provider site.

```xml
<cXML timestamp="2000-07-11T13:28-07:00" payloadID="963353608827--3642656259900210849@10.10.83.151">
  <Header>
    <From>
      <!-- marketplace -->
      <Credential domain="NetworkId">
        <Identity>AN01000000003</Identity>
      </Credential>
    </From>
    <To>
      <!-- Triton bank -->
      <Credential domain="NetworkId">
        <Identity>AN01000001709</Identity>
      </Credential>
    </To>
    <Sender>
      <!-- marketplace -->
      <Credential domain="NetworkId">
        <Identity>AN01000000003</Identity>
      </Credential>
      <UserAgent>Purchase</UserAgent>
    </Sender>
  </Header>
  <Message>
    <Status code="200" text="OK"/>
    <ProviderDoneMessage>
      <OriginatorCookie>c546794949</OriginatorCookie>
      <ReturnData name="method">
        <ReturnValue>Triton.transact</ReturnValue>
      </ReturnData>
    </ProviderDoneMessage>
  </Message>
</cXML>
```
<Name xml:lang="en-US">Triton OM transact</Name>
</ReturnData>
</ProviderDoneMessage>
</Message>
</cXML>
19 Supply Chain Collaboration

cXML provides several document types that allow buyers to collaborate with suppliers in supply-chain tasks such as ordering, invoicing, shipping, quality notifications, and approval requests. The following subsections describe these cXML documents.

- **ProductActivityMessage** [page 434]
- **ComponentConsumptionRequest** [page 451]
- **ProductReplenishmentMessage** [page 457]
- **QualityNotificationRequest** [page 467]
- **QualityInspectionRequest** [page 490]
- **QualityInspectionResultRequest** [page 500]
- **QualityInspectionDecisionRequest** [page 507]
- **ApprovalRequest** [page 510]
- **SalesOrderRequest** [page 517]

### 19.1 ProductActivityMessage

The **ProductActivityMessage** element transmits inventory, consignment movement, and forecast information from the buyer’s ERP system. The buyer-provided inventory summary view includes the issued components to the supplier. The provided information represents a snapshot of the component inventory and forecast situation at a certain point in time. The consignment movement information represents the movement of material from the consignment inventory to the customer inventory.

The **ProductActivityMessage** element has the following structure:

```xml
<ProductActivityMessage>
  <ProductActivityHeader/>
  <ProductActivityDetails>
    <ItemID/> | <ResourceID/>
    <Description/>
    <Classification/>
    <SerialNumberInfo/>
    <ForecastDetails/>
    <LeadTime/>
    <PlannedAcceptanceDays/>
    <ManufacturerPartID/>
    <ReferenceDocumentInfo/>
    <Characteristic/>
    <Batch/>
    <Contact/>
    <UnitPrice/>
    <Inventory/>
    <ConsignmentInventory/>
    <TimeSeries/>
    <PlanningTimeSeries/>
</ProductActivityDetails>
</ProductActivityMessage>
```
ProductActivityDetails can include the Inventory element instead of the ConsignmentInventory element.

ProductActivityMessage has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>subcontractingIndicator</td>
<td>Indicates whether the data in the message is related to subcontracting (yes or no).</td>
</tr>
</tbody>
</table>

ProductActivityMessage has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProductActivityHeader</td>
<td>Contains the product activity message header. See ProductActivityHeader [page 438].</td>
</tr>
<tr>
<td>ProductActivityDetails</td>
<td>Represents a single component inventory, the product forecast details, or a consignment movement for that product. See ProductActivityDetails [page 439].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ProductActivityMessage element.</td>
</tr>
</tbody>
</table>

Here is an example of ProductActivityMessage used for a supplier-managed inventory process:

```xml
<Request deploymentMode="production">
  <ProductActivityMessage>
    <ProductActivityHeader creationDate="2014-11-10T22:00:00-08:00" messageID="inv_1001" processType = "SMI" />
    <ProductActivityDetails>
      <ItemID>
        <SupplierPartID>SII99825</SupplierPartID>
        <BuyerPartID>II99825</BuyerPartID>
      </ItemID>
      <Description xml:lang="en">Door Hinge</Description>
      <LeadTime>10</LeadTime>
      <PlannedAcceptanceDays>2</PlannedAcceptanceDays>
      <ManufacturerPartId>AX47834</ManufacturerPartId>
      <ReferenceDocumentInfo>
        <DocumentInfo documentID="550000101" documentType="PurchaseOrder"/>
        <DateInfo type="expectedDeliveryDate" date="2016-01-22T12:00:00-08:00"/>
      </ReferenceDocumentInfo>
      <Contact role="locationTo" addressID="35319">
        <Name xml:lang="en">Werk 0001</Name>
        <PostalAddress>
          <DeliverTo>Walldorf</DeliverTo>
          <Street>Hasso-Plattner-Ring 7</Street>
          <City>Walldorf</City>
          <Country isoCountryCode="DE">Germany</Country>
        </PostalAddress>
      </Contact>
    </ProductActivityDetails>
  </ProductActivityMessage>
</Request>
```
<IdReference identifier="0001" domain="locationTo">
  <Description xml:lang="en">Werk 0001</Description>
</IdReference>

<Contact>
  <Name xml:lang="en">PERSON 1</Name>
  <IdReference identifier="001" domain="BuyerPlannerCode">
    <Description xml:lang="en">PERSON 1</Description>
  </IdReference>
</Contact>

<UnitPrice>
  <Money currency="USD">31.20</Money>
</UnitPrice>

<TimeSeries type="orderForecast">
  <Forecast>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <ForecastQuantity quantity="110.0">
      <UnitOfMeasure>PCE</UnitOfMeasure>
    </ForecastQuantity>
  </Forecast>
</TimeSeries>

<PlanningTimeSeries type="supplyplan">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">
      <UnitOfMeasure>PCE</UnitOfMeasure>
    </TimeSeriesQuantity>
  </TimeSeriesDetails>
</PlanningTimeSeries>

<PlanningTimeSeries type="custom" customtype = "NARegionalForecast">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">
      <UnitOfMeasure>PCE</UnitOfMeasure>
    </TimeSeriesQuantity>
  </TimeSeriesDetails>
</PlanningTimeSeries>

<PlanningTimeSeries type="custom" customtype = "EMEARegionalForecast">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">
      <UnitOfMeasure>PCE</UnitOfMeasure>
    </TimeSeriesQuantity>
  </TimeSeriesDetails>
</PlanningTimeSeries>

<PlanningTimeSeries type="longtermforecast">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">
      <UnitOfMeasure>PCE</UnitOfMeasure>
    </TimeSeriesQuantity>
  </TimeSeriesDetails>
</PlanningTimeSeries>
Here is an example of ProductActivityMessage used for capacity planning:

```xml
<Request deploymentMode="production">
  <ProductActivityMessage>
    <ProductActivityHeader creationDate="2019-02-20T14:39:48-08:00" messageID="CP12465192-1552965424130" processType="Capacity"/>
    <ProductActivityDetails status="active">
      <ResourceId>
        <SupplierResourceID>SupResource1</SupplierResourceID>
        <ResourceType>SingleActivity</ResourceType>
        <InputItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </InputItemID>
        <OutputItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </OutputItemID>
      </ResourceId>
      <Description type="Assembly Line" xml:lang="EN"/>
      <Contact role="locationTo">
        <Name xml:lang="en">PA - Plant5</Name>
        <PostalAddress>
          <Street>3450 Hillview Ave</Street>
          <City>Palo Alto</City>
          <State>CA</State>
          <PostalCode>94304</PostalCode>
        </PostalAddress>
        <IdReference domain="locationTo" identifier="PL55">
          <Description xml:lang="en">PA - Plant5</Description>
        </IdReference>
      </Contact>
      <Contact role="BuyerPlannerCode">
        <Name xml:lang="EN">WERK</Name>
        <Email>werk@ariba.com</Email>
        <IdReference domain="BuyerPlannerCode" identifier="PLANN206">
          <Description xml:lang="en"> Lima Plant Planner6</Description>
        </IdReference>
      </Contact>
      <PlanningTimeSeries type="capacitydemand">
        <TimeSeriesDetails>
          <Period endDate="2019-02-18T00:00:00-07:00" startDate="2019-02-18T00:00:00-07:00"/>
          <TimeSeriesQuantity quantity="400">
            <UnitOfMeasure>EA</UnitOfMeasure>
          </TimeSeriesQuantity>
        </TimeSeriesDetails>
      </PlanningTimeSeries>
    </ProductActivityDetails>
  </ProductActivityMessage>
</Request>
```
19.1.1 ProductActivityHeader

ProductActivityHeader is the header element for the ProductActivityMessage. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>messageID</td>
<td>An identifier for this particular product activity message.</td>
</tr>
<tr>
<td>creationDate</td>
<td>The date and time this product activity message was created.</td>
</tr>
<tr>
<td>processType</td>
<td>Identifies the business process supported by the message. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• SMI—Supplier-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• OEM—OEM-owned inventory scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• VMI—Vendor-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• 3PL—Third-party logistics inventory scenarios (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• ManufacturingVisibility—Contract manufacturers sharing inventory visibility (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Forecast—Forecast collaboration (TimeSeries, PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Consignment—Consignment material movements (ConsignmentInventory, ConsignmentMovement).</td>
</tr>
<tr>
<td></td>
<td>• Sales—Sales report visibility (SalesReport).</td>
</tr>
<tr>
<td></td>
<td>• POC—Purchase order collaboration scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Capacity—Capacity planning scenarios (PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Other—Other collaboration scenarios.</td>
</tr>
</tbody>
</table>
### 19.1.2 ProductActivityDetails

The `ProductActivityDetails` element represents a single component inventory, the product forecast details, or a consignment movement for that product. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>status</td>
<td>Indicates whether the material used in the planning process is &quot;active&quot;, &quot;inactive&quot;, or &quot;deleted&quot;.</td>
</tr>
</tbody>
</table>

*ProductActivityDetails* has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
</table>
| ItemID|ResourceID (required) | - **ItemID**—A unique identification of a component item in the supplier backend system or buyer backend system. See [ItemID](#).  
  - **ResourceID**—A unique identification of a production facility leveraged during production, such as a piece of equipment or a production line. See [ResourceID](#). |
<p>| Description                  | Description of the component.                                               |
| Classification               | Groups items into similar categories. See [Classification](page 441).        |
| SerialNumberInfo             | Represents the required serial number information for a line item. For Component Inventory, the <code>SerialNumberInfo</code>@type must be &quot;list&quot; or &quot;range&quot;. See [SerialNumberInfo](page 172). |
| ForecastDetails              | Defines the start and end dates for the accumulation of the forecast for a part. See [ForecastDetails](page 442). |
| LeadTime                     | Lead time in days.                                                          |
| PlannedAcceptanceDays        | Number of days the buyer schedules for the inspection of goods after receiving them. |
| ManufacturerPartID           | ID that the item’s manufacturer uses to identify the item.                  |
| Characteristic               | Contains detailed information about an item that can be used across different industries. Can also be used to send material characteristics to support configurable material process. |
| Batch                        | Batch information of goods or material. The information includes ID and characteristics. See [Batch](page 179). |
| Contact                      | The location from and to the product activity that is taking place. See [Contact](page 442). |</p>
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitPrice</td>
<td>Price per unit of the item.</td>
</tr>
<tr>
<td>Inventory</td>
<td>Inventory that is in the possession of the buyer, and is owned and managed by the buyer. See Inventory [page 442].</td>
</tr>
<tr>
<td>ConsignmentInventory</td>
<td>Inventory that is in the possession of the buyer, but is owned by the supplier. See ConsignmentInventory [page 445].</td>
</tr>
<tr>
<td>TimeSeries</td>
<td>Represents a time series in the forecast data. See TimeSeries [page 445].</td>
</tr>
<tr>
<td>PlanningTimeSeries</td>
<td>Contains planning information from buyers ERP system to provide visibility of critical business information to suppliers and other partners. See PlanningTimeSeries [page 446].</td>
</tr>
<tr>
<td>InventoryTimeSeries</td>
<td>Provides inventory data in time intervals to support the transfer of projected stock, safety stock, and target stock levels generated by the buyer’s planning system. See InventoryTimeSeries [page 447].</td>
</tr>
<tr>
<td>ConsignmentMovement</td>
<td>Describes the consignment movement information for this product. See ConsignmentMovement [page 449].</td>
</tr>
<tr>
<td>SalesReport</td>
<td>Contains information about a sales report at the item level. See SalesReport [page 450].</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>The unit of measure for an inventory/forecast/consignment quantity at the item level. This applies to the entire item and is used as the default unit of measure for time series quantities.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ProductActivityDetails element.</td>
</tr>
</tbody>
</table>

**19.1.2.1 ResourceID**

Contains a unique identification of a production facility leveraged during production, such as a piece of equipment or a production line.

ResourceID has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SupplierResourceID</td>
<td>Uniquely identifies a plant, piece equipment or other production facilities leveraged by the supplier during production.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>ResourceType</td>
<td>Identifies the resource category the ResourceID belongs to.</td>
</tr>
<tr>
<td>InputItemID</td>
<td>Uniquely identifies materials consumed by a resource during production process. See InputItemID [page 441].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>OutputItemID</td>
<td>Uniquely identifies materials produced by a resource during production process. See OutputItemID [page 441].</td>
</tr>
<tr>
<td>IdReference</td>
<td>Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier).</td>
</tr>
</tbody>
</table>

### 19.1.2.1.1 InputItemID

Uniquely identifies materials consumed by a resource during the production process.

InputItemID has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Provides unique identification of an item.</td>
</tr>
</tbody>
</table>

### 19.1.2.1.2 OutputItemID

Uniquely identifies materials produced by a resource during the production process.

OutputItemID has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Provides unique identification of an item.</td>
</tr>
</tbody>
</table>

### 19.1.2.2 Classification

Groups items into similar categories. Typically lists the UNSPSC (United Nations Standard Products and Services Code) commodity code for each selected item. These codes are used by backend systems within buyer and supplier organizations for accounting and report generation. For the list of UNSPSC codes, see www.unspsc.org.

Classification@domain can also be used to specify product hierarchy and commodity information used by a backend system. For instance, the following domain values are supported by SAP ERP:

- MaterialGroup
- LineOfBusiness
- ProductFamily
- ProductSubFamily
- InternalProgramCode
Classification has an optional code attribute, which identifies the commodity by its designated code.

### 19.1.2.3 ForecastDetails

The ForecastDetails element defines the start and end dates for the accumulation of the forecast for a part. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cumulativeStartDate</td>
<td>The start date at which the cumulative values for forecast and commit will be calculated. If not provided, the accumulation of the forecast for a part will start on the earliest date for which there is forecast data.</td>
</tr>
<tr>
<td>cumulativeEndDate</td>
<td>The end date till which the cumulative values for forecast and commit will be calculated.</td>
</tr>
</tbody>
</table>

### 19.1.2.4 Contact

The location from and to the product activity that is taking place. See Contact [page 117].

The only Contact roles appropriate for this element are "locationFrom" and "locationTo":

- "locationFrom" can be used by the supplier system to determine the buyer notified ERP vendor ID or vendor location.
- "locationTo" can be used by the supplier system to determine the location of the buyer where the product demand originates.

The IdReference should have a domain attribute set to "buyerLocationID", "supplierLocationID", or "storageLocation", and it should have an identifier attribute set to the plant ID. The Description element should contain the plant description.

The following example shows a Contact element for ProductActivityDetails:

```xml
<Contact role="locationFrom">
    <Name xml:lang="en">Stanford</Name>
    <IdReference domain="buyerLocationID" identifier="0003">
        <Description xml:lang="en">Stanford</Description>
    </IdReference>
</Contact>
```

### 19.1.2.5 Inventory

Inventory that is in the possession of the buyer, and is owned and managed by the buyer.
Inventory has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SubcontractingStock-InTransferQuantity</td>
<td>The quantity of inventory of stock that has been transferred to a vendor of type subcontracting using a special movement type. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>UnrestrictedUseQuantity</td>
<td>The quantity of inventory that is unrestricted stock, which is the physical stock that is always available at a plant/storage location that can be consumed for stock movements and available for material requirements planning. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>BlockedQuantity</td>
<td>The quantity of inventory that is blocked stock, which is not counted as unrestricted stock. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>QualityInspectionQuantity</td>
<td>The quantity of inventory that is under quality inspection. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>PromotionQuantity</td>
<td>The quantity of inventory that is reserved for promotions. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>StockInTransferQuantity</td>
<td>The quantity of inventory that is moving between plants or from one company code to another. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>IncrementQuantity</td>
<td>The quantity used to increment (add to) stock. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>RequiredMinimumQuantity</td>
<td>Minimum stock level at which the stock must be maintained. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>RequiredMaximumQuantity</td>
<td>Maximum stock level at which the stock must be maintained. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>StockOnHandQuantity</td>
<td>The calculated value of different Stock types dependent on the customer, location, and material. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>WorkInProcessQuantity</td>
<td>Inventory that has begun the manufacturing process and is no longer included in raw materials inventory, but is not yet a completed product. On a balance sheet, work in progress (WIP) is considered to be an asset because money has been spent towards a completed product. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
<tr>
<td>IntransitQuantity</td>
<td>The stock in transit is the quantity of a material that was withdrawn from the stock of the issuing plant but has not yet arrived at the receiving plant. This element has a quantity attribute and a UnitOfMeasure element.</td>
</tr>
</tbody>
</table>
### Element Description

| **ScrapQuantity** | The quantity represents the Scrap of a material that is expected to occur during production if the material is a component. This element has a `quantity` attribute and a `UnitOfMeasure` element. |
| **OrderQuantity** | Specifies the quantity range the customer must order. The trading partners are alerted if the order quantity is not within the required quantity range during order entry. This element has `minimum` and `maximum` attributes and a `UnitOfMeasure` element. |
| **DaysOfSupply** | Specifies how long stocks and receipts will cover the requirements, to avoid product shortages or stock levels that are too high. This element has `minimum` and `maximum` attributes. The system issues replenishment proposals when the days of supply falls above or below the threshold. |

Here is an example of `Inventory`:

```xml
<Inventory>
  <UnrestrictedUseQuantity quantity="200">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </UnrestrictedUseQuantity>
  <BlockedQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </BlockedQuantity>
  <QualityInspectionQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </QualityInspectionQuantity>
  <StockInTransferQuantity quantity="50">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </StockInTransferQuantity>
  <RequiredMinimumQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </RequiredMinimumQuantity>
  <RequiredMaximumQuantity quantity="2000">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </RequiredMaximumQuantity>
  <StockOnHandQuantity quantity="200">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </StockOnHandQuantity>
  <WorkInProcessQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </WorkInProcessQuantity>
  <IntransitQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </IntransitQuantity>
  <ScrapQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </ScrapQuantity>
  <OrderQuantity minimum="10">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </OrderQuantity>
  <DaysOfSupply minimum="1" maximum="3"/>
</Inventory>
```
19.1.2.6 ConsignmentInventory

Inventory that is in the possession of the buyer, but is owned by the supplier. ConsignmentInventory has the following elements:

- SubcontractingStockInTransferQuantity
- UnrestrictedUseQuantity
- BlockedQuantity
- QualityInspectionQuantity
- PromotionQuantity
- StockInTransferQuantity
- IncrementQuantity
- RequiredMinimumQuantity
- RequiredMaximumQuantity

19.1.2.7 TimeSeries

The TimeSeries element represents a time series in the forecast data. It has a type attribute. Possible type values are "demand" or "orderForecast".

TimeSeries has a single element, Forecast.

19.1.2.7.1 Forecast

The Forecast element represents the forecast quantity of a product for a specific time period. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (required)</td>
<td>Defines a start date and end date for the forecast period.</td>
</tr>
<tr>
<td>ForecastQuantity (required)</td>
<td>Forecast quantity.</td>
</tr>
<tr>
<td>UnitPrice</td>
<td>Price per unit of the forecast quantity.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
19.1.2.8 PlanningTimeSeries

Contains planning information from buyers ERP system to provide visibility of critical business information to suppliers and other partners.

PlanningTimeSeries has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| type        | A string value to identify the type time series. Possible values are:  
  - grossdemand—Quantity that is considered as demand without taking inventory and receipts into consideration.  
  - netdemand—Quantity determined based on available inventory and receipts derived based on planning output.  
  - supplyPlan—Quantity derived to meet the demand based on supply planning.  
  - longtermforecast—Forecast quantity derived based on historical trends.  
  - constrainedforecast—Unconstrained forecast when limited by supply constraints results in constrained forecast.  
  - capacitydemand—Quantity of production output that is requested from a specific resource.  
  - custom—Buyer specific business values could be represented by the customType string. |
| customType  | String to include buyer-defined custom types, for example, "NARegionalForecast".                                                             |

PlanningTimeSeries has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TimeSeriesDetails</td>
<td>Contains product replenishment information regarding the quantity of a product for a specific time period. See TimeSeriesDetails [page 466].</td>
</tr>
</tbody>
</table>

The following example shows PlanningTimeSeries elements:

```xml
<PlanningTimeSeries type="supplyplan">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">PCE</UnitOfMeasure>
  </TimeSeriesDetails>
</InventoryTimeSeries>

<PlanningTimeSeries type ="custom" customType = "NARegionalForecast">
  <TimeSeriesDetails>
    <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
    <TimeSeriesQuantity quantity="110.0">PCE</UnitOfMeasure>
  </TimeSeriesDetails>
</InventoryTimeSeries>
```
19.1.2.9 InventoryTimeSeries

InventoryTimeSeries provides inventory data in time intervals to support the transfer of projected stock, safety stock, and target stock levels generated by the buyer's planning system. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type (required)</td>
<td>Type of inventory. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● targetStock—Quantity required to meet the demand, based on customer service levels.</td>
</tr>
<tr>
<td></td>
<td>● projectedStock—Calculated stock quantity that reflects the demand and supply stock balance.</td>
</tr>
<tr>
<td></td>
<td>● safetyStock—Quantity of stock required to mitigate risk of stockouts.</td>
</tr>
<tr>
<td></td>
<td>● minimumStock—Required minimum quantity of stock supplier must maintain in a given time period.</td>
</tr>
<tr>
<td></td>
<td>● maximumStock—Required maximum quantity of stock supplier must maintain in a given time period.</td>
</tr>
</tbody>
</table>
InventoryTimeSeries has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TimeSeriesDetails</td>
<td>Contains product replenishment information regarding the quantity of a product for a specific time period. See TimeSeriesDetails [page 466].</td>
</tr>
</tbody>
</table>

The following example shows InventoryTimeSeries used with ProductActivityDetails:

```xml
<ProductActivityDetails>
  <ItemID>
    <SupplierPartID>SII99825</SupplierPartID>
    <BuyerPartID>II99825</BuyerPartID>
  </ItemID>
  <Description xml:lang="en">Door Hinge</Description>
  <LeadTime>1</LeadTime>
  <Contact role="locationTo" addressID="35319">
    <Name xml:lang="en">Werk 0001</Name>
    <PostalAddress>
      <DeliverTo>Walldorf</DeliverTo>
      <Street>Hasso-Plattner-Ring 7</Street>
      <City>Walldorf</City>
      <Country isoCountryCode="DE">Germany</Country>
    </PostalAddress>
    <IdReference identifier="0001" domain="locationTo">
      <Description xml:lang="en">Werk 0001</Description>
    </IdReference>
  </Contact>
  <Contact role="BuyerPlannerCode">
    <Name xml:lang="en">PERSON 1</Name>
    <IdReference identifier="001" domain="BuyerPlannerCode">
      <Description xml:lang="en">PERSON 1</Description>
    </IdReference>
  </Contact>
  <TimeSeries type="orderForecast">
    <Forecast>
      <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
      <ForecastQuantity quantity="110.0" unitOfMeasure="PCE"/>
    </Forecast>
  </TimeSeries>
  <InventoryTimeSeries type="projectedStock">
    <TimeSeriesDetails>
      <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
      <TimeSeriesQuantity quantity="110.0" unitOfMeasure="PCE"/>
    </TimeSeriesDetails>
  </InventoryTimeSeries>
  <InventoryTimeSeries type="targetStock">
    <TimeSeriesDetails>
      <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
      <TimeSeriesQuantity quantity="110.0" unitOfMeasure="PCE"/>
    </TimeSeriesDetails>
  </InventoryTimeSeries>
  <InventoryTimeSeries type="safetyStock">
    <TimeSeriesDetails>
      <Period startDate="2015-07-20T00:00:00+02:00" endDate="2015-07-20T23:59:59+02:00"/>
      <TimeSeriesQuantity quantity="110.0" unitOfMeasure="PCE"/>
    </TimeSeriesDetails>
  </InventoryTimeSeries>
</ProductActivityDetails>
```
19.1.2.10 ConsignmentMovement

The consignment movement information for this product. ConsignmentMovement has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProductMovementItemIDInfo</td>
<td>A reference to the line item in a movement document.</td>
</tr>
<tr>
<td>InvoiceItemIDInfo</td>
<td>Line item of an invoice created by the buyer against the movement item.</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Contains details of a referenced document in the consignment procure-</td>
</tr>
<tr>
<td></td>
<td>ment process such as a purchase order, scheduling agreement, ship notice,</td>
</tr>
<tr>
<td></td>
<td>and receipt. See ReferenceDocumentInfo [page 128].</td>
</tr>
<tr>
<td>MovementQuantity</td>
<td>Quantity moved in a consignment movement.</td>
</tr>
</tbody>
</table>
### Cost of Goods Sold

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SubtotalAmount</td>
<td>Invoice subtotal of the current item.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>UnitPrice</td>
<td>The price on which the charges are applied.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this consignment movement.</td>
</tr>
</tbody>
</table>

The following example shows a ConsignmentMovement element:

```xml
<ConsignmentMovement>
  <ProductMovementItemIDInfo
    movementLineNumber="1"
    movementID="MADOC421304_r"
    movementDate="2016-06-01T11:00:00-08:00"/>
  <ReferenceDocumentInfo>
    <DocumentInfo documentID="TESTPH" documentType="ShipNotice"/>
  </ReferenceDocumentInfo>
  <MovementQuantity quantity="20">
    <UnitOfMeasure>EA</UnitOfMeasure>
  </MovemtQuantity>
  <SubtotalAmount>
    <Money currency="EUR">240</Money>
  </SubtotalAmount>
  <UnitPrice>
    <Money currency="EUR">12</Money>
  </UnitPrice>
  <Extrinsic name="BuyerVAT">MNN89U60F970B</Extrinsic>
</ConsignmentMovement>
```

### 19.1.2.11 SalesReport

Contains information about a sales report at the item level.

