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cXML Reference Guide

Version 1.2.045

Content

1	New Features in cXML 1.2.045.	13
2	Introduction to cXML.	16
2.1	cXML, an XML Implementation.	16
2.2	cXML DTDs.	16
2.3	Audience and Prerequisites.	17
2.4	Typography.	18
3	cXML Basics.	19
3.1	Protocol Specification.	19
	Request-Response Model.	19
	cXML Conventions.	20
	cXML Document.	21
	Wrapping Layers.	21
	Attachments.	22
	cXML Envelope.	26
	Header.	30
	Request.	33
	Response.	34
	One-Way (Asynchronous) Model.	38
	Message.	39
	Transport Options.	40
	Service Status Response.	42
3.2	Basic Elements.	43
	Type Entities.	43
	Base Elements.	44
4	Profile Transaction.	47
4.1	Introduction to the Profile Transaction.	47
4.2	ProfileRequest.	47
4.3	ProfileResponse.	48
	Option Element.	49
	Transaction.	52
4.4	Scenarios.	52
	From Buyer to Supplier.	52
	From Buyer to the Network.	53
	From a Network Hub to Supplier.	54
	From a Network Hub to Service Provider.	55

	From a Network Hub to Buyer.	56
	From Service Provider to Buyer.	56
5	PunchOut Transaction.	57
5.1	PunchOut Requirements.	57
	Buying Organizations.	57
	Suppliers.	58
5.2	PunchOut Event Sequence.	60
	Steps 1 & 2: PunchOut Request.	60
	Step 3: Product Selection.	62
	Step 4: Check Out.	62
	Step 