**SalesReport** has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>salesDate</td>
<td>Date of the sale.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>Line number of the item in the sales report. (required)</td>
</tr>
</tbody>
</table>

**SalesReport** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Item sales start and end date.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>SalesQuantity</td>
<td>The quantity of an item that was sold.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>ReturnQuantity</td>
<td>The quantity of an item that was returned.</td>
</tr>
</tbody>
</table>
Here is an example of a ProductActivityMessage containing a SalesReport:

```xml
<ProductActivityMessage subcontractingIndicator="yes">
  <ProductActivityHeader messageID="DS_inv_001_PO"
    creationDate="2015-12-31T22:00:00-08:00">
    ...</ProductActivityHeader>
  <ProductActivityDetails>
    <ItemID>
      <SupplierPartID>DS_AX4518_PO</SupplierPartID>
      <BuyerPartID>DS_BPID3453_PO</BuyerPartID>
      <IdReference domain="" identifier="">
        <Creator xml:lang="EN">Creator</Creator>
        <Description type="VALVE CHECK-S30AI-D" xml:lang="EN"/>
      </IdReference>
    </ItemID>
    ...<SalesReport salesDate="20150923" lineNumber="2">
      <Period startDate="20150921" endDate="20150929" />
      <SalesQuantity quantity="10">
        <UnitOfMeasure>UOM</UnitOfMeasure>
      </SalesQuantity>
      <ReturnQuantity quantity="5">
        <UnitOfMeasure>UOM</UnitOfMeasure>
      </ReturnQuantity>
      <Total>
        <Money currency = "USD">20,000.00000</Money>
      </Total>
      <PromotionVariantID>0001-1112</PromotionVariantID>
      <Comments type="Comments1" xml:lang="en">Text 1</Comments>
      <Comments type="Comments2" xml:lang="en">Text 2</Comments>
    </SalesReport>
  </ProductActivityDetails>
</ProductActivityMessage>
```

### 19.2 ComponentConsumptionRequest

A ComponentConsumptionRequest is data sent by a supplier to the buyer to report the consumption of components during the manufacturing of an ordered item.

The ComponentConsumptionRequest element has the following structure:

```xml
<ComponentConsumptionRequest>
  <ComponentConsumptionHeader/>
  <ComponentConsumptionPortion>
    <OrderReference/>
    <MasterAgreementReference/> | <MasterAgreementIDInfo/>
    <ComponentConsumptionItem/>
    <Extrinsic/>
  </ComponentConsumptionPortion>
</ComponentConsumptionRequest>
```
ComponentConsumptionRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ComponentConsumptionHeader</td>
<td>Contains information about this component consumption that is common to all contained portions. See ComponentConsumptionHeader [page 452].</td>
</tr>
<tr>
<td>ComponentConsumptionPortion</td>
<td>Contains details of all component consumptions for a particular order or scheduling agreement. See ComponentConsumptionPortion [page 453].</td>
</tr>
</tbody>
</table>

19.2.1 ComponentConsumptionHeader

ComponentConsumptionHeader contains information about this component consumption that is common to all contained portions. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>consumptionID</td>
<td>An identifier for this particular component consumption document.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>operation</td>
<td>The operational mode of component consumption document. Defaults to &quot;new&quot;.</td>
</tr>
<tr>
<td></td>
<td>Update and delete operations are not supported for this document.</td>
</tr>
<tr>
<td>referenceDocumentID</td>
<td>The identifier of reference Work Order for which the consumption is reported.</td>
</tr>
<tr>
<td>creationDate</td>
<td>The date and time this component consumption document was created.</td>
</tr>
<tr>
<td>lastChangeDate</td>
<td>The date and time this component consumption document was last modified.</td>
</tr>
</tbody>
</table>

ComponentConsumptionHeader has the following elements:

Comments

The Comments element list may contain additional information about this consumption document. All such data must be intended for human use. Elements in the Comments list may appear in any order. The xml:lang attribute may have the same value in multiple Comments elements in the list. The set of Comments with a particular xml:lang value should contain similar content to that for any other xml:lang value present in the list.

Extrinsic

Use the Extrinsic element list to insert additional data about the ComponentConsumptionRequest element.
19.2.2 ComponentConsumptionPortion

Contains details of all component consumptions for a particular order or scheduling agreement.

ComponentConsumptionPortion has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrderReference (required)</td>
<td>Identifies the corresponding purchase order for which component consumption is reported. See OrderReference [page 277].</td>
</tr>
<tr>
<td>MasterAgreementReference</td>
<td>An optional field. Contains a reference to the scheduling agreement document or its ID if the component consumption is generated from a scheduling agreement release.</td>
</tr>
<tr>
<td>ComponentConsumptionItem</td>
<td>Contains details of all consumption items for a given order reference. See ComponentConsumptionItem [page 453].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ComponentConsumptionPortion element.</td>
</tr>
</tbody>
</table>

19.2.2.1 ComponentConsumptionItem

The ComponentConsumptionItem element captures details of all consumption items for a given order reference. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>poLineNumber (required)</td>
<td>Purchase order line number associated with this consumption item.</td>
</tr>
<tr>
<td>completedIndicator</td>
<td>Set to &quot;yes&quot; to indicate that consumption reporting is completed for a PO item.</td>
</tr>
<tr>
<td>quantity</td>
<td>The quantity of component that is consumed.</td>
</tr>
</tbody>
</table>

ComponentConsumptionItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID (required)</td>
<td>A unique identification of a component item in supplier backend system or buyer backend system.</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. For a list of UN/CEFACT codes, see <a href="http://www.une-trades.net">www.une-trades.net</a>.</td>
</tr>
<tr>
<td>Batch</td>
<td>Batch information for material or goods produced in a single manufacturing run. See Batch [page 179].</td>
</tr>
<tr>
<td>Contact</td>
<td>See Contact [page 117]. In the context of a ComponentConsumptionItem, the roles that are usually included are &quot;BuyerParty&quot;, &quot;ProductRecipientParty&quot;, &quot;ShipFromLocation&quot;, or &quot;ShipToLocation&quot;.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Comments</td>
<td>Optional arbitrary comments or description. See Comments [page 119].</td>
</tr>
<tr>
<td>ComponentConsumptionDetails</td>
<td>Captures details of component consumption for a given PO line item. See ComponentConsumptionDetails [page 455].</td>
</tr>
<tr>
<td>ScrapQuantity</td>
<td>The scrap quantity of a material that is expected to occur during production if the material is a component. This element has a required quantity attribute and an optional UnitOfMeasure element. For example:</td>
</tr>
<tr>
<td></td>
<td><code>&lt;ScrapQuantity quantity=&quot;20&quot;/&gt;</code></td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Provides asset tag numbers or serial numbers for individual items in a shipment of goods. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

Here is an example of ComponentConsumptionItem:

```
<ComponentConsumptionItem poLineNumber="1" quantity = "5">
  <ItemID>
    <SupplierPartID>SUP-LAPTOP-1</SupplierPartID>
    <BuyerPartID>BUY-LAPTOP-1</BuyerPartID>
  </ItemID>
  <UnitOfMeasure>EA</UnitOfMeasure>
  <Batch expirationDate="2018-07-25T12:00:00-07:00"
    productionDate="2016-07-24T12:00:00-07:00">
    <BuyerBatchID>V9383</BuyerBatchID>
    <SupplierBatchID>V9383</SupplierBatchID>
    <PropertyValuation>
      <PropertyReference>
        <IdReference identifier = "CHEMICAL" domain = "ID"/>
      </PropertyReference>
      <ValueGroup>
        <IdReference identifier = "2" domain = "ID"/>
      </ValueGroup>
    </PropertyValuation>
  </Batch>
  <ComponentConsumptionDetails lineNumber="1" quantity="1">
    <Product>
      <SupplierPartID>SUP_MONITOR</SupplierPartID>
      <BuyerPartID>BUY_MONITOR</BuyerPartID>
    </Product>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <BuyerBatchID>BUY-BATCH-C1</BuyerBatchID>
    <SupplierBatchID>SUP-BATCH-C1</SupplierBatchID>
  </ComponentConsumptionDetails>
  <ComponentConsumptionDetails lineNumber="2" quantity="1">
    <Product>
      <SupplierPartID>SUP_PROCESSOR</SupplierPartID>
      <BuyerPartID>BUY_PROCESSOR</BuyerPartID>
    </Product>
  </ComponentConsumptionDetails>
</ComponentConsumptionItem>
```
ComponentConsumptionDetails

Captures details of component consumption for a given PO line item. ComponentConsumptionDetails has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>The position of a component in the current consumption details.</td>
</tr>
<tr>
<td>quantity</td>
<td>The quantity of component that is consumed.</td>
</tr>
<tr>
<td>type</td>
<td>Type of inventory movement that could cause the suppliers to not consume the material. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- blocked—This inventory is not assigned a value and cannot be consumed.</td>
</tr>
<tr>
<td></td>
<td>- qualityRestricted—This inventory is not qualified for unrestricted use and cannot be consumed in production.</td>
</tr>
<tr>
<td></td>
<td>- scrapped—This inventory is out of date or material has been destroyed during logistics operation.</td>
</tr>
<tr>
<td>usage</td>
<td>Specifies whether the supplier uses a component listed in the order. Used only when confirming an order. Possible values are yes (or not specified) or no. In other contexts, usage is not used. For example, when reporting component consumption use type instead.</td>
</tr>
</tbody>
</table>

ComponentConsumptionDetails has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>The supplier and buyer part ID of the component that is consumed.</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>See UnitOfMeasure [page 43].</td>
</tr>
<tr>
<td>BuyerBatchID</td>
<td>The batch ID provided by the buyer for the component that is consumed.</td>
</tr>
<tr>
<td>SupplierBatchID</td>
<td>The batch ID provided by the supplier for the component that is consumed.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>The list of asset information of the components consumed. The quantity of these elements must match the quantity of component consumed if at least one is specified.</td>
</tr>
<tr>
<td>Dimension</td>
<td>Specifies item dimensions. See Dimension [page 176].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Use the Extrinsic element list to insert additional data about the ComponentConsumptionDetails element.</td>
</tr>
</tbody>
</table>

Here is an example of ComponentConsumptionDetails:

```xml
<Request deploymentMode="production">
  <ConfirmationRequest>
    <ConfirmationHeader noticeDate="2016-09-12T13:00:00" type="detail" operation="new" confirmID="0912oc"/>
    <OrderReference orderDate="2016-09-12T12:00:00" orderID="0912">
      <DocumentReference payloadID="20160912"/>
    </OrderReference>
    <ConfirmationItem quantity="4" lineNumber="1">
      <UnitOfMeasure>EA</UnitOfMeasure>
      <ConfirmationStatus type="accept" quantity="2">
        <UnitOfMeasure>EA</UnitOfMeasure>
        <ComponentConsumptionDetails quantity="2" lineNumber="1" usage="yes">
          <Product>
            <SupplierPartID>SUP_MONITOR</SupplierPartID>
            <BuyerPartID>BUY_MONITOR</BuyerPartID>
          </Product>
          <UnitOfMeasure>EA</UnitOfMeasure>
          <SupplierBatchID>Supplierbatch123</SupplierBatchID>
          <BuyerBatchID>Buyerbatch123</BuyerBatchID>
          <AssetInfo serialNumber="ABC1761"/>
          <AssetInfo serialNumber="ABC1762"/>
        </ComponentConsumptionDetails>
        <ComponentConsumptionDetails quantity="2" lineNumber="2">
          <Product>
            <SupplierPartID>SUP_PROCESSOR</SupplierPartID>
            <BuyerPartID>BUY_PROCESSOR</BuyerPartID>
          </Product>
          <UnitOfMeasure>EA</UnitOfMeasure>
          <SupplierBatchID>Supplierbatcha4</SupplierBatchID>
          <BuyerBatchID>Buyerbatcha4</BuyerBatchID>
          <AssetInfo serialNumber="ABC1850"/>
          <AssetInfo serialNumber="ABC1851"/>
        </ComponentConsumptionDetails>
        <ComponentConsumptionDetails quantity="2" lineNumber="3" usage="yes">
          <Product>
            <SupplierPartID>SUP_MONITOR</SupplierPartID>
            <BuyerPartID>BUY_MONITOR</BuyerPartID>
          </Product>
          <UnitOfMeasure>EA</UnitOfMeasure>
          <SupplierBatchID>SUP-BATCH-C1</SupplierBatchID>
          <BuyerBatchID>BUY-BATCH-C1</BuyerBatchID>
          <AssetInfo serialNumber="ABC1626"/>
          <AssetInfo serialNumber="ABC1627"/>
        </ComponentConsumptionDetails>
      </ConfirmationStatus>
    </ConfirmationItem>
  </ConfirmationRequest>
</Request>
```
Extrinsic

Use the Extrinsic element list to insert additional data about the ComponentConsumptionItem element.

19.3 ProductReplenishmentMessage

Communicates the following types of messages to buyers:

- Manufacturing and planning-related information, including the processes for outsourced manufacturing
- Inventory details, including the processes for outsourced manufacturing and supplier-managed inventory
- Forecast confirmations, including critical information about the supplier’s constraints

The ProductReplenishmentMessage element has the following structure:

```xml
<ProductReplenishmentMessage>
  <ProductReplenishmentHeader/>
  <ProductReplenishmentDetails>
    <ItemID/> | <ResourceId/>
    <Description/>
    <LeadTime/>
    <PlannedAcceptanceDays/>
    <ManufacturerPartID/>
    <ReferenceDocumentInfo/>
    <Characteristic/>
    <Batch/>
    <Contact/>
    <UnitPrice/>
    <Inventory/>
    <ConsignmentInventory/>
    <ReplenishmentTimeSeries/>
    <Comments/>
    <UnitOfMeasure/>
  </ProductReplenishmentDetails>
  <Extrinsic/>
</ProductReplenishmentMessage>
```
ProductReplenishmentMessage has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProductReplenishmentHeader</td>
<td>Contains the product replenishment message header. See ProductReplenishmentHeader [page 463].</td>
</tr>
<tr>
<td>ProductReplenishmentDetails</td>
<td>Contains product replenishment information for the product. See ProductReplenishmentDetails [page 464].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ProductReplenishmentMessage element.</td>
</tr>
</tbody>
</table>

Here is an example of ProductReplenishmentMessage used for production planning:

```xml
<Message deploymentMode="production">
  <ProductReplenishmentMessage>
    <ProductReplenishmentHeader
      messageID="ProductReplenishment_1001"
      creationDate="2016-01-01T12:00:00-00:00"/>
    <ProductReplenishmentDetails>
      <ItemID>
        <SupplierPartID>220-6338</SupplierPartID>
        <BuyerPartID>REEEA25</BuyerPartID>
      </ItemID>
      <Contact role="locationFrom">
        <Name xml:lang="en">ACME Supply, Inc.</Name>
        <PostalAddress name="default">
          <Street>5201 Great America Parkway</Street>
          <City>Santa Clara</City>
          <State>CA</State>
          <PostalCode>95054</PostalCode>
        </PostalAddress>
        <IdReference identifier="1" domain="supplierLocationID">
          <Description xml:lang="en">ACME Supply, Inc.</Description>
        </IdReference>
      </Contact>
      <Contact role="locationTo">
        <Name xml:lang="en">XYZ Incorporated</Name>
        <DeliverTo>Bob Liddell</DeliverTo>
        <PostalAddress name="default">
          <DeliverTo>Bob Liddell</DeliverTo>
          <Street>5201 Great America Parkway</Street>
          <City>Santa Clara</City>
          <State>CA</State>
          <PostalCode>95054</PostalCode>
        </PostalAddress>
        <IdReference identifier="2" domain="buyerLocationID">
          <Description xml:lang="en">XYZ Incorporated</Description>
        </IdReference>
      </Contact>
    </ProductReplenishmentDetails>
    <UnitPrice>
      <Money currency="USD">31.20</Money>
    </UnitPrice>
    <ReplenishmentTimeSeries type="manufacturingOrder">
      <TimeSeriesDetails>
        <Period startDate="2016-01-03T12:00:00-00:00" endDate="2016-01-03T12:00:00-00:00"/>
        <TimeSeriesQuantity quantity="100">
          <UnitOfMeasure>TOK</UnitOfMeasure>
        </TimeSeriesQuantity>
        <IdReference identifier="1" domain="MoDocument"/>
      </TimeSeriesDetails>
    </ReplenishmentTimeSeries>
  </ProductReplenishmentMessage>
</Message>
```
Here is an example of ProductReplenishmentMessage used for inventory details:

```xml
<Message deploymentMode="production">
  <ProductReplenishmentMessage>
    <ProductReplenishmentHeader messageID="ProductReplenishment_2001"
      creationDate="2016-01-06T12:00:00-00:00"/>
    <ProductReplenishmentDetails>
      <ItemID>
        <SupplierPartID>220-6338</SupplierPartID>
        <BuyerPartID>REEEA25</BuyerPartID>
      </ItemID>
      <Contact role="locationFrom">
        <Name xml:lang="en">ACME Supply, Inc.</Name>
        <PostalAddress name="default">
          <Street>5201 Great America Parkway</Street>
          <City>Santa Clara</City>
          <State>CA</State>
          <PostalCode>95054</PostalCode>
        </PostalAddress>
        <IdReference identifier="1" domain="supplierLocationID">
          <Description xml:lang="en">ACME Supply, Inc.</Description>
        </IdReference>
      </Contact>
    </ProductReplenishmentDetails>
  </ProductReplenishmentMessage>
</Message>
```
<Contact role="locationTo">
  <Name xml:lang="en">XYZ Incorporated</Name>
  <PostalAddress name="default">
    <DeliverTo>Bob Liddell</DeliverTo>
    <Street>5202 Great America Parkway</Street>
    <City>Santa Clara</City>
    <State>CA</State>
    <PostalCode>95054</PostalCode>
  </PostalAddress>
  <IdReference identifier="2" domain="buyerLocationID">
    <Description xml:lang="en">XYZ Incorporated</Description>
  </IdReference>
</Contact>

<Contact role="inventoryOwner">
  <Name xml:lang="en">David</Name>
  <PostalAddress name="default">
    <Street>5203 Great America Parkway</Street>
    <City>Santa Clara</City>
    <State>CA</State>
    <PostalCode>95054</PostalCode>
  </PostalAddress>
  <IdReference identifier="3" domain="inventoryOwnerID">
    <Description xml:lang="en">XYZ Incorporated</Description>
  </IdReference>
</Contact>

<UnitPrice>
  <Money currency="USD">31.20</Money>
</UnitPrice>

<Inventory>
  <UnrestrictedUseQuantity quantity="200">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </UnrestrictedUseQuantity>
  <BlockedQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </BlockedQuantity>
  <QualityInspectionQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </QualityInspectionQuantity>
  <StockInTransferQuantity quantity="50">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </StockInTransferQuantity>
  <RequiredMinimumQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </RequiredMinimumQuantity>
  <RequiredMaximumQuantity quantity="2000">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </RequiredMaximumQuantity>
  <StockOnHandQuantity quantity="200">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </StockOnHandQuantity>
  <WorkInProgressQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </WorkInProgressQuantity>
  <IntransitQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </IntransitQuantity>
  <ScrapQuantity quantity="100">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </ScrapQuantity>
  <OrderQuantity minimum="10">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </OrderQuantity>
  <DaysOfSupply minimum="1" maximum="3"/>
</Inventory>

<ConsignmentInventory>
  <UnrestrictedUseQuantity quantity="50">
    <UnitOfMeasure>TOK</UnitOfMeasure>
  </UnrestrictedUseQuantity>
</ConsignmentInventory>
Here is an example of ProductReplenishmentMessage used for forecast confirmation:

```xml
<Message deploymentMode="production">
  <ProductReplenishmentMessage>
    <ProductReplenishmentHeader messageID="ProductReplenishment_3001" creationDate="2015-11-06T12:00:00-00:00" processType="Forecast"/>
    <ProductReplenishmentDetails>
      <ItemID>
        <SupplierPartID revisionID="">MATSupPART</SupplierPartID>
        <BuyerPartID>MATBuyPART</BuyerPartID>
      </ItemID>
      <Description type="" xml:lang="EN">VALVE CHECK -S30AI-0</Description>
      <Contact role="locationTo">
```

```xml
```
Here is an example of ProductReplenishmentMessage used for capacity planning:

```xml
<Message deploymentMode="production">
  <ProductReplenishmentMessage>
    <ProductReplenishmentHeader creationDate="2019-03-18T20:17:04-07:00" messageID="FC12465192-1552965424130" processType="Capacity"/>
    <ProductReplenishmentDetails>
      <SupplierResourceID>SupResource1</SupplierResourceID>
      <ResourceType>SingleActivity</ResourceType>
      <InputItemID>
        <ItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </ItemID>
        <ItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </ItemID>
      </InputItemID>
      <OutputItemID>
        <ItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </ItemID>
        <ItemID>
          <SupplierPartID>MMPartS101</SupplierPartID>
          <BuyerPartID>MMPartB101</BuyerPartID>
        </ItemID>
      </OutputItemID>
    </ProductReplenishmentDetails>
  </ProductReplenishmentMessage>
</Message>
```
19.3.1 ProductReplenishmentHeader

Contains the product replenishment header. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>messageID</td>
<td>Identifier for this product replenishment message.</td>
</tr>
<tr>
<td>creationDate</td>
<td>Date and time this product replenishment message was created.</td>
</tr>
</tbody>
</table>

---

**Creator xml:lang="EN">Creator</Creator>**

**Description type="Description" xml:lang="EN"/>**

**/IdReference>**

**/ResourceID>**

**<ReplenishmentTimeSeries type="capacityConfirmation">**

**<TimeSeriesDetails>**

**<Period endDate="2019-03-18T00:00:00-07:00" startDate="2019-03-18T00:00:00-07:00"/>**

**<TimeSeriesQuantity quantity="123">**

**<UnitOfMeasure>EA</UnitOfMeasure>**

**<UpsideQuantity quantity="123">**

**<UnitOfMeasure>EA</UnitOfMeasure>**

**</UpsideQuantity>**

**</TimeSeriesDetails>**

**</ReplenishmentTimeSeries>**

**</ProductReplenishmentDetails>**

**</ProductReplenishmentMessage>**

**</Message>**
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>processType</td>
<td>Identifies the business process supported by the message. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• SMI—Supplier-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• OEM—OEM-owned inventory scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• VMI—Vendor-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• 3PL—Third-party logistics inventory scenarios (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• ManufacturingVisibility—Contract manufacturers sharing inventory visibility (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Forecast—Forecast collaboration (TimeSeries, PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Consignment—Consignment material movements (ConsignmentInventory, ConsignmentMovement).</td>
</tr>
<tr>
<td></td>
<td>• Sales—Sales report visibility (SalesReport).</td>
</tr>
<tr>
<td></td>
<td>• POC—Purchase order collaboration scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Capacity—Capacity planning scenarios (PlanningTimeSeries).</td>
</tr>
<tr>
<td></td>
<td>• Other—Other collaboration scenarios.</td>
</tr>
</tbody>
</table>

### 19.3.2 ProductReplenishmentDetails

Contains product replenishment information for the product.

ProductReplenishmentDetails has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>ResourceID (required)</td>
</tr>
<tr>
<td></td>
<td>• ResourceID—A unique identification of a production facility leveraged during production, such as a piece of equipment or a production line. See ResourceID [page 440].</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the component.</td>
</tr>
<tr>
<td>LeadTime</td>
<td>Lead time in days.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PlannedAcceptanceDays</td>
<td>Number of days the buyer schedules for the inspection of goods after receiving them.</td>
</tr>
<tr>
<td>ManufacturerPartID</td>
<td>ID that the item's manufacturer uses to identify the item.</td>
</tr>
<tr>
<td>Characteristic</td>
<td>Contains detailed information about an item that can be used across different industries. Can also be used to send material characteristics to support configurable material process.</td>
</tr>
<tr>
<td>Batch</td>
<td>Batch information of goods or material. The information includes ID and characteristics. See Batch [page 179].</td>
</tr>
<tr>
<td>Contact</td>
<td>Contact information for the supplier. You can specify more than one Contact element.</td>
</tr>
<tr>
<td>UnitPrice</td>
<td>Price per unit of the item.</td>
</tr>
<tr>
<td>Inventory</td>
<td>Inventory that is in the possession of the buyer and is owned and managed by the buyer. See Inventory [page 442].</td>
</tr>
<tr>
<td>ConsignmentInventory</td>
<td>Inventory that is in the possession of the buyer, but is owned by the supplier. See ConsignmentInventory [page 445].</td>
</tr>
<tr>
<td>ReplenishmentTimeSeries</td>
<td>Contains the product replenishment quantity of a product for a specific time period. See ReplenishmentTimeSeries [page 466].</td>
</tr>
<tr>
<td>Comments</td>
<td>Comments provided for the part whose quantity is being committed.</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>The unit of measure for an inventory/forecast/consignment quantity at the item level. This applies to the entire item and is used as the default unit of measure for time series quantities.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information for this ProductReplenishmentDetails element.</td>
</tr>
</tbody>
</table>
19.3.2.1 ReplenishmentTimeSeries

The product replenishment quantity of a product for a specific time period. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type (required)</td>
<td>Type of replenishment order. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• manufacturingOrder—An order that initiates the manufacturing process to track the status of manufacturing from Raw Material to Finished Goods status.</td>
</tr>
<tr>
<td></td>
<td>• purchaseOrder—Subcontracting purchase order from the backend ERP system.</td>
</tr>
<tr>
<td></td>
<td>• supplierForecast—Forecast created by the supplier based on the Demand Supply situation in the backend ERP system. Typically, the supplier creates the forecast for components based on the Finished Goods Demand.</td>
</tr>
<tr>
<td></td>
<td>• shipment—Supplier shipment quantity from supplier’s location and customer’s location to ship the quantities requested.</td>
</tr>
<tr>
<td></td>
<td>• projectedStock—Stock that is expected to be available in the location at the end of this day.</td>
</tr>
<tr>
<td></td>
<td>• firmReceipt—Total quantity that the supplier wants to deliver to the customer in period so that the total demand from the customer is covered.</td>
</tr>
<tr>
<td></td>
<td>• plannedReceipt—Total quantity that the supplier wants to deliver to the customer in period so that the raw net demands of the buyer are covered. It is a planned quantity that is subject to changes.</td>
</tr>
<tr>
<td></td>
<td>• forecastConfirmation—Total quantity that the supplier wants to deliver to the customer in period so that the total demand from the customer is covered.</td>
</tr>
<tr>
<td></td>
<td>• capacityConfirmation—Quantity of production output of a specific resource that supplier commits to attain.</td>
</tr>
<tr>
<td></td>
<td>• capacityShiftRuns—Number of shifts a specific production resource can run.</td>
</tr>
<tr>
<td>customType</td>
<td>String to include buyer-defined custom types, for example, “BuildQuantity”.</td>
</tr>
</tbody>
</table>

ReplenishmentTimeSeries has one or more TimeSeriesDetails elements. See TimeSeriesDetails [page 466].

19.3.2.1.1 TimeSeriesDetails

Carries product activity or product replenishment information regarding the quantity of a product for a specific time period.

TimeSeriesDetails has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (required)</td>
<td>The start date and end date for the forecast response.</td>
</tr>
</tbody>
</table>
Enter one of the following elements:

- **TimeSeriesQuantity**—Contains the quantity associated with the given type of replenishment time series. It has a `UnitOfMeasure` element and a `quantity` attribute.
- **TimeSeriesValue**—Contains a generic value associated with the timeseries. This can be used for non-numeric values like priority. It is tightly coupled with the keyfigure specified in the `TimeSeries.type` attribute.
- **TimeSeriesAmount**—Contains the generic value associated with the timeseries. This can be used for amount- or price-based values. It has a `Money` element.

**UpsideQuantity**

Contains the quantity of inventory that the supplier can provide above and beyond the request demand. It has a `UnitOfMeasure` element and a `quantity` attribute. This quantity should only be specified when `ReplenishmentTimeSeries@type = "forecastConfirmation"`.

**IdReference**

Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier).

**Extrinsic**

Any additional information related to this object.

The following example shows `TimeSeriesDetails`:

```xml
<PlanningTimeSeries type="custom" customType="FulfillmentPriority">
  <TimeSeriesDetails>
    <Period endDate="2017-02-21T00:00:00-08:00"
           startDate="2017-02-21T00:00:00-08:00"></Period>
    <TimeSeriesValue value="1">
      <Description xml:lang="en">High</Description>
    </TimeSeriesValue>
  </TimeSeriesDetails>
</PlanningTimeSeries>
```

## 19.4 QualityNotificationRequest

The `QualityNotificationRequest` element defines a quality notification for one or more defects associated with a line item on a purchase order or a ship notice. Buyers or suppliers can send a quality notification to each other. You use a code to classify each item according to the type of problem or defect. The details of the problem or defect can contain causes, tasks, activities, codes, code groups, and descriptions.

`QualityNotificationRequest` has the following structure:

```xml
<QualityNotificationRequest>
  <QualityNotificationRequestHeader/>
  <DocumentReference/>
  <QualityInspectionRequestReference/>
  <QNCode/>
  <ShipTo/>
  <BillTo/>
  <Shipping/>
</QualityNotificationRequest>
```
QualityNotificationRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityNotificationRequestHeader</td>
<td>Contains information about this quality notification request that is common to all contained defect items.</td>
</tr>
<tr>
<td>QualityNotificationRequestItem</td>
<td>Contains defect item detail.</td>
</tr>
</tbody>
</table>

### 19.4.1 QualityNotificationRequestHeader

The QualityNotificationRequestHeader element contains information about this quality notification request that is common to all contained defect items.

QualityNotificationHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>The network hub document number for the quality notification.</td>
</tr>
<tr>
<td>externalRequestID</td>
<td>ERP document number for the quality notification.</td>
</tr>
<tr>
<td>requestDate</td>
<td>Quality notification request date and time.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>requestVersion</td>
<td>Version number of this document if the current operation is &quot;update&quot;.</td>
</tr>
<tr>
<td>operation</td>
<td>Operation to be performed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• new—Creates a new quality notification.</td>
</tr>
<tr>
<td></td>
<td>• update—Updates an existing quality notification. The DocumentReference element references the original quality notification.</td>
</tr>
<tr>
<td>status</td>
<td>Current status of the document. Possible values: draft, new (default), in-process, completed, postponed, canceled, and closed.</td>
</tr>
<tr>
<td>discoveryDate</td>
<td>Date and time when the defect was discovered.</td>
</tr>
<tr>
<td>serialNumber</td>
<td>Serial number of the defective goods.</td>
</tr>
<tr>
<td>returnDate</td>
<td>Date on which the defective goods were returned.</td>
</tr>
<tr>
<td>returnAuthorizationNumber</td>
<td>Return Authorization Number information for a line item.</td>
</tr>
<tr>
<td>itemCategory</td>
<td>Set to subcontract if the defect originated with a subcontract supplier.</td>
</tr>
<tr>
<td>minimumRequiredTasks</td>
<td>Number of minimum required tasks to close this quality notification. Evaluated only when the status is &quot;closed&quot;.</td>
</tr>
<tr>
<td>minimumRequiredActivities</td>
<td>Number of minimum required activities to close this quality notification. Evaluated only when the status is &quot;closed&quot;.</td>
</tr>
<tr>
<td>minimumRequiredCauses</td>
<td>Number of minimum required causes to complete a defect. It is evaluated only when this attribute is not present at the defect level.</td>
</tr>
</tbody>
</table>

QualityNotificationRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Reference to an earlier QualityNotificationRequest. If operation is &quot;update&quot;, the DocumentReference is required and it must reference the original QualityNotificationRequest.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>QualityInspection-RequestReference</td>
<td>Reference to the quality inspection request. The reference can contain the payloadID or DocumentNumber and DocumentDate of the quality inspection request. This is used in the case when quality inspection results are not met successfully and a quality notification is created with reference to the quality inspection request.</td>
</tr>
</tbody>
</table>
| QNCode                          | Defines the quality notification in one of the following domains:  
  - “type” of quality notification without code group  
  - “subject” (category) group and code  
  - “reason” of this quality notification  
  - “revision” of this quality notification (if operation="update")  
  See QNCode [page 472].                                                                                                                                                                                                                                                                                                                              |
<p>| ShipTo                          | ShipTo address related to the item if different from the referenced order or ship notice.                                                                                                                                                                                                                                                                                                                                                                                    |
| BillTo                          | BillTo address related to the item if different from the referenced order or ship notice.                                                                                                                                                                                                                                                                                                                                                                                     |
| Shipping                        | Shipping address related to the item if different from the referenced order or ship notice.                                                                                                                                                                                                                                                                                                                                                                               |
| Contact                         | Related contacts like buyerParty, sellerParty, senderBusinessSystemID, senderParty, receipientParty or componentSupplier.                                                                                                                                                                                                                                                                                                                                                   |
| QNNotes (required)              | Defines comments and attachments for the quality notification. See QNNotes [page 472].                                                                                                                                                                                                                                                                                                                                                                                      |
| Priority (required)             | Priority for the quality notification.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| RequestedProcessingPeriod       | The time period during which the processing is required. See RequestedProcessingPeriod [page 473].                                                                                                                                                                                                                                                                                                                                                                             |
| MalfunctionPeriod               | The time period during which item presented this defect. See MalfunctionPeriod [page 473].                                                                                                                                                                                                                                                                                                                                                                                   |
| ReferenceDocumentInfo           | Reference to purchase order or ship notice on which the quality notification is reported. Notifications are only addressed to a single item. You can send a quality notification without a referenced document and instead include relevant information in the other elements. See ReferenceDocumentInfo [page 128].                                                                                               |
| ItemInfo (required)             | Contains information about the goods.                                                                                                                                                                                                                                                                                                                                                                                                                                     |</p>
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch</td>
<td>Contains batch information for material or goods produced in a single manufacturing run.</td>
</tr>
<tr>
<td>ComplainQuantity</td>
<td>Contains the quantity that was complained. See ComplainQuantity [page 473].</td>
</tr>
<tr>
<td>ReturnQuantity</td>
<td>Contains the quantity that was returned.</td>
</tr>
<tr>
<td>QualityNotificationTask</td>
<td>Contains task detail information for the quality notification. See QualityNotificationTask [page 474].</td>
</tr>
<tr>
<td>QualityNotificationActivity</td>
<td>Contains activity detail information for the quality notification. See QualityNotificationActivity [page 475].</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Detailed per-unit asset information for a line item. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains additional information related to this document.</td>
</tr>
</tbody>
</table>

### 19.4.1.1 QualityInspectionRequestReference

Reference to the quality inspection request.

The reference can contain the payloadID or DocumentNumber and DocumentDate of the quality inspection request. This is used in the case when quality inspection results are not met successfully and a quality notification is created with reference to the quality inspection request.

QualityInspectionRequestReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>inspectionID</td>
<td>The ID of a quality inspection request document.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>The date and time the quality inspection request document was created.</td>
</tr>
</tbody>
</table>

QualityInspectionRequestReference has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Provides a reference to a quality inspection request document.</td>
</tr>
</tbody>
</table>

The following example shows a QualityInspectionRequestReference element:

```xml
<QualityInspectionRequestReference inspectionDate="2017-03-07T05:13:45-07:00" inspectionID="2342"/>
```
19.4.1.2 QNCode

The QNCode element contains quality notification codes and their descriptions in different domains. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>Domain in which this value has meaning. Recognized domains include:</td>
</tr>
<tr>
<td></td>
<td>• type—Quality notification type, does not have a code group.</td>
</tr>
<tr>
<td></td>
<td>• subject—Quality notification subject (category).</td>
</tr>
<tr>
<td></td>
<td>• reason—Reason of defect.</td>
</tr>
<tr>
<td></td>
<td>• task—Quality notification task.</td>
</tr>
<tr>
<td></td>
<td>• activity—Quality notification activity.</td>
</tr>
<tr>
<td></td>
<td>• defect—Quality notification defect.</td>
</tr>
<tr>
<td></td>
<td>• defectLocation—Area where a quality notification defect occurs (used</td>
</tr>
<tr>
<td></td>
<td>in QualityNotificationRequestItem only).</td>
</tr>
<tr>
<td></td>
<td>• cause—Quality notification cause.</td>
</tr>
<tr>
<td></td>
<td>• revision—Quality notification revision.</td>
</tr>
<tr>
<td>codeGroup</td>
<td>Name of the code group.</td>
</tr>
<tr>
<td>codeGroupDescription</td>
<td>Description of the code group.</td>
</tr>
<tr>
<td>code</td>
<td>Quality notification code.</td>
</tr>
<tr>
<td>codeDescription</td>
<td>Description of the quality notification code.</td>
</tr>
</tbody>
</table>

19.4.1.3 QNNotes

The QNNotes element defines subject code, description, and attachments of a quality notification. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>user</td>
<td>User name or user ID of the person who created the message.</td>
</tr>
<tr>
<td>createDate</td>
<td>Timestamp of the message.</td>
</tr>
</tbody>
</table>

QNNotes has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNCode</td>
<td>Code identifying the type of message. Its domain is &quot;subject&quot;.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Provides a description of the quality notification.</td>
</tr>
<tr>
<td>Attachment</td>
<td>Files attached to this message.</td>
</tr>
</tbody>
</table>

**19.4.1.4 RequestedProcessingPeriod**

The `RequestedProcessingPeriod` element represents the time period for processing this defect. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (required)</td>
<td>Start and end time for processing the defect.</td>
</tr>
</tbody>
</table>

**19.4.1.5 MalfunctionPeriod**

The `MalfunctionPeriod` element specifies the time period during which the item presented this defect. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (required)</td>
<td>Defines a start date and end date for this malfunction.</td>
</tr>
</tbody>
</table>

**19.4.1.6 ComplainQuantity**

The `ComplainQuantity` element specifies the quantity of the item subject to complaints. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity (required)</td>
<td>The quantity of the item subject to complaints.</td>
</tr>
</tbody>
</table>
ComplainQuantity has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>The unit of measure for the quantity. It must conform with UN/CEFACT Unit of Measure Common Codes.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

19.4.1.7 QualityNotificationTask

The QualityNotificationTask element defines a task associated with a quality notification. A task describe the planning and organizational aspect within a notification. You can use tasks to plan the way in which various people work together to process the notification.

QualityNotificationTask has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>taskId</td>
<td>Number of the task.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>status</td>
<td>Current state of execution of this task. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● new (default)</td>
</tr>
<tr>
<td></td>
<td>● in-process</td>
</tr>
<tr>
<td></td>
<td>● complete</td>
</tr>
<tr>
<td></td>
<td>● close</td>
</tr>
<tr>
<td></td>
<td>The close status is the final step when a task is considered closed.</td>
</tr>
<tr>
<td>completedDate</td>
<td>Date and time when the task was completed.</td>
</tr>
<tr>
<td>completedBy</td>
<td>User ID of the person who completed this task.</td>
</tr>
<tr>
<td>processorId</td>
<td>The ID of the person or organization responsible for this task. In the case of a supplier, can be the user ID or the network hub ID.</td>
</tr>
<tr>
<td>processorName</td>
<td>The name of the person or organization responsible for this task. In the case of a supplier, can be the user name or company name.</td>
</tr>
<tr>
<td>processorType</td>
<td>Type of processor. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● customer</td>
</tr>
<tr>
<td></td>
<td>● supplier</td>
</tr>
<tr>
<td></td>
<td>● customerUser</td>
</tr>
</tbody>
</table>

QualityNotificationTask has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNCode</td>
<td>Codes with domain “task”.</td>
</tr>
<tr>
<td>OwnerInfo</td>
<td>Contains information about the owner of this task.</td>
</tr>
</tbody>
</table>
QualityNotificationActivity

The QualityNotificationActivity element defines a quality notification activity. It documents an activity that someone performed in the process of solving a notification problem. You can use a quality notification activity to report the progress of a quality notification task.

QualityNotificationActivity has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>activityId</td>
<td>Number of the activity.</td>
</tr>
<tr>
<td></td>
<td>(required)</td>
</tr>
<tr>
<td>isCompleted</td>
<td>Set to yes if the activity was completed.</td>
</tr>
</tbody>
</table>

QualityNotificationActivity has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNCode</td>
<td>Group and code defining the type of activity.</td>
</tr>
<tr>
<td>OwnerInfo</td>
<td>Contains information about the owner of this activity.</td>
</tr>
<tr>
<td>Description</td>
<td>Text describing this activity.</td>
</tr>
<tr>
<td>Period</td>
<td>Start and end time for the activity.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains additional information related to this activity.</td>
</tr>
</tbody>
</table>

QualityNotificationRequestItem

The QualityNotificationRequestItem element contains defect item detail for a quality notification. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>defectId</td>
<td>Number of the defect.</td>
</tr>
<tr>
<td></td>
<td>(required)</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>defectCount</td>
<td>Quantity of defects in this quality notification item.</td>
</tr>
<tr>
<td>isCompleted</td>
<td>Set to yes if all activities and tasks were completed.</td>
</tr>
<tr>
<td>completedDate</td>
<td>Date and time when quality notification item was completed.</td>
</tr>
<tr>
<td>minimumRequiredTasks</td>
<td>Number of minimum required tasks to complete this defect. Evaluated only when the isCompleted is true.</td>
</tr>
<tr>
<td>minimumRequiredActivities</td>
<td>Number of minimum required activities to complete this defect. Evaluated only when the isCompleted is true.</td>
</tr>
<tr>
<td>minimumRequiredCauses</td>
<td>Number of minimum required causes to complete this defect. Evaluated only when the isCompleted is true.</td>
</tr>
</tbody>
</table>

**QualityNotificationRequestItem has the following elements:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNCode</td>
<td>A code with domain &quot;defect&quot; represents the defect’s category/subcategory. A code with domain &quot;defectLocation&quot; represents the area where the defect occurs. Only one defect location code is allowed per item. See QNCode [page 472].</td>
</tr>
<tr>
<td>OwnerInfo</td>
<td>Contains information about the owner of this defect. See OwnerInfo [page 479].</td>
</tr>
<tr>
<td>Description</td>
<td>Text describing this defect.</td>
</tr>
<tr>
<td>Period</td>
<td>Planned start and end time for processing this defect.</td>
</tr>
<tr>
<td>AdditionalQNInfo</td>
<td>Provides additional information about a quality notification, such as part numbers (customer or supplier), batch information, or other information. See AdditionalQNInfo [page 479].</td>
</tr>
<tr>
<td>QualityNotificationTask</td>
<td>Tasks required to process this item. See QualityNotificationTask [page 474].</td>
</tr>
<tr>
<td>QualityNotificationActivity</td>
<td>Activities required to process this item. See QualityNotificationActivity [page 475].</td>
</tr>
<tr>
<td>QualityNotificationCause (required)</td>
<td>Causes of the defects contained in this item. See QualityNotificationCause [page 480].</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Detailed per-unit asset information for a line item. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains additional information related to this defect.</td>
</tr>
</tbody>
</table>
The following is an example of `QualityNotificationRequestItem`:

```xml
<Request deploymentMode="production">
  <QualityNotificationRequest>
    <QualityNotificationRequestHeader discoveryDate="" externalRequestID="" operation="new" requestDate="2016-12-20T07:26:56-08:00" requestId="QN12121DasdasSSD" requestVersion="1" returnAuthorizationNumber="" returnDate="" serialNumber="" status="new" minimumRequiredTasks="1" minimumRequiredActivities="2" minimumRequiredCauses="2">
      <BillTo>
        <Address addressID="" addressIDDomain="" isoCountryCode="">
          <Name xml:lang="en">grbuyer CSC</Name>
          <PostalAddress>
            <Street>jUnitDummy</Street>
            <City>Sunnyvale</City>
            <State/>
            <PostalCode>94089</PostalCode>
            <Country isoCountryCode="">United States</Country>
          </PostalAddress>
          <Email name="default" preferredLang="en">grsuppliercsc</Email>
          <Phone name="">
            <TelephoneNumber>
              <CountryCode isoCountryCode=""/>
              <AreaOrCityCode/>
              <Number/>
              <Extension/>
            </TelephoneNumber>
          </Phone>
          <Fax name="">
            <TelephoneNumber>
              <CountryCode isoCountryCode=""/>
              <AreaOrCityCode/>
              <Number/>
              <Extension/>
            </TelephoneNumber>
          </Fax>
        </Address>
        <Contact addressID="0001" role="buyerParty">
          <Name xml:lang=""/>
        </Contact>
        <QNNotes user="grsuppliercsc" createDate="2016-12-20T07:26:52-08:00" >
          <Description xml:lang="en-US">
            <ShortName>COMMENT TEST</ShortName>
          </Description>
        </QNNotes>
        <Priority level="2">
          <Description xml:lang="">Medium</Description>
        </Priority>
        <ReferenceDocumentInfo lineNumber="1">
          <DocumentReference payloadID="1482247566850-1032844436076751171810.163.3.43"/>
        </ReferenceDocumentInfo>
        <ItemInfo quantity="3">
          <ItemID>
            <SupplierPartID>AX4518</SupplierPartID>
            <SupplierPartAuxiliaryID/>
          </ItemID>
          <UnitOfMeasure/>
        </ItemInfo>
      </BillTo>
    </QualityNotificationRequestHeader>
    <Priority level="2">
      <Description xml:lang="">Medium</Description>
    </Priority>
    <ReferenceDocumentInfo lineNumber="1">
      <DocumentReference payloadID="1482247566850-1032844436076751171810.163.3.43"/>
    </ReferenceDocumentInfo>
    <ItemInfo quantity="3">
      <ItemID>
        <SupplierPartID>AX4518</SupplierPartID>
        <SupplierPartAuxiliaryID/>
      </ItemID>
      <UnitOfMeasure/>
    </ItemInfo>
    <Batch>
      <ComplainQuantity quantity="1">
      </Batch>
    </QualityNotificationRequest>
  </QualityNotificationRequest>
</Request>
```
<QualityNotificationActivity activityId="1">
    <OwnerInfo owner="grbuyercsc" role="customer"/>
    <Description xml:lang="en-US">Review substituted delivery.</Description>
</QualityNotificationActivity>
</QualityNotificationRequestHeader>

<QualityNotificationRequestItem defectId="1" defectCount="23"
minimumRequiredTasks="3" minimumRequiredActivities="2">
    <QNCode domain="defectLocation" code="100" codeGroup="QM"
codeDescription="Machine 1"/>
    <QNCode domain="defect" codeDescription="Mechanical" code="QM-100"/>
    <OwnerInfo owner="grbuyercsc" role="customer"/>
    <Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>
    <AdditionalQNInfo lineNumber="1">
        <ItemID>
            <SupplierPartID>FG-547</SupplierPartID>
            <BuyerPartID>1235</BuyerPartID>
        </ItemID>
        <Batch>
            <SupplierBatchID>YE-35</SupplierBatchID>
            <BuyerBatchID>AE-35</BuyerBatchID>
        </Batch>
    </AdditionalQNInfo>
    <AdditionalQNInfo lineNumber="2">
        <ItemID>
            <SupplierPartID>XY-542</SupplierPartID>
            <BuyerPartID>4567</BuyerPartID>
        </ItemID>
        <Batch>
            <SupplierBatchID>XV-56</SupplierBatchID>
            <BuyerBatchID>EX-352</BuyerBatchID>
        </Batch>
    </AdditionalQNInfo>
    <QualityNotificationCause causeId="1">
        <Description xml:lang="en-US">Wrong lot of barcodes.</Description>
    </QualityNotificationCause>
    <QualityNotificationCause causeId="2">
        <Description xml:lang="en-US">Wrong description product.</Description>
    </QualityNotificationCause>
</QualityNotificationRequestItem>
</QualityNotificationRequest>
</Request>
19.4.2.1 OwnerInfo

The OwnerInfo element describes the owner information of a defect, task, cause or activity. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>owner</td>
<td>Owner of the element. This attribute should contain the userId.</td>
</tr>
<tr>
<td>role</td>
<td>Role of the owner. Possible values are customer or supplier.</td>
</tr>
</tbody>
</table>

19.4.2.2 AdditionalQNInfo

The AdditionalQNInfo element provides additional information about a quality notification, such as part numbers (customer or supplier), batch information, or other information. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>Represents the AdditionalQNInfo line number.</td>
</tr>
</tbody>
</table>

AdditionalQNInfo has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Represents the supplier part number and customer part number.</td>
</tr>
<tr>
<td></td>
<td>To provide a plant location description, the domain attribute of the element IdReference should be set to &quot;buyerLocationID&quot;, &quot;supplierLocationID&quot; or &quot;storageLocation&quot; and the identifier to the plantID.</td>
</tr>
<tr>
<td>Batch</td>
<td>Captures batch information of the customer and supplier.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this element.</td>
</tr>
</tbody>
</table>

The following example shows AdditionalQNInfo elements:

```xml
<AdditionalQNInfo lineNumber="1">
  <ItemID>
    <SupplierPartID>FG-547</SupplierPartID>
    <BuyerPartID>1235</BuyerPartID>
    <IdReference domain="buyerLocationID" identifier="65"/>
  </ItemID>
  <Batch>
    <BuyerBatchID>AE-35</BuyerBatchID>
    <SupplierBatchID>YE-35</SupplierBatchID>
  </Batch>
</AdditionalQNInfo>

<AdditionalQNInfo lineNumber="2">
  <ItemID>
    <SupplierPartID>FG-547</SupplierPartID>
    <BuyerPartID>1235</BuyerPartID>
    <IdReference domain="buyerLocationID" identifier="65"/>
  </ItemID>
  <Batch>
    <BuyerBatchID>AE-35</BuyerBatchID>
    <SupplierBatchID>YE-35</SupplierBatchID>
  </Batch>
</AdditionalQNInfo>
```
19.4.2.3 QualityNotificationCause

The QualityNotificationCause element defines the cause of a quality notification. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>causeId</td>
<td>Number of the cause. (required)</td>
</tr>
</tbody>
</table>

QualityNotificationCause has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNCode</td>
<td>Group and code defining the type of cause.</td>
</tr>
<tr>
<td>OwnerInfo</td>
<td>Contains information about the owner of this cause.</td>
</tr>
<tr>
<td>Description</td>
<td>Text describing this cause.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains additional information related to this cause.</td>
</tr>
</tbody>
</table>

19.4.3 Quality Notification Examples

This section shows examples of quality notifications created by suppliers and buyers.

19.4.3.1 Quality Notifications Created by Suppliers

Quality Notification with a Purchase Order Reference

```xml
:request deploymentMode="production">
  <QualityNotificationRequest>
    <QualityNotificationRequestHeader requestID="QN1" externalRequestID="ERP1_QN27" requestDate="2016-09-19T15:29:31-07:00" operation="new" status="new">
      ...just code...
    </QualityNotificationRequestHeader>
    <QualityNotificationRequestDetails>
      ...just code...
    </QualityNotificationRequestDetails>
  </QualityNotificationRequest>
</Request>
```
QNCode domain="type" code="Z1Q9" codeDescription="Supplier Complain"/
QNCode domain="subject" codeGroup="CAT-01" codeGroupDescription="Cosmetic" code="Z1Q9" codeDescription="Color doesn't match"/
QNCode domain="reason" code="RSN-01" codeDescription="Wrong code"/

Contact role="sellerParty">
  <Name xml:lang="en">Supplier</Name>
  <PostalAddress>
    <Street>800 Corporate Way B</Street>
    <City>Fremont</City>
    <State>CA</State>
    <PostalCode>94539</PostalCode>
  </PostalAddress>
</Contact>

Contact role="buyerParty">
  <Name xml:lang="en">Buyer</Name>
  <PostalAddress>
    <Street>1065 La Avenida</Street>
    <City>Mountain View</City>
    <State>CA</State>
    <PostalCode>94043</PostalCode>
  </PostalAddress>
</Contact>

QNNotes user="Bob Alfieri" createDate="2016-09-19T13:22:16-07:00">
  <QNCode domain="subject" codeGroup="QM" codeGroupDescription="Problem Details" code="3" codeDescription="Quality activity"/>
  <Description xml:lang="en-US">Color code of the beam should be Pantone 1234</Description>
  <Attachment>
    <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
  </Attachment>
</QNNotes>

Priority level="2">
  <Description xml:lang="en-US">High</Description>
</Priority>

RequestedProcessingPeriod>
  <Period startDate="2016-08-23T00:00:00-07:00" endDate="2016-08-26T59:59:59-07:00" />
</RequestedProcessingPeriod>

MalfunctionPeriod>
  <Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
</MalfunctionPeriod>

ReferenceDocumentInfo lineNumber="10">
  <DocumentReference payloadID="PO123"/>
</ReferenceDocumentInfo>

ItemInfo quantity="250.0">
  <ItemID>
    <SupplierPartID>Item Pro</SupplierPartID>
  </ItemID>
  <UnitOfMeasure>EA</UnitOfMeasure>
</ItemInfo>

Batch productionDate="2016-06-10T14:37:31-07:00"
  expirationDate="2016-12-10T14:37:31-07:00" originCountryCode="US">
    <BuyerBatchID>KL45342</BuyerBatchID>
    <SupplierBatchID>AH53333</SupplierBatchID>
  </Batch>

ComplainQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ComplainQuantity>

ReturnQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ReturnQuantity>
Quality Notification for Subcontract Cases with a Copy Purchase Order

Reference

<xhtml:div>

</xhtml:div>

</qualityNotificationRequest>

</qualityNotificationRequest>

</request>

</Request>

</QualityNotificationRequestHeader>

<AssetInfo serialNumber="1121SN"/>
<AssetInfo serialNumber="14412SN"/>
<AssetInfo serialNumber="13312SN"/>

<QualityNotificationRequestItem defectId="1" defectCount="23"
minimumRequiredTasks="1"
minimumRequiredActivities="1"
minimumRequiredCauses="1">

<QNCODE domain="defect" codeGroup="QM-M"
codeGroupDescription="Defect Types in Mech. Parts Production" code="1"
codeDescription="Material defects"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>

<QualityNotificationCause causeId="1">

<QNCODE domain="cause" codeGroup="QM"
codeGroupDescription="Problem Causes, Defect Causes" code="6"
codeDescription="Production"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Wrong lot of barcodes.</Description>

</QualityNotificationCause>

</QualityNotificationRequestItem>

</QualityNotificationRequest>

</Request>

</qualityNotificationRequest>

</qualityNotificationRequestHeader>

<QualityNotificationActivity activityId="1">

<QNCODE domain="activity" codeGroup="QMA-G1"
codeGroupDescription="General Task for Complaint to Vendor" code="4"
codeDescription="Confirm receipt of returned goods"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Review substituted delivery.</Description>

</QualityNotificationActivity>

<AssetInfo serialNumber="1121SN"/>
<AssetInfo serialNumber="14412SN"/>
<AssetInfo serialNumber="13312SN"/>

<QualityNotificationRequestItem defectId="1"
defectCount="23"
minimumRequiredTasks="1"
minimumRequiredActivities="1"
minimumRequiredCauses="1">

<QNCODE domain="defect" codeGroup="QM-M"
codeGroupDescription="Defect Types in Mech. Parts Production" code="1"
codeDescription="Material defects"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>

<QualityNotificationCause causeId="1">

<QNCODE domain="cause" codeGroup="QM"
codeGroupDescription="Problem Causes, Defect Causes" code="6"
codeDescription="Production"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Wrong lot of barcodes.</Description>

</QualityNotificationCause>

</QualityNotificationRequestItem>

</QualityNotificationRequest>

</Request>

</QualityNotificationRequestHeader>

<QualityNotificationActivity activityId="1">

<QNCODE domain="activity" codeGroup="QMA-G1"
codeGroupDescription="General Task for Complaint to Vendor" code="4"
codeDescription="Confirm receipt of returned goods"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Review substituted delivery.</Description>

</QualityNotificationActivity>

<AssetInfo serialNumber="1121SN"/>
<AssetInfo serialNumber="14412SN"/>
<AssetInfo serialNumber="13312SN"/>

<QualityNotificationRequestItem defectId="1"
defectCount="23"
minimumRequiredTasks="1"
minimumRequiredActivities="1"
minimumRequiredCauses="1">

<QNCODE domain="defect" codeGroup="QM-M"
codeGroupDescription="Defect Types in Mech. Parts Production" code="1"
codeDescription="Material defects"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>

<QualityNotificationCause causeId="1">

<QNCODE domain="cause" codeGroup="QM"
codeGroupDescription="Problem Causes, Defect Causes" code="6"
codeDescription="Production"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Wrong lot of barcodes.</Description>

</QualityNotificationCause>

</QualityNotificationRequestItem>

</QualityNotificationRequest>

</Request>

</QualityNotificationRequestHeader>

<QualityNotificationActivity activityId="1">

<QNCODE domain="activity" codeGroup="QMA-G1"
codeGroupDescription="General Task for Complaint to Vendor" code="4"
codeDescription="Confirm receipt of returned goods"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Review substituted delivery.</Description>

</QualityNotificationActivity>

<AssetInfo serialNumber="1121SN"/>
<AssetInfo serialNumber="14412SN"/>
<AssetInfo serialNumber="13312SN"/>

<QualityNotificationRequestItem defectId="1"
defectCount="23"
minimumRequiredTasks="1"
minimumRequiredActivities="1"
minimumRequiredCauses="1">

<QNCODE domain="defect" codeGroup="QM-M"
codeGroupDescription="Defect Types in Mech. Parts Production" code="1"
codeDescription="Material defects"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>

<QualityNotificationCause causeId="1">

<QNCODE domain="cause" codeGroup="QM"
codeGroupDescription="Problem Causes, Defect Causes" code="6"
codeDescription="Production"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Wrong lot of barcodes.</Description>

</QualityNotificationCause>

</QualityNotificationRequestItem>

</QualityNotificationRequest>

</Request>

</QualityNotificationHeader>

<QualityNotificationTask taskId="1" status="new">

<QNCODE domain="task" codeGroup="QM-G2"
codeGroupDescription="General Task for Complaint to Vendor" code="2"
codeDescription="Return Delivery"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Return delivery with wrong color code.</Description>

</QualityNotificationTask>

<QualityNotificationTask taskId="2" status="new">

<QNCODE domain="task" codeGroup="QM-G1"
codeGroupDescription="General Task for Customer Complaint" code="3"
codeDescription="Substitute delivery"/>

<OwnerInfo owner="grbuyercsc" role="customer"/>

<Description xml:lang="en-US">Substitute delivery with correct color code.</Description>

</QualityNotificationTask>

<QualityNotificationRequestHeader requestID="QN1"
externalRequestID="ERP1_QN27"
requestDate="2016-09-19T15:29:31-07:00" operation="new" status="new"
discoveryDate="2016-08-10T05:13:45-07:00"
returnDate="2016-08-12T08:22:17-07:00"
itemCategory="subcontract"
minimumRequiredTasks="1"
minimumRequiredActivities="1">
  <QNCode domain="type" code="Z1Q9" codeDescription="Supplier Complain"/>
  <QNCode domain="subject" codeGroup="CAT-01" codeGroupDescription="Cosmetic" code="Z1Q9" codeDescription="Color doesn't match"/>
  <QNCode domain="reason" code="RSN-01" codeDescription="Wrong code"/>
  <Contact role="sellerParty">
    <Name xml:lang="en">Supplier</Name>
    <PostalAddress>
      <Street>800 Corporate Way B</Street>
      <City>Fremont</City>
      <State>CA</State>
      <PostalCode>94539</PostalCode>
      <Country isoCountryCode="US" />
    </PostalAddress>
  </Contact>
  <Contact role="buyerParty">
    <Name xml:lang="en">Buyer</Name>
    <PostalAddress>
      <Street>1065 La Avenida</Street>
      <City>Mountain View</City>
      <State>CA</State>
      <PostalCode>94043</PostalCode>
      <Country isoCountryCode="US" />
    </PostalAddress>
  </Contact>
  <QNNotes user="Bob Alfieri" createDate="2016-09-19T13:22:16-07:00">
    <QNCode domain="subject" codeGroup="QM" codeGroupDescription="Problem Details" code="3" codeDescription="Quality activity"/>
    <Description xml:lang="en-US">Color code of the beam should be Pantone 1234</Description>
    <Attachment>
      <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
    </Attachment>
  </QNNotes>
  <Priority level="2">
    <Description xml:lang="en-US">High</Description>
  </Priority>
  <RequestedProcessingPeriod>
    <Period startDate="2016-08-23T00:00:00-07:00" endDate="2016-08-26T59:59:59-07:00" />
  </RequestedProcessingPeriod>
  <MalfunctionPeriod>
    <Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
  </MalfunctionPeriod>
  <ReferenceDocumentInfo lineNumber="1">
    <DocumentReference payloadID="CopyPO123" />
  </ReferenceDocumentInfo>
  <ItemInfo quantity="250.0">
    <ItemID>
      <SupplierPartID>LED-008</SupplierPartID>
    </ItemID>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Batch productionDate="2016-06-10T14:37:31-07:00" expirationDate="2016-12-10T14:37:31-07:00" originCountryCode="US">
      <BuyerBatchID>KL45342</BuyerBatchID>
      <SupplierBatchID>AH53333</SupplierBatchID>
    </Batch>
    <ComplainQuantity quantity="250" />
    <UnitOfMeasure>EA</UnitOfMeasure>
    <ReturnQuantity quantity="250" />
    <UnitOfMeasure>EA</UnitOfMeasure>
  </ItemInfo>
Quality Notification for Subcontract Cases with a Ship Notice Reference
<QNCode domain="type" code="Z1Q9" codeDescription="Supplier Complain"/>
QNCode domain="subject" codeGroup="CAT-01" codeGroupDescription="Cosmetic" code="Z1Q9" codeDescription="Color doesn't match"/>
QNCode domain="reason" code="RSN-01" codeDescription="Wrong code"/>

<Contact role="sellerParty">
  <Name xml:lang="en">Supplier</Name>
  <PostalAddress>
    <Street>800 Corporate Way B</Street>
    <City>Fremont</City>
    <State>CA</State>
    <PostalCode>94539</PostalCode>
  </PostalAddress>
</Contact>

<Contact role="buyerParty">
  <Name xml:lang="en">Buyer</Name>
  <PostalAddress>
    <Street>1065 La Avenida</Street>
    <City>Mountain View</City>
    <State>CA</State>
    <PostalCode>94043</PostalCode>
  </PostalAddress>
</Contact>

<QNNotes user="Bob Alfieri" createDate="2016-09-19T13:22:16-07:00">
  <QNCode domain="subject" codeGroup="QM" codeGroupDescription="Problem Details" code="3" codeDescription="Quality activity"/>
  <Description xml:lang="en-US">Color code of the beam should be Pantone 1234</Description>
  <Attachment>
    <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
  </Attachment>
</QNNotes>

Priority level="2">
</Priority>

<RequestedProcessingPeriod>
  <Period startDate="2016-08-23T00:00:00-07:00" endDate="2016-08-26T59:59:59-07:00" />
</RequestedProcessingPeriod>

<MalfunctionPeriod>
  <Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
</MalfunctionPeriod>

<ReferenceDocumentInfo lineNumber="3">
  <DocumentReference payloadID="CopyASN123"/>
</ReferenceDocumentInfo>

<ItemInfo quantity="250.0">
  <ItemID>
    <SupplierPartID>LED-008</SupplierPartID>
  </ItemID>
  <UnitOfMeasure>EA</UnitOfMeasure>
</ItemInfo>

<Batch productionDate="2016-06-10T14:37:31-07:00" expirationDate="2016-12-10T14:37:31-07:00" originCountryCode="US">
  <BuyerBatchID>KL45342</BuyerBatchID>
  <SupplierBatchID>AH53333</SupplierBatchID>
</Batch>

<ComplainQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ComplainQuantity>

<ReturnQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ReturnQuantity>
19.4.3.2 Quality Notifications Created by Buyers

Quality Notification with a Purchase Order Reference

```xml
19.4.3.2 Quality Notifications Created by Buyers

Quality Notification with a Purchase Order Reference

```
returnDate="2016-08-12T08:22:17-07:00"
minimumRequiredTasks="1"
minimumRequiredActivities="1"
minimumRequiredCauses="2">
  <QNCode domain="type" code="Z1Q9"
    codeDescription="Supplier Complain"/>
  <QNCode domain="subject" codeGroup="CAT-01"
    codeGroupDescription="Cosmetic"
    code="Z1Q9" codeDescription="Color doesn't match"/>
  <Contact role="sellerParty">
    <Name xml:lang="en">Supplier</Name>
    <PostalAddress>
      <Street>800 Corporate Way B</Street>
      <City>Fremont</City>
      <State>CA</State>
      <PostalCode>94539</PostalCode>
      <Country isoCountryCode="US" />
    </PostalAddress>
  </Contact>
  <Contact role="buyerParty">
    <Name xml:lang="en">Buyer</Name>
    <PostalAddress>
      <Street>1065 La Avenida</Street>
      <City>Mountain View</City>
      <State>CA</State>
      <PostalCode>94043</PostalCode>
      <Country isoCountryCode="US" />
    </PostalAddress>
  </Contact>
  <QNNotes user="Bob Alfieri" createDate="2016-09-19T13:22:16-07:00">
    <QNCode domain="subject" codeGroup="QM"
      codeGroupDescription="Problem Details"
      code="3" codeDescription="Quality activity"/>
    <Description xml:lang="en-US">Color code of the beam should be Pantone 1234</Description>
    <Attachment>
      <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
    </Attachment>
  </QNNotes>
  <Priority level="2">
    <Description xml:lang="en-US">High</Description>
  </Priority>
  <RequestedProcessingPeriod>
    <Period startDate="2016-08-23T00:00:00-07:00" endDate="2016-08-26T59:59:59-07:00" />
  </RequestedProcessingPeriod>
  <MalfunctionPeriod>
    <Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
  </MalfunctionPeriod>
  <ReferenceDocumentInfo lineNumber="10">
    <DocumentReference payloadID="PO123"/>
  </ReferenceDocumentInfo>
  <ItemInfo quantity="250.0">
    <ItemID>
      <SupplierPartID>Item pro</SupplierPartID>
    </ItemID>
    <UnitOfMeasure>EA</UnitOfMeasure>
  </ItemInfo>
  <Batch productionDate="2016-06-10T14:37:31-07:00" expirationDate="2016-12-10T14:37:31-07:00" originCountryCode="US">
    <BuyerBatchID>KL45342</BuyerBatchID>
    <SupplierBatchID>AH53333</SupplierBatchID>
  </Batch>
  <ComplainQuantity quantity="250">
    <UnitOfMeasure>EA</UnitOfMeasure>
  </ComplainQuantity>
</QNNotes>
Quality Notification with a Ship Notice Reference

<Request deploymentMode="production">
  <QualityNotificationRequest>
    <QualityNotificationRequestHeader requestID="QN1" externalRequestID="ERP1_QN27" requestDate="2016-09-19T15:29:31-07:00" operation="new" status="new" discoveryDate="2016-08-10T05:13:45-07:00" returnDate="2016-08-12T08:22:17-07:00" minimumRequiredTasks="1" minimumRequiredActivities="1">
      <QualityNotificationRequestItem defectId="1" defectCount="23" minimumRequiredTasks="1" minimumRequiredActivities="1" minimumRequiredCauses="1">
        <QNCode domain="defect" codeGroup="QM-M" codeGroupDescription="Defect Types in Mech. Parts Production" code="1" codeDescription="Material defects" />
        <OwnerInfo owner="grsuppliercsc" role="supplier" />
        <Description xml:lang="en-US">Color code of the beam should be Pantone 1234.</Description>
      </QualityNotificationRequestItem>
      <QualityNotificationRequestItem defectId="1" causeId="1">
        <QNCode domain="cause" codeGroup="QM" codeGroupDescription="Problem Causes, Defect Causes" code="6" codeDescription="Production" />
        <OwnerInfo owner="grsuppliercsc" role="supplier" />
        <Description xml:lang="en-US">Wrong lot of barcodes.</Description>
      </QualityNotificationRequestItem>
    </QualityNotificationRequestHeader>
  </QualityNotificationRequest>
</Request>
<QNCode domain="type" code="Z1Q9" codeDescription="Supplier Complain"/>
<QNCode domain="subject" codeGroup="CAT-01" codeGroupDescription="Cosmetic" code="Z1Q9" codeDescription="Color doesn't match"/>
<QNCode domain="reason" code="RSN-01" codeDescription="Wrong code"/>
<Contact role="sellerParty">
  <Name xml:lang="en">Supplier</Name>
  <PostalAddress>
    <Street>800 Corporate Way B</Street>
    <City>Fremont</City>
    <State>CA</State>
    <PostalCode>94539</PostalCode>
    <Country isoCountryCode="US" />
  </PostalAddress>
</Contact>
<Contact role="buyerParty">
  <Name xml:lang="en">Buyer</Name>
  <PostalAddress>
    <Street>1065 La Avenida</Street>
    <City>Mountain View</City>
    <State>CA</State>
    <PostalCode>94043</PostalCode>
    <Country isoCountryCode="US" />
  </PostalAddress>
</Contact>
<QNNotes user="Bob Alfieri" createDate="2016-09-19T13:22:16-07:00">
  <QNCode domain="subject" codeGroup="QM" codeGroupDescription="Problem Details" code="3" codeDescription="Quality activity"/>
  <Description xml:lang="en-US">Color code of the beam should be Pantone 1234</Description>
  <Attachment>
    <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
  </Attachment>
</QNNotes>
<Priority level="2">
  <Description xml:lang="en-US">High</Description>
</Priority>
<RequestedProcessingPeriod>
  <Period startDate="2016-08-23T00:00:00-07:00" endDate="2016-08-26T59:59:59-07:00" />
</RequestedProcessingPeriod>
<MalfunctionPeriod>
  <Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
</MalfunctionPeriod>
<ReferenceDocumentInfo lineNumber="2">
  <DocumentReference payloadID="ASNSurf123"/>
</ReferenceDocumentInfo>
<ItemInfo quantity="250.0">
  <ItemID>
    <SupplierPartID>Item pro</SupplierPartID>
  </ItemID>
  <UnitOfMeasure>EA</UnitOfMeasure>
</ItemInfo>
<branch productionDate="2016-06-10T14:37:31-07:00" expirationDate="2016-12-10T14:37:31-07:00" originCountryCode="US">
  <BuyerBatchID>KL45342</BuyerBatchID>
  <SupplierBatchID>AH53333</SupplierBatchID>
</Batch>
<ComplainQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ComplainQuantity>
<ReturnQuantity quantity="250">
  <UnitOfMeasure>EA</UnitOfMeasure>
</ReturnQuantity>
19.5 QualityInspectionRequest

The `QualityInspectionRequest` element represents a request to examine a specific quantity of materials at a plant.

A buyer can send a `QualityInspectionRequest` to a supplier for material goods the buyer purchased. In the quality inspection process, suppliers inspect a material or product using specifications that have been predefined in the inspection lot. Although the inspection results only document the current quality of a material or product, this information is also useful for quality control (for example, to optimize future processes).
QualityInspectionRequest has the following structure:

```xml
<QualityInspectionRequest>
  <QualityInspectionRequestHeader>
    <DocumentReference/>
    <IdReference/>
    <ShipTo/>
    <BillTo/>
    <Contact/>
    <Period/>
    <Priority/>
    <ReferenceDocumentInfo/>
    <ItemInfo/>
    <SampleDefinition/>
    <Batch/>
    <QualityInfo/>
    <AssetInfo/>
    <Comments/>
    <Extrinsic/>
  </QualityInspectionRequestHeader>
  <QualityInspectionRequestDetail>
    <QualityInspectionCharacteristic/>
  </QualityInspectionRequestDetail>
</QualityInspectionRequest>
```

QualityInspectionRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionRequestHeader</td>
<td>Contains data that is relevant for the entire quality inspection. This includes data about the partners, locations, reference documents, and item information.</td>
</tr>
<tr>
<td>QualityInspectionRequestDetail</td>
<td>Contains details about the quality inspection request.</td>
</tr>
</tbody>
</table>

The following example shows a QualityInspectionRequest:

```xml
<Request deploymentMode="production">
  <QualityInspectionRequest>
    <QualityInspectionRequestHeader requestID="2342" requestDate="2017-03-07T05:13:45-07:00" operation="new" version="1" createdBy="user1@buyer.com">
      <IdReference identifier="001" domain="inspectionType">
        <Description xml:lang="en">Inspection Type 001</Description>
      </IdReference>
      <Contact role="sellerParty">
        <Name xml:lang="en">Alfa</Name>
        <PostalAddress name="default">
          <Street>123 Greenwood</Street>
          <City>Sunnyvale</City>
          <State>CA</State>
          <PostalCode>94089</PostalCode>
        </PostalAddress>
      </Contact>
      <Contact role="buyerParty" addressID="00000001">
        <Name xml:lang="en">Omega</Name>
        <PostalAddress>
          <Street>223 Smith</Street>
          <City>Arkansas City</City>
          <State>AR</State>
          <PostalCode>71630</PostalCode>
        </PostalAddress>
      </Contact>
    </QualityInspectionRequestHeader>
  </QualityInspectionRequest>
</Request>
```
</PostalAddress>
</Contact>
<Period startDate="2016-08-08T12:03:45-07:00" endDate="2016-09-19T15:29:31-07:00" />
.Priority level="4">
<Description xml:lang="en-US">High</Description>
</Priority>
<ReferenceDocumentInfo lineNumber="3">
<DocumentReference payloadID="PO.45000101212"/>
</ReferenceDocumentInfo>
</ItemInfo quantity="1000">
<ItemID>
<SupplierPartID>AX4518</SupplierPartID>
<SupplierPartAuxiliaryID>AXSPA001</SupplierPartAuxiliaryID>
<BuyerPartID>PROD001</BuyerPartID>
<br/IdReference domain="buyerLocationID" identifier="0001">
<Description xml:lang="en">Lima Plant</Description>
</IdReference>
</ItemID>
<UnitOfMeasure>EA</UnitOfMeasure>
</ItemInfo>
</SampleDefinition sampleSize="5"/>
<Batch expirationDate="2017-03-07T14:37:31-07:00" originCountryCode="US" productionDate="2017-03-07T14:37:31-07:00">
<SupplierBatchID>KL45342</SupplierBatchID>
</Batch>
<QualityInfo requiresQualityProcess ="yes">
<br/IdReference identifier="001" domain="controlCode">
<Description xml:lang="en-US">Control Code</Description>
</IdReference>
<br/IdReference identifier="CERT123" domain="certificateType">
<Description xml:lang="en-US">Certificate Type</Description>
</IdReference>
</QualityInfo>
<AssetInfo serialNumber="1121SN"/>
<AssetInfo serialNumber="14412SN"/>
<AssetInfo serialNumber="13312SN"/>
<Comments xml:lang="en-US" type="TermsOfDelivery">Delivery at the doorstep</Comments>
<Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
19.5.1 QualityInspectionRequestHeader

The QualityInspectionRequestHeader element contains common information about the quality inspection request.

QualityInspectionRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>Network hub document number for the quality inspection request.</td>
</tr>
<tr>
<td>requestDate</td>
<td>Quality inspection request date and time.</td>
</tr>
<tr>
<td>operation</td>
<td>Operation to be performed. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• new (default)—Creates a new quality inspection request.</td>
</tr>
<tr>
<td></td>
<td>• update—Updates an existing quality inspection request.</td>
</tr>
<tr>
<td></td>
<td>• delete— Cancels an existing quality inspection request.</td>
</tr>
<tr>
<td></td>
<td>For update and delete operations, the DocumentReference element should indi-</td>
</tr>
<tr>
<td></td>
<td>culate the original quality inspection request.</td>
</tr>
<tr>
<td>version</td>
<td>Version number of this document if the current operation is update. The ver-</td>
</tr>
<tr>
<td></td>
<td>sion of a new QualityInspectionRequest is 1. An update would increment the version to 2, 3, 4, and so on.</td>
</tr>
<tr>
<td>createdBy</td>
<td>User who created the quality inspection request.</td>
</tr>
</tbody>
</table>
QualityInspectionRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Reference to an earlier quality inspection request.</td>
</tr>
<tr>
<td></td>
<td>If the QualityInspectionRequestHeader@operation is &quot;update&quot;, the DocumentReference is required and it must reference the original</td>
</tr>
<tr>
<td></td>
<td>QualityInspectionRequest document (with value &quot;new&quot; for its QualityInspectionRequest@operation) during the same quality inspection process.</td>
</tr>
<tr>
<td></td>
<td>If the attribute QualityInspectionRequestHeader@operation is &quot;delete&quot;, the DocumentReference is required and it must reference the original</td>
</tr>
<tr>
<td></td>
<td>QualityInspectionRequest document (with value &quot;new&quot; or &quot;update&quot; for its QualityInspectionRequest@operation) during the same quality inspection process.</td>
</tr>
<tr>
<td>IdReference</td>
<td>Inspection type specified by code and description. The domain should be &quot;inspectionType&quot;, and the identifier should be the code for the inspection type.</td>
</tr>
<tr>
<td>ShipTo</td>
<td>Optional ShipTo address for the item if it is not related to referenced purchase order or goods receipt.</td>
</tr>
<tr>
<td>BillTo</td>
<td>Optional BillTo address for the item if it is not related to referenced purchase order or goods receipt.</td>
</tr>
<tr>
<td>Contact</td>
<td>Related contacts like buyerParty, sellerParty, senderBusinessSystemID, senderParty, receipientParty, or componentSupplier.</td>
</tr>
<tr>
<td>Period</td>
<td>Start and end date of the quality inspection request.</td>
</tr>
<tr>
<td>Priority</td>
<td>Priority of the quality inspection.</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Reference to the purchase order or goods receipt on which the quality inspection request is reported. A quality inspection request concerns only a single item. See ReferenceDocumentInfo [page 128].</td>
</tr>
<tr>
<td>ItemInfo</td>
<td>Contains information about the goods.</td>
</tr>
<tr>
<td>SampleDefinition</td>
<td>Contains the sample size. See SampleDefinition [page 495].</td>
</tr>
<tr>
<td>Batch</td>
<td>Captures batch information of the customer and supplier.</td>
</tr>
<tr>
<td>QualityInfo</td>
<td>Contains the representation of the quality information for a line item. See QualityInfo [page 171].</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Detailed per-unit asset information for a line item. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this quality inspection request.</td>
</tr>
</tbody>
</table>
19.5.1.1 SampleDefinition

The SampleDefinition element defines the sample used for inspection.

SampleDefinition has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sampleSize</td>
<td>Number of the samples required.</td>
</tr>
<tr>
<td>sampleType</td>
<td>Sample type. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• samplingProcedure—A sampling procedure must be assigned when the master</td>
</tr>
<tr>
<td></td>
<td>inspection characteristic is used in the task list or in the material</td>
</tr>
<tr>
<td></td>
<td>specification (optional for an inspection with a material specification).</td>
</tr>
<tr>
<td></td>
<td>• additiveSample—When samples are calculated, the size of the partial sample</td>
</tr>
<tr>
<td></td>
<td>is increased by the quantity that is required for the inspection of this</td>
</tr>
<tr>
<td></td>
<td>characteristic.</td>
</tr>
<tr>
<td></td>
<td>• destructiveSample—The sample should be destroyed after inspection. This</td>
</tr>
<tr>
<td></td>
<td>means that it is no longer available. This quantity is used in the usage</td>
</tr>
<tr>
<td></td>
<td>decision as the proposed quantity for the posting to sample.</td>
</tr>
<tr>
<td></td>
<td>• spcCharacteristic—A statistical process control chart should be run.</td>
</tr>
</tbody>
</table>

19.5.2 QualityInspectionRequestDetail

The QualityInspectionRequestDetail element contains details about a quality inspection request.

QualityInspectionRequestDetail has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionCharacteristic (required)</td>
<td>Represents an inspection characteristic that describes what should be inspected. See QualityInspectionCharacteristic [page 496].</td>
</tr>
</tbody>
</table>
The `QualityInspectionCharacteristic` element represents an inspection characteristic that describes what should be inspected.

`QualityInspectionCharacteristic` has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>characteristicID</td>
<td>Number of the characteristic. The combination of this attribute with operationNumber should be unique.</td>
</tr>
<tr>
<td>operationNumber</td>
<td>Inspection operation. The combination of this attribute with characteristicID should be unique.</td>
</tr>
<tr>
<td>workCenter</td>
<td>Work center number.</td>
</tr>
<tr>
<td>procedure</td>
<td>A text value that specifies how the sample size is calculated and how the inspection characteristic is assigned values.</td>
</tr>
<tr>
<td>isLocked</td>
<td>Set to yes to indicate that a characteristic is locked and no further valuations are allowed.</td>
</tr>
<tr>
<td>allowDefectRecording</td>
<td>Set to yes to indicate that defect recording is allowed. If an inspection characteristic is rejected during results recording, the function for recording defects for a characteristic is automatically invoked.</td>
</tr>
<tr>
<td>characteristicType</td>
<td>A buyer uses inspection characteristics to describe the inspection criteria for materials, parts, and products. This allows the buyer to plan inspections systematically, uniformly, and economically. An inspection request can contain different types of characteristics, some required, optional, or conditional. Specify one of the following values:</td>
</tr>
<tr>
<td></td>
<td>• required—The inspection of this characteristic is required to create an inspection decision.</td>
</tr>
<tr>
<td></td>
<td>• optional—The inspection of this characteristic is not required to create an inspection decision.</td>
</tr>
<tr>
<td></td>
<td>• afterAccept—This conditional inspection characteristic must be inspected if the previous required characteristic was accepted.</td>
</tr>
<tr>
<td></td>
<td>• afterRejection—This conditional inspection characteristic must be inspected if the previous required characteristic was rejected.</td>
</tr>
<tr>
<td>isQuantitative</td>
<td>Set to yes if this characteristic uses a numerical measurement. Otherwise, the characteristic uses a non-numerical, qualitative measurement.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>recordingType</td>
<td>Indicates how the valuation will be sent for this characteristic:</td>
</tr>
<tr>
<td></td>
<td>● singleResult—Single values for each inspection characteristic.</td>
</tr>
<tr>
<td></td>
<td>● summarizedRecording—Summarized values for each inspection characteristic.</td>
</tr>
<tr>
<td></td>
<td>● noCharacteristicRecording—No characteristic record.</td>
</tr>
<tr>
<td></td>
<td>● classedRecording—Classed values for each inspection characteristic.</td>
</tr>
<tr>
<td>expirationDate</td>
<td>Expiration date of the characteristic.</td>
</tr>
<tr>
<td>inspectionPoint</td>
<td>Inspection point types for equipment, functional locations, physical samples, or production. These inspection point types can be assigned</td>
</tr>
<tr>
<td></td>
<td>individually in the user specifications, if required.</td>
</tr>
<tr>
<td>version</td>
<td>Version of characteristic. If any of the attributes change for the characteristic, the ERP generates another version for it.</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Indicates whether the characteristic does not exist in the reference document and is an additional valuation.</td>
</tr>
</tbody>
</table>

**QualityInspectionCharacteristic** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Quality inspection request description.</td>
</tr>
<tr>
<td>IdReference</td>
<td>Describes the code and description of the buyer characteristic, supplier characteristic, inspection method and additional information. Possible</td>
</tr>
<tr>
<td></td>
<td>domain values are:</td>
</tr>
<tr>
<td></td>
<td>● buyerInspectionCode—Customer characteristic</td>
</tr>
<tr>
<td></td>
<td>● supplierInspectionCode—Supplier characteristic</td>
</tr>
<tr>
<td></td>
<td>● inspectionMethod—Inspection method</td>
</tr>
<tr>
<td></td>
<td>● additionalInfo—Additional information</td>
</tr>
<tr>
<td>AllowedValues</td>
<td>Values allowed during the valuation for this characteristic.</td>
</tr>
<tr>
<td>ExpectedResult</td>
<td>Expected result for this characteristic, which is used to calculate the conformance and non-conformance samples by characteristic. See</td>
</tr>
<tr>
<td></td>
<td>ExpectedResult [page 499].</td>
</tr>
<tr>
<td>SampleDefinition</td>
<td>Contains the sample size and sample type.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this characteristic.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this characteristic.</td>
</tr>
</tbody>
</table>

The following example shows a **QualityInspectionCharacteristic** element:

```xml
<QualityInspectionCharacteristic characteristicID="0010" characteristicType="required" operationNumber="0010" recordingType="singleResult" workCenter="WC_1">
  <Description xml:lang="en-US">Color - Green</Description>
</QualityInspectionCharacteristic>
```
<ShortName>Dissolution: Sitagliptin</ShortName>

<IdReference domain="buyerInspectionCode" identifier="0010">
  <Description xml:lang="en">Characteristic 1 - Color Code Group</Description>
</IdReference>

<AllowedValues type="choice">
  <PropertyValue>
    <Characteristic code="1" domain="COLOR" value="Red"/>
    <Characteristic code="2" domain="COLOR" value="Violet"/>
    <Characteristic code="3" domain="COLOR" value="Blue"/>
    <Characteristic code="4" domain="COLOR" value="Green"/>
    <Characteristic code="5" domain="COLOR" value="Yellow"/>
    <Characteristic code="6" domain="COLOR" value="Orange"/>
    <Characteristic code="7" domain="COLOR" value="White"/>
    <Characteristic code="8" domain="COLOR" value="Black"/>
    <Characteristic code="9" domain="COLOR" value="Gray"/>
  </PropertyValue>
</AllowedValues>

<ExpectedResult qualitativeValue="9"/>

<SampleDefinition sampleSize="0000010"/>

</QualityInspectionCharacteristic>

<QualityInspectionCharacteristic characteristicID="0020" characteristicType="required" isQuantitative="yes" operationNumber="0010" recordingType="singleResult" workCenter="WC_1">
  <IdReference domain="buyerInspectionCode" identifier="0020">
    <Description xml:lang="en">Characteristic 2 - Volume Single Val</Description>
  </IdReference>

  <AllowedValues type="numeric"/>
  <ExpectedResult targetValue="50">
    <MinimumLimit>
      <ComparatorInfo comparatorType="lessOrEqual" comparatorValue="40"/>
    </MinimumLimit>
    <MaximumLimit>
      <ComparatorInfo comparatorType="greaterOrEqual" comparatorValue="60"/>
    </MaximumLimit>
  </ExpectedResult>

  <SampleDefinition sampleSize="0000003"/>
</QualityInspectionCharacteristic>

<QualityInspectionCharacteristic characteristicID="0030" operationNumber="0010" recordingType="summarizedRecording" isLocked="yes" isAdHoc="yes">
  <AllowedValues/>
</QualityInspectionCharacteristic>

<QualityInspectionCharacteristic characteristicID="0040" operationNumber="0010" recordingType="summarizedRecording" isLocked="yes" isAdHoc="yes">
  <AllowedValues/>
</QualityInspectionCharacteristic>
19.5.2.1.1 AllowedValues

The AllowedValues element contains values allowed during the valuation of an inspection characteristic. AllowedValues has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Type of values. Possible values:</td>
</tr>
<tr>
<td></td>
<td>numeric</td>
</tr>
<tr>
<td></td>
<td>decision</td>
</tr>
<tr>
<td></td>
<td>choice</td>
</tr>
</tbody>
</table>

AllowedValues has the following element:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PropertyValue</td>
<td>Contains values for valuating a property. You can use PropertyValue to provide the unit of measure of the allowed values by characteristic.</td>
</tr>
</tbody>
</table>

The following example shows AllowedValues with a specified unit of measure for the characteristic:

```xml
<AllowedValues type="numeric">
  <PropertyValue>
    <Characteristic code="KG" domain="UOM" value="Kilogram"/>
  </PropertyValue>
</AllowedValues>
```

19.5.2.1.2 ExpectedResult

The ExpectedResult element contains the expected result for a measurement, which is used to calculate the conformance and non-conformance samples by characteristic. ExpectedResult has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>targetValue</td>
<td>Target value for the measurement.</td>
</tr>
<tr>
<td>valuePrecision</td>
<td>Integer specifying the number of decimal places to include in the result.</td>
</tr>
<tr>
<td>qualitativeValue</td>
<td>A non-numerical value (a string) to send the expected result for qualitative valuation.</td>
</tr>
</tbody>
</table>
**ExpectedResult** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MinimumLimit</td>
<td>Minimum acceptable value.</td>
</tr>
<tr>
<td>MaximumLimit</td>
<td>Maximum acceptable value.</td>
</tr>
<tr>
<td>PropertyValue</td>
<td>Contains values for a property. Used to send the expected result for qualitative valuation.</td>
</tr>
</tbody>
</table>

The following example shows an `ExpectedResult`:

```xml
<ExpectedResult targetValue="90" valuePrecision="2">
  <MinimumLimit>
    <ComparatorInfo comparatorType="greaterOrEqual" comparatorValue="85"/>
  </MinimumLimit>
  <MaximumLimit>
    <ComparatorInfo comparatorType="lessOrEqual" comparatorValue="92"/>
  </MaximumLimit>
</ExpectedResult>
```

The following example shows an `ExpectedResult` in which the expected qualitative results are Green, Blue, and Yellow:

```xml
<ExpectedResult>
  <PropertyValue>
    <Characteristic domain="color" value="Green" code="2"/>
    <Characteristic domain="color" value="Blue" code="3"/>
    <Characteristic domain="color" value="Yellow" code="5"/>
  </PropertyValue>
</ExpectedResult>
```

### 19.6 QualityInspectionResultRequest

The `QualityInspectionResultRequest` element contains the supplier result for a quality inspection request, including valuations for all characteristics specified in the quality inspection.

`QualityInspectionResultRequest` has the following structure:

```xml
<QualityInspectionResultsRequest>
  <QualityInspectionResultRequestHeader/>
  <Batch/>
  <Comments/>
  <QualityInspectionQuantity/>
  <AssetInfo/>
  <Extrinsic/>
  <QualityInspectionResultRequestDetail>
    <QualityInspectionValuation/>
  </QualityInspectionResultRequestDetail>
</QualityInspectionResultRequest>
```
QualityInspectionResultRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionResultRequestHeader (required)</td>
<td>Contains common information about a quality inspection result.</td>
</tr>
<tr>
<td>QualityInspectionResultRequestDetail (required)</td>
<td>Contains details about a quality inspection result.</td>
</tr>
</tbody>
</table>

The following example shows a QualityInspectionResultRequest:

```xml
<Request deploymentMode="production">
  <QualityInspectionResultRequest>
    <QualityInspectionResultRequestHeader resultID="2345" resultDate="2017-03-07T05:13:45-07:00" version="1" createdBy="user1@supplier.com">
      <!-- Quality Inspection Request reference -->
      <QualityInspectionRequestReference inspectionID="2342" inspectionDate="2017-03-07T05:13:45-07:00"/>
      <!-- multiple batches -->
      <Batch expirationDate="2017-03-07T14:37:31-07:00" originCountryCode="US" productionDate="2017-03-07T14:37:31-07:00">
        <BuyerBatchID>KL45342</BuyerBatchID>
        <SupplierBatchID>AH53333</SupplierBatchID>
      </Batch>
      <Batch expirationDate="2017-03-07T14:37:31-07:00" originCountryCode="US" productionDate="2017-03-07T14:37:31-07:00">
        <BuyerBatchID>AM678912</BuyerBatchID>
        <SupplierBatchID>TY782922</SupplierBatchID>
      </Batch>
      <!-- Attachment of type Certificate of Analysis -->
      <Comments type="CertificateOfAnalysis">
        <Attachment>
          <URL>cid: part1.DO63.9823489127388@speedy.corp.alfa.com</URL>
        </Attachment>
      </Comments>
      <Comments xml:lang="en-US" type="TermsOfDelivery">Comments for Quality Inspection Result</Comments>
      <AssetInfo serialNumber="1121SN"/>
      <AssetInfo serialNumber="14412SN"/>
      <AssetInfo serialNumber="13312SN"/>
      <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
    </QualityInspectionResultRequestHeader>
    <QualityInspectionResultRequestDetail>
      <QualityInspectionValuation valuationID="1" characteristicID="1" operationNumber="12" workCenter="1001" meanValue="89.20" aboveTolerance="1" belowTolerance="1" inspectedQuantity="5" nonConformance="3" deviation="20" variance="10” numberDefects="2" serialNumber="5434520" inspectionDate="2017-03-07T14:37:31-07:00">
        <!-- 1 sample below tolerance and 2 samples above tolerance, non conformance is 3 -->
        <QualitySampleResult sampleID="1" unitValue="78.00" physicalSampleNumber="10"/>
        <QualitySampleResult sampleID="2" unitValue="88.00" physicalSampleNumber="20"/>
        <QualitySampleResult sampleID="3" unitValue="90.00" physicalSampleNumber="30"/>
        <QualitySampleResult sampleID="4" unitValue="95.00" physicalSampleNumber="40"/>
      </QualityInspectionValuation>
    </QualityInspectionResultRequestDetail>
  </QualityInspectionResultRequest>
</Request>
```
19.6.1 QualityInspectionResultRequestHeader

The QualityInspectionResultRequestHeader element contains common information about a quality inspection result.

QualityInspectionResultRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>resultID</td>
<td>Network hub document number for the quality inspection result.</td>
</tr>
<tr>
<td></td>
<td>(required)</td>
</tr>
<tr>
<td>resultDate</td>
<td>Quality inspection result date and time.</td>
</tr>
<tr>
<td></td>
<td>(required)</td>
</tr>
<tr>
<td>version</td>
<td>Version of the document.</td>
</tr>
<tr>
<td>createdBy</td>
<td>User who created the quality inspection result.</td>
</tr>
</tbody>
</table>

QualityInspectionResultRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionRequestReference (required)</td>
<td>Reference to the quality inspection request, which can contain the payloadID or the inspectionID and inspectionDate of the quality inspection request. See QualityInspectionRequestReference [page 503].</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Batch</td>
<td>Captures batch information of the customer and supplier.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this quality inspection result request.</td>
</tr>
<tr>
<td>QualityInspectionQuantity</td>
<td>The quantity of inventory that is under quality inspection. See QualityInspectionQuantity [page 503].</td>
</tr>
<tr>
<td>AssetInfo</td>
<td>Detailed per-unit asset information for a line item. See AssetInfo [page 313].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this quality inspection result request.</td>
</tr>
</tbody>
</table>

### 19.6.1.1 QualityInspectionRequestReference

The QualityInspectionRequestReference element defines the ID of a quality inspection request document. QualityInspectionRequestReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>inspectionID</td>
<td>ID of a quality inspection request document.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>Date and time the quality inspection request document was created.</td>
</tr>
</tbody>
</table>

QualityInspectionRequestReference has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Reference to an earlier quality inspection request.</td>
</tr>
</tbody>
</table>

### 19.6.1.2 QualityInspectionQuantity

The quantity of inventory that is under quality inspection.

Inspection lot quantity could be filled by supplier based on the inspected quantity on QualityInspectionResult. Generally, it is sent by the buyer, but if not the contract manufacturer can provide this quantity based on the inspection lot.
QualityInspectionQuantity has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>Quantity under quality inspection.</td>
</tr>
</tbody>
</table>

QualityInspectionQuantity has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. For a list of UN/CEFACT codes, see <a href="http://www.unetrades.net">www.unetrades.net</a>.</td>
</tr>
</tbody>
</table>

The following example shows a QualityInspectionQuantity element:

```xml
<QualityInspectionQuantity quantity="50">
  <UnitOfMeasure>EA</UnitOfMeasure>
</QualityInspectionQuantity>
```

19.6.2 QualityInspectionResultRequestDetail

The QualityInspectionResultRequestDetail element contains details about quality inspection result. QualityInspectionResultRequestDetail has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionValuation (required)</td>
<td>Contains the valuation of a characteristic of an inspection request. See QualityInspectionValuation [page 504].</td>
</tr>
</tbody>
</table>

19.6.2.1 QualityInspectionValuation

The QualityInspectionValuation element contains the valuation of a characteristic specified in an inspection request. QualityInspectionValuation has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>valuationID</td>
<td>Number of the valuation.</td>
</tr>
<tr>
<td>characteristicID</td>
<td>Characteristic ID number. The combination of this attribute with operationNumber should be unique.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>operationNumber</td>
<td>Inspection operation number. The combination of this attribute with characteristicID should be unique.</td>
</tr>
<tr>
<td>workCenter</td>
<td>Work center number.</td>
</tr>
<tr>
<td>meanValue</td>
<td>Mean value in the valuation.</td>
</tr>
<tr>
<td>aboveTolerance</td>
<td>Number of samples above tolerance limit.</td>
</tr>
<tr>
<td>belowTolerance</td>
<td>Number of samples below tolerance limit.</td>
</tr>
<tr>
<td>inspectedQuantity</td>
<td>Number of samples inspected.</td>
</tr>
<tr>
<td>nonConformance</td>
<td>Total number of samples above and below tolerance limits. This value is auto-calculated when suppliers specify the aboveTolerance or belowTolerance values. Otherwise, suppliers can specify the nonConformance value.</td>
</tr>
<tr>
<td>deviation</td>
<td>Standard deviation value.</td>
</tr>
<tr>
<td>variance</td>
<td>Variance of valid measured values for this characteristic. Applies to calculated characteristics for which the valuation is based on a formula.</td>
</tr>
<tr>
<td>numberOfDefects</td>
<td>Number of the defects in this valuation.</td>
</tr>
<tr>
<td>serialNumber</td>
<td>Single unit number for the unit to be inspected.</td>
</tr>
<tr>
<td>inspectionDate</td>
<td>Date of the characteristic inspection.</td>
</tr>
<tr>
<td>isAdHoc</td>
<td>Indicates whether the characteristic does not exist in the reference document and is an additional valuation.</td>
</tr>
</tbody>
</table>

**QualityInspectionValuation has the following elements:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualitySampleResult</td>
<td>Valuation for each sample inspected. See QualitySampleResult [page 506].</td>
</tr>
<tr>
<td>ValueGroup</td>
<td>Structure to support codes and code groups for this valuation.</td>
</tr>
<tr>
<td>Description</td>
<td>Valuation description.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this valuation.</td>
</tr>
</tbody>
</table>

The following example shows several **QualityInspectionValuation** elements:

```xml
<QualityInspectionValuation valuationID="1" characteristicID="0010" operationNumber="12" workCenter="1001" inspectedQuantity="10" inspectionDate="2017-03-07T14:37:31-07:00">
```
19.6.2.1.1 QualitySampleResult

Contains the valuation for each sample inspected.

QualitySampleResult has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sampleID</td>
<td>Sample number in valuation.</td>
</tr>
<tr>
<td>unitValue</td>
<td>Value of the sample.</td>
</tr>
<tr>
<td>physicalSampleNumber</td>
<td>Unique number for the sample when the sample was taken.</td>
</tr>
</tbody>
</table>

QualitySampleResult has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PropertyValue</td>
<td>Result of the valuation when AllowedValues@type is &quot;choice&quot; in QualityInspectionCharacteristic. You can use PropertyValue@Characteristic to provide the unit of measure for each QualityInspectionValuation.</td>
</tr>
</tbody>
</table>

The following example shows QualitySampleResult:

```xml
<QualitySampleResult sampleID="1" unitValue="80">
  <PropertyValue>
    <Characteristic code="KG" domain="UOM" value="Kilogram"/>
  </PropertyValue>
</QualitySampleResult>
```
19.7 QualityInspectionDecisionRequest

The QualityInspectionDecisionRequest element contains a request from the buyer to confirm that all physical samples have been assigned values and the inspection has been completed by the supplier. It provides a usage decision for the goods that were inspected.

QualityInspectionDecisionRequest has the following structure:

```xml
<QualityInspectionDecisionRequest>
  <QualityInspectionDecisionDetail>
    <QualityInspectionResultReference/>
    <QualityInspectionLotStock/>
    <ValueGroup/>
    <Description/>
    <Extrinsic/>
  </QualityInspectionDecisionDetail>
</QualityInspectionDecisionRequest>
```

QualityInspectionDecisionRequest has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QualityInspectionDecisionDetail (required)</td>
<td>Contains information from the quality inspection decision. See QualityInspectionDecisionDetail [page 508].</td>
</tr>
</tbody>
</table>

The following example shows a QualityInspectionDecisionRequest:

```xml
<Request deploymentMode="production">
  <QualityInspectionDecisionRequest>
    <QualityInspectionDecisionDetail decisionID="2345"
      decisionDate="2017-03-07T05:13:45-07:00" status="accepted"
      qualityScore="90" createdBy="user1@buyer.com">
      <!-- Quality Inspection Result reference -->
      <QualityInspectionResultReference inspectionID="2345"
        inspectionDate="2017-03-07T05:13:45-07:00"/>
      <QualityInspectionLotStock>
        <UnrestrictedUseQuantity quantity="1000">
          <UnitOfMeasure>EA</UnitOfMeasure>
        </UnrestrictedUseQuantity>
      </QualityInspectionLotStock>
      <!-- This is the group code -->
      <ValueGroup>
        <IdReference domain="usageDecisionCodeDomain1" identifier="123"/>
        <PropertyValue>
          <Characteristic code="GUD001" domain="usageDecisionCodeDomain1"
            value="Code Group Description GUD001"/>
        </PropertyValue>
      </ValueGroup>
      <!-- This is the child -->
      <ValueGroup>
        <IdReference domain="valuationCodeDomain1" identifier="1"/>
        <ParentID>123</ParentID>
        <PropertyValue>
          <Characteristic code="UD001" domain="valuationCodeDomain1"
            value="Code Description UD001"/>
        </PropertyValue>
      </ValueGroup>
      <Description xml:lang="en-US">Usage Decision Description</Description>
      <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
  </QualityInspectionDecisionDetail>
</QualityInspectionDecisionRequest>
```
19.7.1 QualityInspectionDecisionDetail

The QualityInspectionDecisionDetail element contains information from the quality inspection decision, such as the inspection result reference, quality quantity details, and the usage decision.

QualityInspectionDecisionDetail has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>decisionID</td>
<td>Network hub document number for the quality inspection decision request.</td>
</tr>
<tr>
<td>decisionDate</td>
<td>Quality inspection decision request date and time.</td>
</tr>
<tr>
<td>status</td>
<td>Usage decision status. Possible values are &quot;accepted&quot; or &quot;rejected&quot;.</td>
</tr>
<tr>
<td>qualityScore</td>
<td>Quality score for this inspection decision.</td>
</tr>
<tr>
<td>createdBy</td>
<td>The user who created the quality inspection decision request.</td>
</tr>
</tbody>
</table>

QualityInspectionDecisionDetail has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(QualityInspectionResultReference</td>
<td>Enter one of the reference elements:</td>
</tr>
<tr>
<td>QualityInspectionRequestReference</td>
<td></td>
</tr>
<tr>
<td>ShipNoticeReference</td>
<td></td>
</tr>
<tr>
<td>ReceiptReference</td>
<td></td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>QualityInspectionResultReference—Reference to the inspection result to confirm that all physical samples have been assigned values and the inspection has been completed. The reference can contain the payloadID or DocumentNumber and DocumentDate of the inspection result. See QualityInspectionResultReference [page 509].</td>
<td></td>
</tr>
<tr>
<td>QualityInspectionRequestReference—Reference to the quality inspection request. The reference can contain the payloadID or DocumentNumber and DocumentDate of the quality inspection request. See QualityInspectionRequestReference [page 503].</td>
<td></td>
</tr>
<tr>
<td>ShipNoticeReference—Reference to the ship notice request. The reference can contain the payloadID or DocumentNumber and DocumentDate of the ship notice request.</td>
<td></td>
</tr>
<tr>
<td>ReceiptReference—Reference to the receipt request. The reference can contain the payloadID or DocumentNumber and DocumentDate of the receipt request.</td>
<td></td>
</tr>
</tbody>
</table>
QualityInspectionLotStock
(required)

Contains information about what happened to the stock posting. For example, it could include the scrap quantity or the unrestricted use quantity from the ERP. See QualityInspectionLotStock [page 510].

ValueGroup

Structure to support codes and code groups for this inspection decision.

Description

Description of the quality inspection decision.

Extrinsic

Contains any additional information related to this inspection decision.

The following example shows a QualityInspectionDecisionDetail:

```
<QualityInspectionDecisionDetail decisionID="2346" decisionDate="2017-03-07T05:13:45-07:00" status="accepted" qualityScore="90" createdBy="user1@buyer.com">
  <QualityInspectionRequestReference inspectionID="010620171140" inspectionDate="2017-06-01T05:13:45-07:00">
    <QualityInspectionLotStock>
      <UnrestrictedUseQuantity quantity="1000">
        <UnitOfMeasure>EA</UnitOfMeasure>
      </UnrestrictedUseQuantity>
    </QualityInspectionLotStock>
  </QualityInspectionRequestReference>
  <ValueGroup>
    <IdReference domain="usageDecisionCodeDomain1" identifier="123"/>
    <PropertyValue>
      <Characteristic code="GUD001" domain="usageDecisionCodeDomain1" value="Code Group Description GUD001"/>
    </PropertyValue>
  </ValueGroup>
  <!-- This is the child -->
  <ValueGroup>
    <IdReference domain="valuationCodeDomain1" identifier="1"/>
    <ParentID>123</ParentID>
    <PropertyValue>
      <Characteristic code="UD001" domain="valuationCodeDomain1" value="Code Description UD001"/>
    </PropertyValue>
  </ValueGroup>
  <Description xml:lang="en-US">Usage Decision Description</Description>
  <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
</QualityInspectionDecisionDetail>
```

19.7.1.1 QualityInspectionResultReference

The QualityInspectionResultReference element defines the ID of a quality inspection result document. QualityInspectionResultReference has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>inspectionID</td>
<td>ID of a quality inspection result document.</td>
</tr>
</tbody>
</table>
### 19.7.1.2 QualityInspectionLotStock

The `QualityInspectionLotStock` element represents the posting of stock quantities from an inspection lot within the Quality Management module. An inspection lot is a formal request to examine a specific quantity of materials at a plant.

**QualityInspectionLotStock** has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnrestrictedUseQuantity</td>
<td>The quantity of stock to post as unrestricted stock. Unrestricted stock is the physical stock that is always available at a plant/storage location that can be consumed for stock movements and available for material requirements planning.</td>
</tr>
<tr>
<td>ScrapQuantity</td>
<td>The quantity of stock to post as scrap. Scrap of material is expected to occur during production if the material is a component.</td>
</tr>
<tr>
<td>SampleUsageQuantity</td>
<td>The quantity of stock to post as sample usage stock.</td>
</tr>
<tr>
<td>BlockedQuantity</td>
<td>The quantity of stock to post as blocked stock. Blocked stock is not counted as unrestricted stock and is not available for material requirements planning.</td>
</tr>
<tr>
<td>NewMaterialQuantity</td>
<td>The quantity of stock to post as new material.</td>
</tr>
<tr>
<td>ReserveQuantity</td>
<td>The quantity of stock to post as reserve stock.</td>
</tr>
<tr>
<td>ReturnQuantity</td>
<td>The quantity of stock in the inspection lot that was returned.</td>
</tr>
</tbody>
</table>

### 19.8 ApprovalRequest

The `ApprovalRequest` document is a type of `Request` that buyers use to send an approval notification for an order confirmation that contains line item values that exceed the buyer’s tolerances. The buyer can Approve, Reject, or Approve and Update the PO. The header includes a reference to the original `ConfirmationRequest` document, which in turn references the original PO.
The ApprovalRequest can be used to support the following flows:

- A supplier creates a ConfirmationRequest that contains line item confirmations that are out of tolerance. Based on the buyer’s business rules, the network hub processes the ConfirmationRequest but does not send it to the buyer’s external system, such as an ERP. Instead, the network hub sends an ApprovalRequest to the buyer’s external system.

- Through the network hub Web service, a buyer accepts or rejects a OrderConfirmation that is out of tolerance for one or more line items. The network hub sends an ApprovalRequest to the supplier and the buyer’s external system.

ApprovalRequest has the following structure:

```
<ApprovalRequest>
  <ApprovalRequestHeader>
    <!-- cXMLAttachment/
    <Contact/>
    <Comments/>
    <Extrinsic/>
  </ApprovalRequestHeader>
  <ApprovalRequestHeader>
    <!-- cXMLAttachment/>
    <DocumentReference payloadID="payloadID@10.163.3.194"/>
    <Attachment>
      <URL>cid:ABC290000000000000000001828</URL>
    </Attachment>
  </ApprovalRequestHeader>
  <AcceptanceItem>
    <DeviationReason/>
    <Comments/>
    <AcceptanceItemDetail>
      <AcceptanceScheduleDetail/>
      <UnitPrice/>
      <Extrinsic/>
    </AcceptanceItemDetail>
    <Extrinsic/>
  </AcceptanceItem> | 
  <ApprovalItem>
    <UnitOfMeasure/>
    <Comments/>
  </ApprovalItem>
</ApprovalRequest>
```

ApprovalRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ApprovalRequestHeader</td>
<td>(required) Contains data that is relevant for the entire approval request. This includes data about type of approval, date, reference documents.</td>
</tr>
<tr>
<td>AcceptanceItem</td>
<td>ApprovalItem</td>
</tr>
</tbody>
</table>

i Note

The ApprovalItem element is deprecated.

The following example shows an ApprovalRequest from a supplier:

```
<Request deploymentMode="production">
  <ApprovalRequest>
    <ApprovalRequestHeader creationDate="2017-06-07T08:52:57-07:00" type="orderConfirmation">
      <DocumentReference payloadID="payloadID@10.163.3.194"/>
      <cXMLAttachment>
        <Attachment>
          <URL>cid:ABC290000000000000000001828</URL>
        </Attachment>
      </cXMLAttachment>
    </ApprovalRequestHeader>
  </ApprovalRequest>
</Request>
```
The following example shows an ApprovalRequest from a buyer:

```xml
<Request deploymentMode="production">
  <ApprovalRequest>
    <ApprovalRequestHeader creationDate="2017-06-07T08:52:57-07:00" type="orderConfirmation">
      <DocumentReference payloadID="payloadID@10.163.3.194"/>
      <cXMLAttachment>
        <Attachment>
          <URL>cid:ABC29000000000000000000000001828</URL>
        </Attachment>
      </cXMLAttachment>
      <Contact>
        <Name xml:lang="en"/>
      </Contact>
      <!-- If there is no deviation for item then it's automatically approved -->
      <AcceptanceItem lineNumber="1" acceptanceStatus="approved"/>
      <!-- Quantity deviation -->
      <AcceptanceItem lineNumber="2" acceptanceStatus="awaitingApproval">
        <DeviationReason value="quantityDeviation"/>
      </AcceptanceItem>
      <!-- Date deviations -->
      <AcceptanceItem lineNumber="3" acceptanceStatus="awaitingApproval">
        <DeviationReason value="dateDeviation">
          <Comments>
            Date proposed is due to .... Please approve this.
          </Comments>
        </DeviationReason>
      </AcceptanceItem>
      <!-- Price deviations -->
      <AcceptanceItem lineNumber="4" acceptanceStatus="approved">
        <DeviationReason value="priceDeviation"/>
      </AcceptanceItem>
      <!-- Multiple deviations -->
      <AcceptanceItem lineNumber="5" acceptanceStatus="awaitingApproval">
        <DeviationReason value="quantityDeviation"/>
        <DeviationReason value="dateDeviation"/>
        <DeviationReason value="priceDeviation"/>
      </AcceptanceItem>
    </ApprovalRequestHeader>
  </ApprovalRequest>
</Request>
```
19.8.1 ApprovalRequestHeader

The ApprovalRequestHeader element contains data that is relevant for the entire approval request. This includes data about type of approval, date, reference documents.

ApprovalRequestHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>approvalStatus</td>
<td>Approval status of the request. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● approved</td>
</tr>
<tr>
<td></td>
<td>● awaitingApproval</td>
</tr>
<tr>
<td></td>
<td>● reject</td>
</tr>
<tr>
<td></td>
<td>● approvedAndUpdatePO</td>
</tr>
<tr>
<td>type</td>
<td>The type of document needing approval. The only possible value is &quot;orderConfirmation&quot;.</td>
</tr>
<tr>
<td>creationDate</td>
<td>Date and time when the document was created.</td>
</tr>
<tr>
<td>approvalStartDate</td>
<td>Reserved for future use. The date and time on which the approval is allowed to start.</td>
</tr>
<tr>
<td>approvalEndDate</td>
<td>Reserved for future use. The date and time on which the approval is allowed to end.</td>
</tr>
</tbody>
</table>

ApprovalRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Contains the payloadID of the underlying document to be approved (for example, the order confirmation).</td>
</tr>
<tr>
<td>cXMLAttachment</td>
<td>Contains the original cXML ConfirmationRequest document to be approved.</td>
</tr>
<tr>
<td>Contact</td>
<td>Contact information for the document partners.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this approval request.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this ApprovalRequestHeader.</td>
</tr>
</tbody>
</table>

19.8.2 AcceptanceItem

The AcceptanceItem element provides details about a specific approval of a line item. An ApprovalRequest can contain one or more AcceptanceItem elements.
AcceptanceItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber (required)</td>
<td>Number of the line item.</td>
</tr>
<tr>
<td>acceptanceStatus (required)</td>
<td>Acceptance status of the line item. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• approved</td>
</tr>
<tr>
<td></td>
<td>• awaitingApproval</td>
</tr>
<tr>
<td></td>
<td>• rejected</td>
</tr>
<tr>
<td></td>
<td>• approvedAndUpdatePO</td>
</tr>
</tbody>
</table>

AcceptanceItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeviationReason</td>
<td>Deviation reason why it is not approved. See DeviationReason [page 515].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this acceptance item.</td>
</tr>
<tr>
<td>AcceptanceItemDetail</td>
<td>Contains the information about the deviation approved when the acceptance status is approvedAndUpdatePO. See AcceptanceItemDetail [page 515].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this AcceptanceItem.</td>
</tr>
</tbody>
</table>

The following example shows an AcceptanceItem:

```xml
<AcceptanceItem lineNumber="1" acceptanceStatus="approvedAndUpdatePO">
  <DeviationReason value="quantityDeviation">
    <Comments>test</Comments>
  </DeviationReason>
  <DeviationReason value="priceDeviation">
    <Comments>test</Comments>
  </DeviationReason>
  <DeviationReason value="dateDeviation">
    <Comments>test</Comments>
  </DeviationReason>
  <AcceptanceItemDetail approvedAction="update">
    <UnitPrice>
      <Money currency="USD">90</Money>
    </UnitPrice>
    <AcceptanceScheduleDetail lineNumber="1" quantity="50" deliveryDate="2019-04-15T00:00:00-08:00" />
    <AcceptanceScheduleDetail lineNumber="2" quantity="50" deliveryDate="2019-04-25T00:00:00-08:00" />
    <AcceptanceScheduleDetail lineNumber="3" quantity="10" deliveryDate="2019-06-15T00:00:00-08:00" />
  </AcceptanceItemDetail>
  <Extrinsic name="approvedBy" value="john.doe@company.com"/>
</AcceptanceItem>
```
19.8.2.1 DeviationReason

The DeviationReason element provides the deviation reason why an item is not approved. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>value</td>
<td>Type of deviation. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● dateDeviation</td>
</tr>
<tr>
<td></td>
<td>● quantityDeviation</td>
</tr>
<tr>
<td></td>
<td>● priceDeviation</td>
</tr>
</tbody>
</table>

DeviationReason has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments</td>
<td>Contains comments associated with this deviation reason.</td>
</tr>
</tbody>
</table>

The following example shows DeviationReason:

```
<AcceptanceItem lineNumber="5" acceptanceStatus="approved">
  <DeviationReason value="quantityDeviation"/>
  <DeviationReason value="dateDeviation"/>
  <DeviationReason value="priceDeviation"/>
</AcceptanceItem>
```

19.8.2.2 AcceptanceItemDetail

Provides details on an AcceptanceItem. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>approvedAction</td>
<td>The action generated from the approval process. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● update—Updates an existing item with the lineNumber specified in the AcceptanceItem.</td>
</tr>
<tr>
<td></td>
<td>● replace—Replaces all the schedule information for an existing item with the lineNumber specified in the AcceptanceItem.</td>
</tr>
</tbody>
</table>

AcceptanceItemDetail has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AcceptanceScheduleDetail</td>
<td>Contains detailed information for the schedule line. See AcceptanceScheduleDetail [page 516].</td>
</tr>
<tr>
<td>UnitPrice</td>
<td>Unit price of the item. If this element is included, the unit price is updated.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this AcceptanceItemDetail.</td>
</tr>
</tbody>
</table>
19.8.2.2.1 AcceptanceScheduleDetail

Contains detailed information for the schedule line. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>Quantity approved.</td>
</tr>
<tr>
<td>deliveryDate</td>
<td>Delivery date approved.</td>
</tr>
<tr>
<td>approvedAction</td>
<td>The action generated from the approval process.</td>
</tr>
<tr>
<td></td>
<td>- new—Generates a new schedule line.</td>
</tr>
<tr>
<td></td>
<td>- update—Updates the schedule line of the specified lineNumber in the AcceptanceScheduleDetail.</td>
</tr>
<tr>
<td></td>
<td>- delete—The schedule line referenced no longer exists and must be deleted. The lineNumber attribute must be present in this case.</td>
</tr>
<tr>
<td>lineNumber</td>
<td>The line number of the schedule line to delete or update.</td>
</tr>
</tbody>
</table>

AcceptanceScheduleDetail has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this AcceptanceScheduleDetail.</td>
</tr>
</tbody>
</table>

19.8.3 ApprovalItem

**iNote**

Usage of ApprovalItem is deprecated. Use AcceptanceItem instead.

The ApprovalItem element provides details about a specific approval of a line item. A approval request can contain one or more approval items.

ApprovalItem has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber</td>
<td>Number of the line item.</td>
</tr>
<tr>
<td>quantity</td>
<td>Cumulative confirmed quantity of all elements of the same line item in the corresponding order confirmation.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>approvalStatus</td>
<td>Approval status of the line item. Possible values:</td>
</tr>
<tr>
<td>(required)</td>
<td>● approved</td>
</tr>
<tr>
<td></td>
<td>● awaitingApproval</td>
</tr>
<tr>
<td></td>
<td>● reject</td>
</tr>
<tr>
<td></td>
<td>● approvedAndUpdatePO</td>
</tr>
<tr>
<td>reason</td>
<td>Reason why the line item is out of tolerance. Possible values:</td>
</tr>
<tr>
<td></td>
<td>● quantityDeviation</td>
</tr>
<tr>
<td></td>
<td>● dateDeviation</td>
</tr>
<tr>
<td></td>
<td>● quantityAndDateDeviation</td>
</tr>
<tr>
<td>startDate</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>endDate</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>deviatedDate</td>
<td>First delivery date of all confirmed elements of the same line item that is out of tolerance.</td>
</tr>
</tbody>
</table>

ApprovalItem has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>Unit of measure to specify the quantity.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this approval item.</td>
</tr>
</tbody>
</table>

19.9 **SalesOrderRequest**

Represents a sales order request, which contains the shopping basket data sent to the procurement application from the supplier. No specific response document is required for this transaction. The network hub must respond to a `SalesOrderRequest` with a generic `Response` document.

SalesOrderRequest has the following structure:

```xml
<SalesOrderRequest>
  <SalesOrderHeader>
    <DocumentReference/>
    <Total/>
    <Tax/>
    <Contact/>
    <Comments/>
    <Extrinsic/>
  </SalesOrderHeader>
  <ItemIn/>
</SalesOrderRequest>
```
SalesOrderRequest has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SalesOrderHeader</td>
<td>Contains common information about a sales order request. See SalesOrderHeader [page 519]</td>
</tr>
<tr>
<td>ItemIn</td>
<td>Contains an item from a shopping basket to add to a requisition in the procurement application. See ItemIn [page 87].</td>
</tr>
</tbody>
</table>

The following example shows a SalesOrderRequest element:

```xml
<Request deploymentMode="production">
  <SalesOrderRequest>
    <SalesOrderHeader noticeDate="2017-12-29T10:59:30-08:00" operationAllowed="create" salesOrderID="RO9820697" operation="new" channelType="buy">
      <Contact>
        <Name xml:lang="EN"/>
        <Comments></Comments>
      </SalesOrderHeader>
      <ItemIn quantity="10">
        <ItemID>
          <SupplierPartID>SS-PART</SupplierPartID>
          <BuyerPartID>BSS-PART</BuyerPartID>
        </ItemID>
        <ItemDetail>
          <UnitPrice>
            <Money currency=""/>
          </UnitPrice>
          <Description xml:lang="EN"/>
          <UnitOfMeasure/>
          <Classification domain=""/>
        </ItemDetail>
        <Contact role="locationTo">
          <Name xml:lang="EN">"PA - Plant1"</Name>
          <IdReference domain="buyerLocationID" identifier="0001"/>
        </Contact>
        <DateInfo type="requestedDeliveryDate" date="2017-12-28T00:00"/>
        <DateInfo type="expectedShipmentDate" date="2017-12-28T00:00"/>
      </ItemIn>
    </SalesOrderRequest>
  </Request>
```
19.9.1 SalesOrderHeader

Contains common information about a sales order.

SalesOrderHeader has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>salesOrderID</td>
<td>An identifier for this particular sale order assigned by the supplier. This attribute provides an unambiguous and direct connection between all versions of the sale order. A user-visible and secondary (to the payloadID attribute of the cXML element) identifier for this document. This value should remain same for all SalesOrderRequests corresponding to the same order. The salesOrderID may be used in the procurement application for processing this request. Links between these documents must be deduced using the DocumentReference element contained in the update's SalesOrderHeader and the payloadID attribute of the original or previous update.</td>
</tr>
<tr>
<td>operation</td>
<td>The (optional) operational mode of the sales order document. Defaults to &quot;new&quot;. An &quot;update&quot; operation allows a supplier to correct an error in a sale order or to add additional information learned later. In either case, an &quot;update&quot; document must be complete: All data from the original sale order or a previous update should be discarded by the recipient. A &quot;cancel&quot; operation allows a supplier to cancel a sale order sent earlier. A SalesOrderRequest with an &quot;update&quot; operation must also include a DocumentReference element in the SalesOrderHeader. This effectively sequences multiple versions of a confirmation and may provide a link between those versions.</td>
</tr>
<tr>
<td>operationAllowed</td>
<td>Highest operation allowed on the shopping basket in the procurement application. &quot;create&quot; allows only later OrderRequest operations on these items. &quot;inspect&quot; adds a PunchOutSetupRequest with operation=&quot;inspect&quot;. And, &quot;edit&quot; allows operation=&quot;edit&quot; in the later punchout setup request.</td>
</tr>
<tr>
<td>noticeDate</td>
<td>The date and time this sale order was created.</td>
</tr>
<tr>
<td>orderVersion</td>
<td>The supplier system order version number for this request. Relevant when the SalesOrderRequest represents a change order request. The version number for the original document should be 1 and should be incremented by 1 for each subsequent version.</td>
</tr>
<tr>
<td>channelType</td>
<td>Indicates the action expected by the supplier who initiates the sales document. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• buy - The buyer will create a Sales Order.</td>
</tr>
<tr>
<td></td>
<td>• sell - The buyer will create a Purchase Order.</td>
</tr>
<tr>
<td></td>
<td>• visibility - No action is expected from the buyer. The supplier is sending the sales document for visibility on a purchase order from a third party.</td>
</tr>
</tbody>
</table>
SalesOrderHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>Required when the operation is &quot;update&quot;. It contains a reference to the most recent SalesOrderRequest document for this particular sales order (usually also indicated by a common salesOrderID). For example, when a sale order is created, updated, and then updated again, the final document must contain a DocumentReference referring to the previous sales order request with operation=&quot;update&quot;. That document must, in turn, refer to the original (operation=&quot;new&quot;) SalesOrderRequest document.</td>
</tr>
<tr>
<td>Total</td>
<td>The total of the sales order request.</td>
</tr>
<tr>
<td>Tax</td>
<td>Indicates taxes that are applicable to this sales order request.</td>
</tr>
<tr>
<td>Contact (required)</td>
<td>Uniquely identifies the requester in the procurement application. There must a contact with the role of &quot;requester&quot; along with the details of the requester.</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this sales order request.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this sales order request.</td>
</tr>
</tbody>
</table>
This section describes the documents that support logistics processes. The cXML elements for logistics are defined in a DTD named Logistics.dtd, available at:

http://xml.cXML.org/schemas/cXML/<version>/Logistics.dtd

- Overview of Logistics [page 521]
- TransportRequest [page 523]
- TransportConfirmation [page 534]
- Other Logistics Elements [page 541]

### 20.1 Overview of Logistics

The Logistics.dtd provides cXML elements that support logistics processes. A logistics provider participates in the logistics workflow between buyers and suppliers in domestic and international transactions. Logistics providers receive transportation requests from buyers and suppliers, and they respond to, track, and report on those requests.

Logistics providers typically specialize in integrated operation, warehousing, and transportation services. Often, these services go beyond logistics and include value-added services that integrate parts of the supply chain.

The cXML standard provides the following documents for logistics transactions:

- **TransportRequest** — A request made from one originating party to a logistics provider to arrange delivery for up to multiple consignments.
- **TransportConfirmation** — A response message sent from a logistics provider to an interested party (for example, the party requesting the transport), containing updates on the process for a transportation request.

### 20.1.1 Logistics Terms

This topic describes terms used in the logistics process.

- **Carrier**
  A firm that transports goods or people via land, sea, or air.

- **Consignee**
  The company to whom freight is shipped.

- **Consignment**
  Group of packages going from a Consignor (shipFrom) to a Consignee (shipTo). It has a single originating location and a single destination location.

- **Consignor**
  The company that sends freight.
Means of Transportation: The vehicle used for the transport of goods or persons, for example, an aircraft, truck, or vessel.

Mode of Transportation: The method of transport used for the conveyance of goods or persons, for example, by rail, by road, or by sea.

Package (or Dispatch Unit): The minimum unit of cargo that will be handled. It contains a collection of material lines. A package may fully contain one or more material lines, or a material line may be contained in more than one package (in this case, each package contains just a part of the material line). In other words, there is a many-to-many relationship between packages and material lines. This information is supplied by the consignor. This is a physical layer of organizing packages. Example of package types include containers, boxes, pallets, and so on.

Party: A company involved in the transportation of goods.

Third-Party Logistics Provider (3PL): A company that works with buyers and suppliers to provide outsourced logistics services, which can include warehousing, transportation services, and other integrated supply chain management functions.

Transport Equipment: Material resources needed to facilitate the transport and handling of cargo. Transport equipment is not self-propelled. For example, it can be a container, trailer, or pallet.

Type of Means of Transportation: The type of vehicle used in the transport process, for example, wide body, tank truck, or passenger vessel.

20.1.2 Logistics Process

This topic describes a simple logistics workflow process.

1. The requesting party (either a Buyer or Supplier) sends a TransportRequest to a Third-Party Logistics Provider (3PL). The TransportRequest provides the 3PL the following information:
   - Details of the packages to transport: dimensions, packaging information, classification, temperature and hazard materials information. Optionally, the details of the material items as they are contained in their packages, as well as references to other documents (for example, Purchase Order, ShipNotice, and Invoice).
   - Details of any transportation equipment needed for carrying the goods
   - Pick-up and delivery locations, as well as the dates requested for such locations.
   - Mode of transportation.
   - Means of transportation.
   - The Shipment Identifier (Tracking Number), if it is known.
   - Optional information, such as the total value of the goods.

2. The 3PL examines the request and, based on their operational capabilities and agreements with the requestor, accepts or rejects it.

3. When a transportation event occurs in the shipment (such as collection, cancellation, scan at different locations, delivery, or return of goods), the 3PL sends a TransportConfirmation to the requestor, indicating the event and, if applicable, any updated information.
### 20.2 TransportRequest

The `TransportRequest` element defines a request made from one originating party to a logistics provider to arrange delivery for consignments.

The `TransportRequest` element has the following structure:

```xml
<TransportRequest>
  <TransportRequestHeader>
    <TransportPartner/>
    <Comments/>
    <Extrinsic/>
  </TransportRequestHeader>
  <Consignment>
    <ConsignmentHeader/>
    <ConsignmentLineDetail/>
    <TransportEquipment/>
  </Consignment>
  <TransportSummary>
    <FreightChargesAmount/>
    <SubtotalAmount/>
    <InsuranceValue/>
    <Dimension/>
    <Extrinsic/>
  </TransportSummary>
</TransportRequest>
```

`TransportRequest` has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportRequestHeader</td>
<td>Contains common information for all consignments. See <code>TransportRequestHeader</code> [page 526].</td>
</tr>
<tr>
<td>Consignment</td>
<td>Describes a consignment, which is a collection of packages going from a single originating party to a single destination party. See <code>Consignment</code> [page 527].</td>
</tr>
<tr>
<td>TransportSummary</td>
<td>Contains a summary of the data contained in all the consignments of this document. See <code>TransportSummary</code> [page 533].</td>
</tr>
</tbody>
</table>

The following example shows a `TransportRequest` document:

```xml
<Request>
  <TransportRequest requestID="1" requestDate="2015-10-30T16:42:35-05:00" operation="new">
    <TransportPartner role="carrier">
      <Contact role="carrierCorporate">
        <Name xml:lang="en_US">My Logistics Partner</Name>
        <PostalAddress>
          <Street>1234 Logistic St.</Street>
          <City>Memphis</City>
          <Country isoCountryCode="US"/>
        </PostalAddress>
        <IdReference identifier="AN02000000104" domain="NetworkID"/>
      </Contact>
    </TransportPartner>
    <Consignment consignmentID="1">
      <ConsignmentHeader/>
      <ConsignmentLineDetail/>
      <TransportEquipment/>
    </Consignment>
  </TransportRequest>
</Request>
```
<TransportPackage>
  <Packaging>
    <PackagingCode xml:lang="en_US">regularBox</PackagingCode>
    <Description xml:lang="en_US">Standard box</Description>
    <PackagingLevelCode.Inner>PackagingLevelCode</PackagingLevelCode>
    <ShippingContainerSerialCode>1</ShippingContainerSerialCode>
    <!-- Reference to root package (code 0) -->
    <ShippingContainerSerialCodeReference>0</ShippingContainerSerialCodeReference>
  </Packaging>
  <ItemInfo quantity="100">
    <Description xml:lang="en_US">iPhone 6, 64GB, Space Black</Description>
    <ReferenceDocumentInfo lineNumber="1">
      <DocumentInfo documentType="order" documentID="PO-001"/>
    </ReferenceDocumentInfo>
    <ReferenceDocumentInfo lineNumber="1">
      <DocumentInfo documentType="invoice" documentID="INV-001"/>
    </ReferenceDocumentInfo>
    <ReferenceDocumentInfo lineNumber="1">
      <DocumentInfo documentType="shipNotice" documentID="SN-001"/>
    </ReferenceDocumentInfo>
    <UnitOfMeasure>UNIT</UnitOfMeasure>
  </ItemInfo>
</TransportPackage>

<TransportPackage>
  <Packaging>
    <PackagingCode xml:lang="en_US">regularBox</PackagingCode>
    <Description xml:lang="en_US">Standard box</Description>
    <PackagingLevelCode.Inner>PackagingLevelCode</PackagingLevelCode>
    <ShippingContainerSerialCode>2</ShippingContainerSerialCode>
    <!-- Reference to root package (code 0) -->
    <ShippingContainerSerialCodeReference>0</ShippingContainerSerialCodeReference>
  </Packaging>
  <ItemInfo quantity="120">
    <Description xml:lang="en_US">Galaxy S6, 64GB, Black</Description>
    <ReferenceDocumentInfo lineNumber="2">
      <DocumentInfo documentType="order" documentID="PO-001"/>
    </ReferenceDocumentInfo>
    <ReferenceDocumentInfo lineNumber="2">
      <DocumentInfo documentType="invoice" documentID="INV-001"/>
    </ReferenceDocumentInfo>
    <ReferenceDocumentInfo lineNumber="2">
      <DocumentInfo documentType="shipNotice" documentID="SN-001"/>
    </ReferenceDocumentInfo>
    <UnitOfMeasure>UNIT</UnitOfMeasure>
  </ItemInfo>
</TransportPackage>

</ConsignmentLineDetail>
</Consignment>
</TransportSummary numberOfPackages="1"/>
</TransportRequest>
</Request>
20.2.1 TransportRequestHeader

TransportRequestHeader is the header element for the transport request and contains common information for all consignments. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation</td>
<td>Operation to perform. Defaults to &quot;new&quot;, which creates a new request. Update and delete operations are not supported for this document.</td>
</tr>
<tr>
<td>requestID</td>
<td>A user-supplied identifier for this transport request.</td>
</tr>
<tr>
<td>requestDate</td>
<td>User-supplied date and time when this document was created.</td>
</tr>
</tbody>
</table>

TransportRequestHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportPartner</td>
<td>Represents a party, or company, of the transport service. See TransportPartner [page 526].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this object.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

20.2.1.1 TransportPartner

TransportPartner represents a party, or company, of the transport service. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>The role of the transport partner. Possible values:</td>
</tr>
<tr>
<td>(required)</td>
<td>- shipFrom—The originating party for this consignment.</td>
</tr>
<tr>
<td></td>
<td>- shipTo—The destination party for this consignment.</td>
</tr>
<tr>
<td></td>
<td>- carrier—The party in charge of carrying the goods.</td>
</tr>
</tbody>
</table>

TransportPartner has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact</td>
<td>Supplies additional Address or Location information for the requesting company.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
20.2.2 Consignment

Consignment describes a consignment, which is a collection of packages going from a single originating party to a single destination party. It has one attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>consignmentID</td>
<td>Identifier for this consignment.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

20.2.2.1 ConsignmentHeader

ConsignmentHeader contains common information for all the packages of this consignment. It has the following optional attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>numberOfPackages</td>
<td>Total number of physical packages of this consignment.</td>
</tr>
</tbody>
</table>

ConsignmentHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportPartner</td>
<td>Represents a party, or company, of the transport service. See TransportPartner [page 526].</td>
</tr>
<tr>
<td>Dimension</td>
<td>Specifies a single dimension for the packaging of the item.</td>
</tr>
<tr>
<td>CommercialTerms</td>
<td>Defines the commercial terms of these goods. See CommercialTerms [page 528].</td>
</tr>
<tr>
<td>NetAmount</td>
<td>Total value of the goods in this consignment.</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Reference to legal documents related to this consignment. See ReferenceDocumentInfo [page 128].</td>
</tr>
<tr>
<td>ShipmentIdentifier</td>
<td>Identifier for this consignment as assigned by the carrier (if known).</td>
</tr>
<tr>
<td>TransportRequirements</td>
<td>Contains information about the transport service that is requested from the logistics provider. See TransportRequirements [page 528].</td>
</tr>
<tr>
<td>Origin</td>
<td>Describes the origin location for the goods. See Origin [page 529]. (required)</td>
</tr>
<tr>
<td>Destination</td>
<td>Describes the destination location for the goods. See Destination [page 529]. (required)</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Route</td>
<td>Indicates the transport mode (method) and means for this consignment. No other Route data is needed for this context. See Route [page 529].</td>
</tr>
<tr>
<td>TransportCondition</td>
<td>Contains required conditions for the transport. See TransportCondition [page 530].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this object.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

**20.2.2.1.1 CommercialTerms**

*CommercialTerms* defines the commercial terms of goods. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>incoterm (required)</td>
<td>Contains the three-letter Incoterm 2010 edition code, in lower case, as defined by the International Chamber of Commerce (ICC). Possible values are:</td>
</tr>
<tr>
<td></td>
<td>● cfr—Cost And Freight</td>
</tr>
<tr>
<td></td>
<td>● cif—Cost Insurance And Freight</td>
</tr>
<tr>
<td></td>
<td>● cip—Carriage And Insurance Paid</td>
</tr>
<tr>
<td></td>
<td>● cpt—Carriage Paid</td>
</tr>
<tr>
<td></td>
<td>● daf—Delivered At Frontier</td>
</tr>
<tr>
<td></td>
<td>● ddp—Delivered Duty Paid</td>
</tr>
<tr>
<td></td>
<td>● ddu—Delivered Duty Unpaid</td>
</tr>
<tr>
<td></td>
<td>● deq—Delivered Ex Quay</td>
</tr>
<tr>
<td></td>
<td>● dese—Delivered Ex Ship</td>
</tr>
<tr>
<td></td>
<td>● exw—Ex Works</td>
</tr>
<tr>
<td></td>
<td>● fas—Free Alongside Ship</td>
</tr>
<tr>
<td></td>
<td>● fca—Free Carrier</td>
</tr>
<tr>
<td></td>
<td>● fob—Free On Board</td>
</tr>
</tbody>
</table>

**20.2.2.1.2 TransportRequirements**

*TransportRequirements* contains information about the transport service that is requested from the logistics provider. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard</td>
<td>Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>TransportTemperature</td>
<td>Contains a temperature or temperature range that must be observed during transportation. See TransportTemperature [page 543].</td>
</tr>
<tr>
<td>Classification</td>
<td>Classification of the goods carried.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.2.1.3 Origin

Origin describes the origin location for the goods. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Contains the address of this location.</td>
</tr>
<tr>
<td>DateInfo</td>
<td>Contains dates applicable for this location. See DateInfo [page 541].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.2.1.4 Destination

Destination describes the destination location for the goods.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Contains the address of this location.</td>
</tr>
<tr>
<td>DateInfo</td>
<td>Contains dates applicable for this location. See DateInfo [page 541].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.2.1.5 Route

Route describes how the shipment will travel on this segment, indicating the transport mode (method) and the means for this consignment. Each carrier within a segment controlled by a third party logistics provider provides tracking information to that provider externally. See Route [page 302].
### 20.2.2.1.6 TransportCondition

TransportCondition contains required conditions for the transport. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority</td>
<td>Priority indicator representing the &quot;speed&quot; of the service. The highest priority is an express service, while the lowest one is a mail service.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.2.2 ConsignmentLineDetail

ConsignmentLineDetail contains a group of packages of a consignment. Each package may contain a single item on it. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lineNumber (required)</td>
<td>A sequential number for this line that is unique for this consignment.</td>
</tr>
<tr>
<td>numberOfPackages (required)</td>
<td>Total number of physical packages of this consignment.</td>
</tr>
</tbody>
</table>

ConsignmentLineDetail has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportPackage</td>
<td>Describes the material items contained within a package. See TransportPackage [page 531].</td>
</tr>
<tr>
<td>TransportRequirements</td>
<td>Contains information about the transport service that is requested from the logistics provider. See TransportRequirements [page 528].</td>
</tr>
<tr>
<td>TransportPlacement</td>
<td>Describes how the packages are placed into transport equipment. See TransportPlacement [page 531].</td>
</tr>
<tr>
<td>ReferenceDocumentInfo</td>
<td>Reference to external documents. See ReferenceDocumentInfo [page 128].</td>
</tr>
<tr>
<td>Comments</td>
<td>Contains comments associated with this object.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>
20.2.2.1 TransportPackage

TransportPackage describes the material items contained within a package. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>Contains details about the packaging of this line item.</td>
</tr>
<tr>
<td>ItemInfo</td>
<td>References a specific item and its relationship with a Purchase Order, Invoice, and Ship Notice. See ItemInfo [page 542].</td>
</tr>
</tbody>
</table>

20.2.2.2 TransportPlacement

TransportPlacement describes how the packages are placed into transport equipment. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>equipmentID</td>
<td>ID of the transport equipment.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>numberOfPackages</td>
<td>The quantity of packages placed into the equipment.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>

20.2.2.3 TransportEquipment

TransportEquipment defines a piece of transport equipment needed for this consignment. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>equipmentID</td>
<td>The identifier of this equipment. Must be unique for this consignment.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>type</td>
<td>Type of this equipment. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• dimeCoatedTank - A tank coated with dime.</td>
</tr>
<tr>
<td></td>
<td>• epoxyCoatedTank - A tank coated with epoxy.</td>
</tr>
<tr>
<td></td>
<td>• pressurizedTank - A tank capable of holding pressurized goods.</td>
</tr>
<tr>
<td></td>
<td>• refrigeratedTank - A tank capable of keeping goods refrigerated.</td>
</tr>
<tr>
<td></td>
<td>• stainlessSteelTank - A tank made of stainless steel.</td>
</tr>
<tr>
<td></td>
<td>• nonWorking40ftReeferContainer - A 40 foot refrigerated container that is not actively controlling temperature of the product.</td>
</tr>
<tr>
<td></td>
<td>• euroPallet - 80 x 120 cm.</td>
</tr>
<tr>
<td></td>
<td>• scandinavianPallet - 100 x 120 cm.</td>
</tr>
<tr>
<td></td>
<td>• trailer - Non self-propelled vehicle designed for the carriage of cargo so that it can be towed by a motor vehicle.</td>
</tr>
<tr>
<td></td>
<td>• nonWorking20ftReeferContainer - A 20 foot refrigerated container that is not actively controlling temperature of the product.</td>
</tr>
<tr>
<td></td>
<td>• nonWorking30ftReeferContainer - A 30 foot refrigerated container that is not actively controlling temperature of the product.</td>
</tr>
<tr>
<td></td>
<td>• nonWorking40ftReeferContainer - A 40 foot refrigerated container that is not actively controlling temperature of the product.</td>
</tr>
<tr>
<td></td>
<td>• exchangeablePallet - Standard pallet exchangeable following international convention.</td>
</tr>
<tr>
<td></td>
<td>• semiTrailer - Non self-propelled vehicle without front wheels designed for the carriage of cargo and provided with a kingpin.</td>
</tr>
<tr>
<td></td>
<td>• tankContainer20ft - A tank container with a length of 20 feet.</td>
</tr>
<tr>
<td></td>
<td>• tankContainer30ft - A tank container with a length of 30 feet.</td>
</tr>
<tr>
<td></td>
<td>• tankContainer40ft - A tank container with a length of 40 feet.</td>
</tr>
<tr>
<td></td>
<td>• refrigeratedTank20ft - A refrigerated tank with a length of 20 feet.</td>
</tr>
<tr>
<td></td>
<td>• refrigeratedTank30ft - A refrigerated tank with a length of 30 feet.</td>
</tr>
<tr>
<td></td>
<td>• refrigeratedTank40ft - A refrigerated tank with a length of 40 feet.</td>
</tr>
<tr>
<td></td>
<td>• temperatureControllerContainer20ft - Temperature-controlled container measuring 20 feet.</td>
</tr>
<tr>
<td></td>
<td>• temperatureControllerContainer30ft - Temperature-controlled container measuring 30 feet.</td>
</tr>
<tr>
<td></td>
<td>• temperatureControllerContainer40ft - Temperature-controlled container measuring 40 feet.</td>
</tr>
<tr>
<td></td>
<td>• totebin - A steel open top unit of about 1.5 * 1.5 * 2.5 meters for road transport of bulk cargo.</td>
</tr>
<tr>
<td></td>
<td>• dualTrailers - Two trailers linked together one behind another and pulled by one tractor.</td>
</tr>
<tr>
<td>numberOfEquipments</td>
<td>The number of equipment units available.</td>
</tr>
<tr>
<td>providedBy</td>
<td>Indicates who provides this equipment. Possible values:</td>
</tr>
<tr>
<td></td>
<td>• sender</td>
</tr>
<tr>
<td></td>
<td>• receiver</td>
</tr>
<tr>
<td></td>
<td>• carrier</td>
</tr>
<tr>
<td></td>
<td>• other</td>
</tr>
</tbody>
</table>
### TransportEquipment

TransportEquipment has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VehicleRegistration</td>
<td>Contains the registration number of a vehicle and its country. See <a href="#">VehicleRegistration</a> [page 533].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.2.3.1 VehicleRegistration

VehicleRegistration contains the registration number of a vehicle and its country. It has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RegistrationNumber</td>
<td>The vehicle registration number can be one of the following numbers:</td>
</tr>
<tr>
<td></td>
<td>- License plate for cars and trucks.</td>
</tr>
<tr>
<td></td>
<td>- Registration number for airplanes.</td>
</tr>
<tr>
<td></td>
<td>- IMO number for ships.</td>
</tr>
</tbody>
</table>

### 20.2.3 TransportSummary

TransportSummary contains a summary of the data contained in all the consignments of this document. It has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>numberOfPackages</td>
<td>Total number of physical packages in this transport request.</td>
</tr>
</tbody>
</table>

TransportSummary has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FreightChargesAmount</td>
<td>Contains the total of freight charges. See <a href="#">FreightChargesAmount</a> [page 534].</td>
</tr>
<tr>
<td>SubtotalAmount</td>
<td>Taxable amount for the freight charges.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>InsuranceValue</td>
<td>Contains the declared value of the goods for insurance purposes. See InsuranceValue [page 534].</td>
</tr>
<tr>
<td>Dimension</td>
<td>Total dimensions for the packages of all consignments.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.2.3.1 FreightChargesAmount

FreightChargesAmount contains the total of freight charges. It has no attributes and one required element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the freight charges. (required)</td>
</tr>
</tbody>
</table>

### 20.2.3.2 InsuranceValue

InsuranceValue contains the declared value of the goods for insurance purposes. It has no attributes and one required element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Monetary amount of the declared value of the goods. (required)</td>
</tr>
</tbody>
</table>

### 20.3 TransportConfirmation

The TransportConfirmation element contains a message sent from a logistics provider to an interested party (for example, the party requesting the transport), containing updates on the process for a transportation request.

The TransportConfirmation element has the following structure:

```xml
<TransportConfirmation>
  <TransportConfirmationHeader>
    <TransportPartner/>
    <Extrinsic/>
  </TransportConfirmationHeader>
  <TransportReference>
    <DocumentReference/>
  </TransportReference>
  <ConsignmentConfirmation>
```
TransportConfirmation has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportConfirmation-</td>
<td>Contains common information that applies to the whole confirmation message.</td>
</tr>
<tr>
<td>Header (required)</td>
<td>See TransportConfirmationHeader [page 538].</td>
</tr>
<tr>
<td>TransportReference (required)</td>
<td>Defines a reference to an earlier TransportRequest document. See TransportReference [page 538].</td>
</tr>
<tr>
<td>ConsignmentConfirmation (required)</td>
<td>Represents an update made to a previously existing consignment from the referenced TransportRequest. See ConsignmentConfirmation [page 539].</td>
</tr>
</tbody>
</table>

The following example shows a TransportConfirmation document with a consignment status of "accepted":

```xml
<Request>
  <TransportConfirmation>
    <TransportConfirmationHeader operation="new"
      confirmationID="RES001" confirmationDate="2015-10-30">
      <TransportPartner role="carrier">
        <Contact role="carrierCorporate">
          <Name xml:lang="en-US">My Logistics Partner</Name>
          <PostalAddress>
            <Street>1234 Logistic St.</Street>
            <City>Memphis</City>
            <Country isoCountryCode="US"/>
          </PostalAddress>
        </Contact>
      </TransportPartner>
    </TransportConfirmationHeader>
    <TransportReference requestID="1" requestDate="2015-10-30T16:42:35-05:00">
      <DocumentReference payloadID="13770812585335@10.58.34.53"/>
    </TransportReference>
    <ConsignmentConfirmation consignmentID="1" consignmentStatus="accepted">
      <ConsignmentConfirmationHeader numberOfPackages="1">
        <Hazard>
          <Classification domain="UNDG" code="ONU NUMBER"/>
        </Hazard>
        <Dimension quantity="10" type="grossWeight">
          <UnitOfMeasure>TN</UnitOfMeasure>
        </Dimension>
        <Dimension quantity="23" type="grossVolume">
          <UnitOfMeasure>m3</UnitOfMeasure>
        </Dimension>
        <ReferenceDocumentInfo>
          <DocumentInfo documentType="formNumber" documentID="FORM--001"/>
        </ReferenceDocumentInfo>
      </ConsignmentConfirmationHeader>
    </ConsignmentConfirmation>
  </TransportConfirmation>
</Request>
```
The following example shows a TransportConfirmation document with a consignment status of "rejected":

```
<Request>
  <TransportConfirmation>
    <TransportConfirmationHeader operation="new" confirmationID="RES001" confirmationDate="2015-10-30">
      <TransportPartner role="carrier">
        <Contact role="carrierCorporate">My Logistics Partner</Contact>
        <PostalAddress>
          <Street>1234 Logistic St.</Street>
          <City>Memphis</City>
          <Country isoCountryCode="US"/>
        </PostalAddress>
      </Contact>
    </TransportConfirmationHeader>
    <TransportReference requestID="1" requestDate="2015-10-30T16:42:35-05:00">
      <DocumentReference payloadID="1377081258533@10.58.34.53"/>
    </TransportReference>
    <ConsignmentConfirmation consignmentID="1" consignmentStatus="rejected" rejectionReason="MaterialBadConditioning">
      <ConsignmentConfirmationHeader numberofPackages="1">
        <Comments type="rejectionComments" xml:lang="en-US">not suitable packaging for goods to be transported</Comments>
      </ConsignmentConfirmationHeader>
    </ConsignmentConfirmation>
  </TransportConfirmation>
</Request>
```

The following example shows a TransportConfirmation document with a consignment status of "collected":

```
<Request>
  <TransportConfirmation>
    <TransportConfirmationHeader operation="new" confirmationID="RES001" confirmationDate="2015-10-30">
      <TransportPartner role="carrier">
        <Contact role="carrierCorporate">My Logistics Partner</Contact>
        <PostalAddress>
          <Street>1234 Logistic St.</Street>
          <City>Memphis</City>
          <Country isoCountryCode="US"/>
        </PostalAddress>
      </Contact>
    </TransportConfirmationHeader>
    <TransportReference requestID="1" requestDate="2015-10-30T16:42:35-05:00">
      <DocumentReference payloadID="1377081258533@10.58.34.53"/>
    </TransportReference>
    <ConsignmentConfirmation consignmentID="1" consignmentStatus="collected" rejectionReason="MaterialBadConditioning">
      <ConsignmentConfirmationHeader numberofPackages="1">
        <Comments type="rejectionComments" xml:lang="en-US">not suitable packaging for goods to be transported</Comments>
      </ConsignmentConfirmationHeader>
    </ConsignmentConfirmation>
  </TransportConfirmation>
</Request>
```
The following example shows a TransportConfirmation document with a consignment status of "cancelled":

```xml
<Request>
  <TransportConfirmation>
    <TransportConfirmationHeader operation="new" confirmationID="RES001"
      confirmationDate="2015-10-30">
      <TransportPartner role="carrier">
        <Contact role="carrierCorporate">
          <Name xml:lang="en_US">My Logistics Partner</Name>
          <PostalAddress>
            <Street>1234 Logistic St.</Street>
            <City>Memphis</City>
            <Country isoCountryCode="US"/>
          </PostalAddress>
        </Contact>
      </TransportPartner>
      <TransportReference requestID="1"
        requestDate="2015-10-30T16:42:35-05:00">
        <DocumentReference payloadID="1377081258533@10.58.34.53"/>
      </TransportReference>
      <ConsignmentConfirmation consignmentID="1" consignmentStatus="cancelled">
        <ConsignmentConfirmationHeader numberOfPackages="1">
          <Dimension quantity="10" type="grossWeight">
            <UnitOfMeasure>TN</UnitOfMeasure>
          </Dimension>
          <Dimension quantity="23" type="grossVolume">
            <UnitOfMeasure>m3</UnitOfMeasure>
          </Dimension>
        </ConsignmentConfirmationHeader>
        <TransportEquipment equipmentID="1">
          <VehicleRegistration>
            <RegistrationNumber>ANH-212</RegistrationNumber>
          </VehicleRegistration>
        </TransportEquipment>
      </ConsignmentConfirmation>
    </TransportConfirmationHeader>
  </TransportConfirmation>
</Request>
```
20.3.1 TransportConfirmationHeader

TransportConfirmationHeader contains common information that applies to the whole confirmation message. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation</td>
<td>Operation to perform. Defaults to &quot;new&quot;, which creates a new confirmation. Update and delete operations are not supported for this document.</td>
</tr>
<tr>
<td>confirmationID</td>
<td>User-supplied identifier for this confirmation.</td>
</tr>
<tr>
<td>confirmationDate</td>
<td>User-supplied date for this confirmation.</td>
</tr>
</tbody>
</table>

TransportConfirmationHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransportPartner</td>
<td>Represents a party, or company, of the transport service. See TransportPartner [page 526].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

20.3.2 TransportReference

TransportReference defines a reference to an earlier TransportRequest document. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>The ID of a transport request known to the system of the party that created the TransportRequest.</td>
</tr>
<tr>
<td>requestDate</td>
<td>The date and time the transport request was created.</td>
</tr>
</tbody>
</table>

TransportReference has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DocumentReference</td>
<td>References an earlier document, for example, a TransportRequest.</td>
</tr>
</tbody>
</table>
20.3.3 ConsignmentConfirmation

ConsignmentConfirmation represents an update made to a previously existing consignment from the referenced TransportRequest. It has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>consignmentID</td>
<td>Identifier for this consignment.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
<tr>
<td>consignmentStatus</td>
<td>The new status for this consignment. Possible values:</td>
</tr>
<tr>
<td>(required)</td>
<td>● accepted</td>
</tr>
<tr>
<td></td>
<td>● collected</td>
</tr>
<tr>
<td></td>
<td>● rejected</td>
</tr>
<tr>
<td></td>
<td>● cancelled</td>
</tr>
<tr>
<td>rejectionReason</td>
<td>If the consignmentStatus is &quot;rejected&quot;, then a reason must be provided in this attribute.</td>
</tr>
</tbody>
</table>

20.3.3.1 ConsignmentConfirmationHeader

ConsignmentConfirmationHeader contains common information for this consignment confirmation. It has the following optional attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>numberOfPackages</td>
<td>The updated package count, only if it needs to be updated.</td>
</tr>
</tbody>
</table>

ConsignmentConfirmationHeader has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard</td>
<td>Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment.</td>
</tr>
<tr>
<td>Dimension</td>
<td>Specifies a single dimension for the packaging of the item.</td>
</tr>
<tr>
<td>ShipmentIdentifier</td>
<td>A tracking number defined by the carrier that appears on the shipment that can be used to obtain additional detail about the shipment.</td>
</tr>
<tr>
<td>OriginConfirmation</td>
<td>Specifies additional dates to the origin location specified in the referenced TransportRequest. See OriginConfirmation [page 540].</td>
</tr>
</tbody>
</table>
20.3.3.1 OriginConfirmation

OriginConfirmation specifies additional dates to the origin location specified in the referenced TransportRequest. It has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DateInfo</td>
<td>Contains date information associated with a document or item. See DateInfo [page 541].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

20.3.3.2 DestinationConfirmation

DestinationConfirmation specifies additional dates to the destination location specified in the referenced TransportRequest.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DateInfo</td>
<td>Contains date information associated with a document or item. See DateInfo [page 541].</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

20.3.3.2 TransportEquipment

TransportEquipment defines a piece of transport equipment needed for this consignment. See TransportEquipment [page 531].
20.4 Other Logistics Elements

This section lists other elements used by TransportRequest and TransportConfirmation elements.

- DateInfo [page 541]
- ItemInfo [page 542]
- TransportIDInfo [page 543]
- TransportTemperature [page 543]

20.4.1 DateInfo

DateInfo contains date information associated with a document or item. It is a child element of the following logistics elements:

- Destination
- DestinationConfirmation
- Origin
- OriginConfirmation
- ReferenceDocumentInfo

DateInfo has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>Date type. Possible values:</td>
</tr>
<tr>
<td></td>
<td>- expectedShipmentDate—Expected ship date for the material is used to determine when the supplier is expected to ship the material from their location.</td>
</tr>
<tr>
<td></td>
<td>- productionStartDate—Production start date.</td>
</tr>
<tr>
<td></td>
<td>- productionFinishDate—Production finish date.</td>
</tr>
<tr>
<td></td>
<td>- requestedPickUpDate—Pick up date as requested by the party arranging the transport.</td>
</tr>
<tr>
<td></td>
<td>- expectedPickUpDate—Date when the logistic provider expects to pick up the materials.</td>
</tr>
<tr>
<td></td>
<td>- actualPickUpDate—Actual pick up date, as it has occurred.</td>
</tr>
<tr>
<td></td>
<td>- requestedDeliveryDate—Delivery date as requested by the party arranging the transport.</td>
</tr>
<tr>
<td></td>
<td>- expectedDeliveryDate—Expected delivery date for the material to be received at the partner location.</td>
</tr>
<tr>
<td></td>
<td>- actualDeliveryDate—Actual delivery date of the goods.</td>
</tr>
<tr>
<td></td>
<td>- confirmedShipDate—Shipment date confirmed by the supplier.</td>
</tr>
<tr>
<td></td>
<td>- confirmedDeliveryDate—Delivery date confirmed by the supplier.</td>
</tr>
<tr>
<td>date</td>
<td>Date value.</td>
</tr>
<tr>
<td>(required)</td>
<td></td>
</tr>
</tbody>
</table>
**DateInfo** has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to this object.</td>
</tr>
</tbody>
</table>

### 20.4.2 ItemInfo

ItemInfo references a specific item and its relationship with a Purchase Order, Invoice, and Ship Notice. It is a child element of TransportPackage, and it has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity</td>
<td>The quantity included in the document.</td>
</tr>
</tbody>
</table>

ItemInfo has the following elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemID</td>
<td>Provides unique identification of an item.</td>
</tr>
<tr>
<td>Description</td>
<td>Contains a string that describes something.</td>
</tr>
<tr>
<td>Classification</td>
<td>Contains the recommended commodity classification code for the line item.</td>
</tr>
<tr>
<td>ManufacturerPartID</td>
<td>ID with which the item's manufacturer identifies the item.</td>
</tr>
<tr>
<td>ManufacturerName</td>
<td>Name of the item’s manufacturer.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of origin of the product listed in the line item.</td>
</tr>
<tr>
<td>SupplierBatchID</td>
<td>Specifies the batch number for goods made or manufactured at the same time.</td>
</tr>
<tr>
<td>UnitOfMeasure</td>
<td>Describes how the product is packaged or shipped. It must conform with UN/ CEFACT Unit of Measure Common Codes.</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>Contains any additional information related to the item.</td>
</tr>
</tbody>
</table>
20.4.3 TransportIDInfo

TransportIDInfo defines the ID of a transport request known to the system of the party that created it. It has the following attributes:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestID</td>
<td>The ID of a transport request known to the system of the party that created it.</td>
</tr>
<tr>
<td>requestDate</td>
<td>The date and time the transport request was created.</td>
</tr>
</tbody>
</table>

20.4.4 TransportTemperature

TransportTemperature contains a temperature or temperature range that must be observed during transportation. It is a child element of TransportRequirements, and it has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>temperature</td>
<td>The temperature to be observed if a range is not specified.</td>
</tr>
<tr>
<td>maximum</td>
<td>The upper limit to observe in a range.</td>
</tr>
<tr>
<td>minimum</td>
<td>The lower limit to observe in a range.</td>
</tr>
</tbody>
</table>

TransportTemperature has the following element:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnitOfMeasure</td>
<td>The unit of measure for the temperature. For example, &quot;CEL&quot; (degree Celsius), &quot;FAH&quot; (degree Fahrenheit), &quot;KEL&quot; (kelvin), or &quot;A48&quot; (degree Rankin).</td>
</tr>
</tbody>
</table>
21 Alternative Authentication Methods

cXML supports alternatives to the shared secret authentication method for verifying the sender of cXML documents.

   Message Authentication Code (MAC) [page 544]
   Auth Transaction [page 548]

21.1 Message Authentication Code (MAC)

Message Authentication Code (MAC) authentication allows the authentication of documents sent directly from a client to a server without passing through a trusted third party (such as a network hub) for authentication. These documents contain a credential with an authentication code that can be interpreted only by the trusted third party and the receiving server, not by the sender.

The format of the Credential element containing the MAC is described in Credential [page 30].

21.1.1 Overview of MACs

The primary purpose of MACs is to convey receivers’ shared secrets without revealing them to senders. MACs keep shared secrets secure by encoding them through a hash.

MACs are as secure as shared secrets. Senders must guard MACs as carefully as shared secrets. Compromising either piece of information could make trading partners vulnerable.

To use MAC authentication, both the trusted third party and the receiver must be able to compute MACs.

21.1.2 Computation Algorithm

MACs are created by an algorithm that combines data known by both the trusted third party and the receiver. cXML specifies the use of the HMAC-SHA1 algorithm described in IETF RFC 2104, “HMAC: Keyed-Hashing for Message Authentication”.

The HMAC-SHA1 algorithm provide the security required for cXML, and it has been formally proven to be as secure as the underlying hash algorithm.

For more information about IETF RFC 2104, see www.ietf.org/rfc/rfc2104.txt.
21.1.3 Creation and Expiration Dates

Creation and expiration dates add additional security to MACs. If a MAC is stolen, changing the sender’s shared secret has no effect. It is impractical to expect the sender to contact the receiver out-of-band to invalidate the MAC, because they might not have an established relationship. To address this problem, a creation date (creationDate) and an expiration date (expirationDate) are embedded in MACs. The expiration date limits the damage that can be result from a stolen MAC, because MACs eventually expire. The shorter the expiration period, the greater the security afforded. Receivers must reject MACs that are received after their expiration date.

Receivers can also reject unexpired MACs based on the amount of time that has elapsed since the creation date. For example, if a receiver receives a MAC that was created several years ago, but expires tomorrow, the receiver might not wish to accept the MAC. This decision is left with the implementors of the receiving systems.

It is mandatory for receivers to check that the creation date is in the past and the expiration date is in the future, and to reject it if either is not the case. However, it is optional for receivers to check whether the creation date is too long in the past.

Receivers must not only check that MACs are valid, but also that the data authenticated by MACs is acceptable. Specifically, receivers must validate that they wish to accept messages from the entities identified by the From and Sender credentials.

21.1.4 Computation Process

This section describes how to compute a MAC of type="FromSenderCredentials". The inputs for this MAC type are known only by the trusted third party and the receiver.

The trusted third party uses this computation to generate ProfileResponse Option elements and the receiving server uses it to validate the CredentialMac element.

21.1.4.1 Assembling the Hash Inputs

The MAC function takes two inputs, the data input and the secret key input:

- The data input is the UTF-8-encoded byte representation of each value listed below, in order, after normalization, with each value terminated by a single null byte (0x00):

  ```
  From/Credential@domain
  From/Credential/Identity
  Sender/Credential@domain
  Sender/Credential/Identity
  Sender/Credential/CredentialMac@creationDate
  Sender/Credential/CredentialMac@expirationDate
  ```

- The secret key input is the cXML shared secret used between the receiver and the third party.
21.1.4.2 Normalizing the Inputs

Normalize the values listed above to remove differences in case and formatting before computation:

<table>
<thead>
<tr>
<th>Value</th>
<th>Normalize by...</th>
<th>Normalized Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>Use the lowercase version of the string, unless it is known to be case sensitive, for example, “AribaNetworkUserId”. Note that “NetworkId” and “DUNS” are not case-sensitive.</td>
<td>networkid</td>
</tr>
<tr>
<td>Identity</td>
<td>Discard leading or trailing whitespace and use the lowercase version of the string.</td>
<td>an9900000100</td>
</tr>
<tr>
<td>creationDate</td>
<td>No normalization needed, because they are in ISO8601 format described in Date, Time, and Other Data Types [page 26].</td>
<td>2003-01-15T11:42:46:08:00</td>
</tr>
<tr>
<td>expirationDate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do not normalize the shared secret.

21.1.4.3 MAC Algorithm

The only supported MAC algorithm value is “HMAC-SHA1-96”, which corresponds to the HMAC-SHA1 algorithm, which produces a 160 bit (20 byte) output, and retaining only the left-most 96 bits (12 bytes). The 12 bytes are then base-64 encoded, yielding a 16-byte character string consisting only of characters in the set [A-Z a-z 0-9 +/].

To compute the MAC:

1. Concatenate the UTF-8-encoded byte representation of the following strings, each followed by a null byte (0x00). (The strings have been normalized as described above): “networkid”, “an9900000100”, “networkid”, “an9900000100”, “2003-01-15T08:42:46:08:00”, “2003-01-15T11:42:46:08:00”

   The concatenation yields the following byte sequence:

   6e 65 74 77 6f 72 6b 69 64 00 61 6e 39 39 30 30 30 31 00 6e 65 74 77 6f 72 6b 69 64 00 61 6e 39 39 30 30 30 31 00 30 30 33 2d 30 31 2d 31 35 54 30 38 3a 34 32 3a 34 36 2d 30 38 3a 30 30 00 32 30 30 33 2d 30 31 2d 31 35 54 31 31 3a 34 32 3a 34 36 2d 30 38 3a 30 30 00

2. Use HMAC-SHA1 to hash the above sequence with the receiver’s shared secret, for example, “abracadabra” (61 62 72 61 63 64 61 62 72 61), which yields:

   71 1e 89 a7 3e 7c 9e b8 97 11 10 cd 78 57 fd a0 94 da fd

   Do not terminate or normalize the shared secret.

3. Truncate the above result to 96 bits (12 bytes):

   71 1e 89 a7 3e 7c 9e b8 97 11 10 cd

   Truncation helps increase the security of the hash.
4. Base-64 encode the above result to yield the final result:

```
cR6Jpz58nriXERDN
```

The trusted third party inserts the final result in ProfileResponse documents it sends to the entity that will be the client (document sender), and the client inserts it in a CredentialMac element in all direct communication to the server (document receiver).

### 21.1.5 ProfileResponse

The following cXML example shows a ProfileResponse sent from a trusted third party (such as a network hub) to a client (such as a procurement application) so the client can send direct requests to the receiving server.

```xml
<cXML payloadID="1234567890@bighub.com" timestamp="2003-01-15T09:39:09-08:00" xml:lang="en-US">
  <Response>
    <Status code="200" text="OK"/>
    <ProfileResponse>
      <Option name="CredentialMac.type">FromSenderCredentials</Option>
      <Option name="CredentialMac.algorithm">HMAC-SHA1-96</Option>
      <Option name="CredentialMac.creationDate">2003-01-15T08:42:46-0800</Option>
      <Option name="CredentialMac.expirationDate">2003-01-15T11:42:46-0800</Option>
      <Option name="CredentialMac.value">cR6Jpz58nriXERDN</Option>
      <Transaction requestName="OrderRequest">
        <URL>https://service.hub.com/ANCXMLDispatcher.aw/ad/cxml</URL>
      </Transaction>
      <Transaction requestName="PunchOutSetupRequest">
        <URL>https://service.hub.com/AN/cxml</URL>
        <Option name="Direct.URL">https://bigsupplier.com/punchout</Option>
        <Option name="Direct.AuthenticationMethod.CredentialMac">Yes</Option>
        <Option name="Direct.AuthenticationMethod.Certificate">Yes</Option>
      </Transaction>
    </ProfileResponse>
  </Response>
</cXML>
```

### Related Information

Profile Transaction [page 46]

### 21.1.6 CredentialMac

The following cXML document fragment shows an example CredentialMac element as it would be inserted by the client in documents sent directly to the server.

```xml
<cXML>
```

```xml
```
```xml
```
Related Information

Credential [page 30]

21.2 Auth Transaction

The Auth transaction allows receivers to validate organizations’ credentials through a mutually trusted third party. It should be used to authenticate received documents that do not contain either a shared secret or a MAC.

The receiver encloses the credential of the sender (the principal) in an AuthRequest document and sends it to the trusted third party for validation.

If the principal attempts to authenticate using a client digital certificate, the receiver includes both the principal’s credential and information about the principal’s certificate in the AuthRequest document. (The receiver obtains this certificate information from its Webserver or SSL/TLS implementation.)

The trusted third party receives the AuthRequest and looks up the principal’s credential to see if it is a recognized organization. If the principal’s certificate information was included, the trusted third party makes sure the certificate is valid and that it matches the organization associated with the credential.

If the credential (and optional certificate) authenticates, the trusted third party responds with a positive AuthResponse that contains the validated credential. If the credential is invalid, the trusted third party responds with an empty cXML response of status 403 (Forbidden).
The receiver can cache the results of the Auth transaction until the expiration date indicated in the AuthResponse. During this period, if the principal presents the same credential and certificate, the receiver need not send another AuthRequest.

21.2.1 AuthRequest

A request sent to a mutually trusted third party to authenticate an entity.

The following example includes X509 certificate information, which comes from the requesting entity’s client digital certificate.

```xml
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2000-12-28T16:56:03-08:00" payloadID="foo123@bigsupplier.com">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN99000000092</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN99000000092</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN99000000092</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>cXML application 2.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <AuthRequest>
      <Credential domain="DUNS">
        <Identity>12345</Identity>
      </Credential>
      <X509Data>
        <X509IssuerSerial>
          <X509IssuerName>Verisign</X509IssuerName>
          <X509SerialNumber>12345</X509SerialNumber>
        </X509IssuerSerial>
      </X509Data>
    </AuthRequest>
  </Request>
</cXML>
```

21.2.1.1 Credential

A cXML credential. See Credential [page 30].
21.2.1.2 X509Data

Describes the X.509 client certificate being used for authentication.

X509IssuerSerial

A container for the serial number and issuer name of the X.509 certificate.

X509IssuerSerial has the following elements:

- X509IssuerName
  The distinguished name of the issuer of the X.509 certificate. The distinguished name should be a string representation of an LDAP Distinguished Name, as described in RFC 2253. For example, C=US, O="Mega Data Security, Inc.", OU=Secure Server CA
- X509SerialNumber
  The serial number of the X.509 certificate.

X509SKI

The Subject Key Identifier of the X.509 certificate.

X509 SubjectName

The distinguished name of the subject of the X.509 certificate. This should be a string representation of an LDAP distinguished name, as described in RFC 2253.

X509Certificate

Contains the Base-64-encoded X.509v3 certificate.

X509CRL

Contains a Base-64-encoded X.509v3 Certificate Revocation List.
21.2.2 AuthResponse

Returns a list of valid credentials of the person entity in the AuthRequest document. Note that this response is for successful authentications only.

AuthResponse has the following attribute:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>expirationDate</td>
<td>Specifies the time beyond which the information contained in the AuthResponse must be discarded. The inclusion of this attribute specifies that the receiver can cache the AuthResponse information until the expirationDate. The absence of an expirationDate should be interpreted to forbid caching.</td>
</tr>
</tbody>
</table>

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="234234@hub.com" timestamp="2001-01-25T15:19:07-08:00">
  <Response>
    <Status code="200" text="OK"/>
    <AuthResponse expirationDate="2002-12-31T09:00:00-08:00">
      <Credential domain="DUNS">
        <Identity>12345</Identity>
      </Credential>
    </AuthResponse>
  </Response>
</cXML>
```
22 cXML Digital Signatures

Any cXML request, response, or message can be signed using World Wide Web Consortium (W3C) XML Digital Signatures. Support for the XML Advanced Electronic Signature (XAdES) standard is also included.

Readers of this section should be familiar with electronic signature terminology and concepts such as asymmetric key pairs, certificates, and smart cards.

22.1 Digital Signature Overview

Digital signatures confirm the identity of the sender of an electronic document, and ensure that the document was not modified after it was generated by the signer. They consist of a series of bytes that contain cryptographic information, including the sender’s public key and detailed information about the contents of the document being signed.

An XML digital signature—which is a specific arrangement of a digital signature—is an element that contains other information besides the cryptographic signature itself, including a list of what was signed, the signer’s public key, and other attributes. A cXML signature is an XML digital signature of a certain form, as described later in this chapter.

XML Advanced Electronic Signature (XAdES) provides basic authentication and integrity protection. W3C XML signatures and XAdES have many options designed to allow for flexibility.

For information about W3C XML digital signatures, see the following resources:

- www.w3.org
- XML Signature Syntax and Processing Version 1.1

For information about XAdES, see the following resources:

- XML Advanced Electronic Signatures (XAdES)
- uri.etsi.org/01903/v1.3.2

22.1.1 Options for Signing

You can use a service to sign documents on your behalf, or you can implement the necessary hardware or software systems to sign the documents yourself. If you implement your own signing system, you must obtain a certificate signed by a Certificate Authority (CA) trusted by the receiver. Meeting receiver requirements might mean obtaining hardware that keeps the private key secret, such as a smart card or Hardware Security Module.

Note that signature and certificate requirements vary according to local laws and regulations. Prior to implementing a signing system, be sure you learn the requirements of the relevant locale.
22.2 Signing cXML Documents

A valid cXML digital signature is not just an XML signature, but an XML signature that uses particular options, has particular elements present, and signs (or does not sign) certain portions of the document.

22.2.1 cXML Digital Signatures

Note that namespace prefix conventions are used here when referring to elements that come from other specifications. All W3C XML Digital Signature elements use the `ds` prefix, and all XAdES elements use the `xades` prefix.

22.2.1.1 ds:Signature Element

The `cXML` element contains a space for the `ds:Signature` element after the `Request`, `Response`, or `Message` element. The `ds:Signature` element holds information about what is being signed, one or more signatures, and the keys used to create the signature or signatures. It also has a place to store additional information such as XAdES extensions or attachment manifests.

The `cXML` element also contains a space for the `signatureVersion` attribute.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>signatureVersion</td>
<td>If present, <code>signatureVersion</code> implies that the document is digitally signed, that is, that the document contains a valid <code>ds:Signature</code> element immediately following the <code>Request</code>, <code>Response</code>, or <code>Message</code> element. If the document is signed, this attribute must be present. The only valid value for the attribute is 1.0; other values are reserved for future use.</td>
</tr>
<tr>
<td>Id</td>
<td>This attribute can be used to call out an element and all its children as a target for signing. For example, if a document contains <code>&lt;Request Id=&quot;foo&quot;&gt;</code>, then in the digital signature <code>&lt;Reference URI=&quot;#foo&quot;&gt;</code> will refer to the <code>Request</code> element and all its children. If the document is signed, this attribute must be present.</td>
</tr>
</tbody>
</table>

The `Message`, `Request`, and `Response` elements contain an `Id` attribute.

Related Information

- cXML Envelope [page 25]
- cXML Basics [page 18]
22.2.1.2 cXMLSignedInfo

The cXMLSignedInfo element includes cXML-specific details about the signature, and has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>signatureVersion (required)</td>
<td>Implies that the document is digitally signed, that is, that the document contains a valid ds:Signature element immediately following the Request, Response, or Message element. The only valid value for the attribute is 1.0; other values are reserved for future use.</td>
</tr>
<tr>
<td>payloadID (required)</td>
<td>Used to establish links between documents. The payloadID in the cXMLSignedInfo element must be the same as the payloadID in the document's main cXML element.</td>
</tr>
<tr>
<td>Id (required)</td>
<td>Identifies this cXMLSignedInfo element for purposes of the signature. This attribute must always be present and should always have the value &quot;cXMLSignedInfo&quot;.</td>
</tr>
</tbody>
</table>

22.2.1.3 Signing Essentials

Because some information from the cXML header is significant, it must be signed. To sign these attributes from the header, repeat the information in a cXMLSignedInfo element placed within a ds:Object element. The ds:Object must be the first ds:Object in the signature. For example:

```xml
<ds:Object>
  <cXMLSignedInfo Id="cXMLSignedInfo"
      signatureVersion="1.0"
      payloadID="xxx"/>
</ds:Object>
```

The value of the Id attribute must be "cXMLSignedInfo". The values of the signatureVersion and payloadID attributes must exactly match the values specified in the cXML element, and the receiver of the document must verify this match. No transforms should be used in this ds:Reference. This element must be signed via the first ds:Reference object in the ds:SignedInfo, as follows:

```xml
<ds:Reference URI="#cXMLSignedInfo">
  <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
  <ds:DigestValue>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx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xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
22.2.1.4 Using XAdES

The use of XAdES is required for digital signatures. In the signature, xades:QualifyingProperties should be the second ds:Object. The xades:SignedProperties element and all its children must be signed by specifying "XAdESSignedProps" as the value for the Id attribute of xades:SignedProperties and including a ds:Reference with the URI "#XAdESSignedProps" and no transforms in the ds:SignedInfo. When using XAdES, the certificate referred to in the xades:Cert element must be the same as that contained in the ds:KeyInfo element, the Id attribute of the ds:Signature element must be set to cXMLSignature and the Target attribute of xades:QualifyingProperties must be #cXMLSignature.

22.2.1.5 Signing Attachments

If the document in question includes attachments, digital signatures can be used to sign just the document, or both the document and its attachments. Signatures are structured in such a way that if the attachments are discarded, the signature on the document itself can still be validated.

The attachments should be signed using ds:Reference elements in a ds:Manifest element included under a ds:Object contained in the signature. The Id attribute of the ds:Manifest element must be "AttachmentManifest". The ds:Object should occur immediately after the ds:Object containing the xades:QualifyingProperties element, if it is present. Otherwise, it should occur immediately after the ds:Object containing the cXMLSignedInfo element.

Each ds:Reference in the manifest should use a URI with the "cid:" scheme to refer to the attachments through their MIME Content-Id. The ds:Manifest element itself should be signed using a fragment URI reference included in the ds:SignedInfo. This requirement exists because a compliant XML signature implementation must validate all the ds:Reference elements under ds:SignedInfo. Base validation ensures that the manifest itself has not been corrupted, but will not validate the objects referred to in the manifest. This approach makes it possible to validate the document on its own if the attachments have been discarded. For example:

```
<ds:Object>
  <ds:Manifest Id="AttachmentManifest">
    <ds:Reference URI="cid:23482390498.34284203.part1@some.host.com">
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>P6ua59kKBLLtMBFE+IwPUgp2xqc=</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="cid:23482390498.34284203.part2@some.host.com">
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>P6ua59kKBLLtMBFE+IwPUgp2xqc=</ds:DigestValue>
    </ds:Reference>
  </ds:Manifest>
</ds:Object>
```
22.2.2 Error Status Codes for Digital Signatures

The following table lists cXML digital signature status codes:

<table>
<thead>
<tr>
<th>Status</th>
<th>Text</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>475</td>
<td>Signature Required</td>
<td>The receiver is unwilling to accept the document because it does not have a digital signature.</td>
</tr>
<tr>
<td>476</td>
<td>Signature Verification Failed</td>
<td>The receiver is unable to validate the signature, possibly because the document was altered in transit, or the receiver does not support one or more algorithms used in the signature.</td>
</tr>
<tr>
<td>477</td>
<td>Signature Unacceptable</td>
<td>The signature is technically valid, but is not acceptable to the receiver for some other reason. The signature policies or certificate policies might be unacceptable, the type of certificate used might be unacceptable, or there might be some other problem.</td>
</tr>
</tbody>
</table>

22.2.3 Digital Signature Example

The following example shows a signed invoice. Note that the digest values and signature value are not correct, because parts of the invoice document have been abbreviated for this example.

```xml
<?xml version="1.0" ?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.0.11/InvoiceDetail.dtd">
cXML payloadID="20030912.jdoe004@live.company.com" signatureVersion="1.0"
timestamp="200104-20T23:59:45-07:00">
  <Header>
    <From>
      <Credential domain="AribaNetworkUserId">
        <Identity>jdoe@company.com</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="AribaNetworkUserId">
        <Identity>smistry@company.com</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="AribaNetworkUserId">
        <Identity>jdoe@company.com</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Our Invoice Application 4.0</UserAgent>
    </Sender>
  </Header>
  <Request Id="cXMLData" deploymentMode="production">
    <InvoiceDetailRequest>
      <InvoiceDetailRequestHeader invoiceDate="2001-04-20T23:59:20-07:00"
        invoiceID="123456-004" operation="new"
        purpose="standard">
        ...
      </InvoiceDetailRequestHeader>
      <InvoiceDetailOrder>
        ...
      </InvoiceDetailOrder>
      <InvoiceDetailSummary>
        ...
      </InvoiceDetailSummary>
    </InvoiceDetailRequest>
  </Request>
</cXML>
```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="cXMLSignature">
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n20010315"/>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <ds:Reference URI="#cXMLSignedInfo">
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>mxtVp6Rg9K5wo/c5B088g7sZYEg=</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="#cXMLData">
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>luBjgSa3Bxewh/1wsPDWCzn8Sgk=</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="#XAdESSignedProps">
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>XIasOHckorH8fz/thdyZIzV2yI=</ds:DigestValue>
    </ds:Reference>
  </ds:SignedInfo>
  <ds:SignatureValue>nNfsBpc22u9aypY1qvE5cuiHVO077vnaolS76LoAuks9bAwLO0kz/nkTQfb2zKSQTy8jj6W/TJGCQj691Pl+m1gMPW53kB16As5cJHRd5HNPexU5ssS14tTux1wA1iHE/XEeeBcc1u7K6s4R4h1gzgBLg05v2iAX4oV0bjk=</ds:SignatureValue>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>
        MIICcDCAAcCw7cUTANBgkqhkiG9w0BAQQFADCDBiJELMAkGA1UEBhMCVVMX<...>
      </ds:X509Certificate>
    </ds:X509Data>
  </ds:KeyInfo>
</ds:Signature>

<xades:QualifyingProperties xmlns:xades="http://uri.etsi.org/01903/v1.1.1#" Target="#cXMLSignature">
  <xades:SignedProperties Id="XAdESSignedProps">
    <xades:SignedSignatureProperties>
      <xades:SigningCertificate>
        <xades:CertDigest>
          <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
        </ds:DigestMethod>
        <ds:DigestValue>LETnT8c7gv2q3p30Vt8/BLOJpeeA=</ds:DigestValue>
      </xades:CertDigest>
      <xades:IssuerSerial>
        <xades:SerialNumber>973905</xades:SerialNumber>
      </xades:IssuerSerial>
    </xades:SignedSignatureProperties>
  </xades:SignedProperties>
</xades:QualifyingProperties>
## 23 Revision History

The following table provides a brief history of the updates to this guide.

<table>
<thead>
<tr>
<th>Month/Year of Update</th>
<th>Updated Chapter/Section</th>
<th>Short Description of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2019</td>
<td>New Features in cXML 1.2.044</td>
<td>New chapter, earlier in book (after license).</td>
</tr>
<tr>
<td></td>
<td>cXML Basics</td>
<td>Updated &quot;Type Entities&quot; topic.</td>
</tr>
<tr>
<td></td>
<td>Purchase Orders</td>
<td>Updated the following topics:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ItemDetailRetail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Packaging</td>
</tr>
<tr>
<td></td>
<td>Request for Quotations</td>
<td>Added the following topics:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- “Specifying Pricing Conditions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- UnitPrice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- PricingConditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ValidityPeriods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ConditionTypes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ConditionType</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- CostTermValue</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Scales</td>
</tr>
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<td></td>
<td></td>
<td>- Scale</td>
</tr>
<tr>
<td></td>
<td>Payment</td>
<td>Added IncorporationType.</td>
</tr>
<tr>
<td></td>
<td>Master Agreements and Contracts</td>
<td>Updated ContractItemIn.</td>
</tr>
<tr>
<td></td>
<td>Supply Chain Collaboration</td>
<td>Updated InventoryTimeSeries.</td>
</tr>
<tr>
<td>July 2019</td>
<td>PunchOut Transaction</td>
<td>Updated the following topics:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- PunchOutSetupRequest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ItemIn</td>
</tr>
<tr>
<td>Month/Year of Update</td>
<td>Updated Chapter/Section</td>
<td>Short Description of Change</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Purchase Orders</td>
<td>Updated the following topics:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● ShipTo/BillTo</td>
<td></td>
</tr>
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cXML Reference Guide  
Revision History
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| November 2016        | Supply Chain Collaboration | Added or updated the following topics:  
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  ● PlannedAcceptanceDays  
  ● ManufacturerPartID  
  ● ReferenceDocumentInfo  
  ● Contact  
  ● Characteristic  
  ● PlanningTimeSeries  
  ● Extrinsic  
  ● ProductReplenishmentHeader  
  ● ReplenishmentTimeSeries  
  ● QualityNotificationRequest  
  ● QualityNotificationRequestHeader  
  ● QualityNotificationTask  
  ● QualityNotificationActivity  
  ● QualityNotificationRequestItem  
  ● OwnerInfo  
  ● AdditionalQNInfo  
  ● QualityNotificationCause  
  ● QualityNotificationExamples  
<p>|                      | New Features in cXML 1.2.033 | New chapter; removed “New Features in cXML 1.2.032.” |
| October 2016         | Purchase Orders            | Updated TravelDetail Common Elements. |
|                      | Later Status Changes       | Updated OrderStatusRequestHeader and ShipNoticeItemIndustry. |
|                      | Invoices                   | Updated InvoiceDetailItem and InvoiceDetailSummaryIndustry. |
|                      | Supply Chain Collaboration  | Updated ConsignmentMovement, ComponentConsumptionItem, and ReplenishmentTimeSeries. |
|                      | Request for Quotations     | Added new QuoteHeaderInfo topic. |
|                      | Payment                    | Updated AdjustmentAmount. |
|                      | Later Status Changes       | Updated ConfirmationStatus. |
|                      | Invoices                   | Updated TaxDetail. |</p>
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<td>• Service Sheet Status Updates</td>
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<td>Added or updated the following topics:</td>
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<td>• ComponentConsumptionRequest &gt;</td>
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<tr>
<td>New Features in cXML 1.2.029</td>
<td>New chapter; removed “New Features in cXML 1.2.026 and 1.2.028.”</td>
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<td>January 2016</td>
<td>PunchOut Transaction</td>
<td>Added ItemIn@itemClassification and Classification@code.</td>
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<td>Purchase Orders</td>
<td>Added or updated the following topics:</td>
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<td>• OrderRequestHeader</td>
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<td>• OrderRequestHeader &gt; TermsOfDelivery</td>
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<td>• OrderRequestHeader &gt; OrderRequestHeaderIndustry</td>
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<td>• OrderRequest Documents &gt; ItemOut &gt; ScheduleLine</td>
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<td>Path Routing</td>
<td>Updated “Overview of Path Routing,” “Copy Nodes,” and CopyRequest.</td>
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<tr>
<td>Payment</td>
<td>Added TradeRequest.</td>
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<tr>
<td>Month/Year of Update</td>
<td>Updated Chapter/Section</td>
<td>Short Description of Change</td>
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|                      | Master Agreements and Contracts | Changed chapter title, and added the following topics:  
  ● ContractRequest  
  ● ContractStatusUpdateRequest |
|                      | Later Status Changes | Added or updated the following topics:  
  ● StatusUpdateRequest > DocumentStatus  
  ● StatusUpdateRequest > DocumentStatus > DocumentInfo  
  ● StatusUpdateRequest > DocumentStatus > ItemStatus  
  ● StatusUpdateRequest > DocumentStatus > Comments  
  ● ConfirmationRequest > ConfirmationHeader > IdReference  
  ● ShipNoticeRequest > ShipControl > ShipmentIdentifier |
|                      | Invoices | Added or updated the following topics:  
  ● InvoiceDetailRequestHeader  
  ● InvoiceDetailRequest > InvoiceDetailRequestHeader > InvoiceDetailShipping  
  ● InvoiceDetailRequest > InvoiceDetailRequestHeader > IdReference |
| August 2015          | Later Status Changes and Invoices | Updated external links for CarrierIdentifier. |
|                      | Invoices | Updated list of domain values for IdReference. |
| July 2015            | PunchOut Transaction | Updated ItemIn and children. |
|                      | Purchase Orders | Updated Total, ItemOut, ItemDetail, SupplierID, ScheduleLine, and Batch. |
|                      | Payment | Updated PaymentRemittanceRequest, PayableInfo, and AdjustmentAmount. |
|                      | Later Status Changes | Updated topics for the following elements/attributes:  
  ● ConfirmationItem  
  ● PayableInfo  
  ● TermsOfTransport  
  ● ShipNoticeItem  
  ● ShipNoticeItemDetail  
  ● SupplierBatchID/Batch  
  ● ComponentConsumptionDetails |
<p>|                      | Invoices | Updated InvoiceDetailItem, and created new topics for InvoiceDetailReceiptInfo and InvoiceDetailShipNoticeInfo. |</p>
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<td>Supply Chain Collaboration</td>
<td>New chapter.</td>
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<td>Changed title of chapter, and added a section on new features in cXML 1.2.028.</td>
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<td>April 2015</td>
<td>Multiple chapters</td>
<td>Updated format and structure.</td>
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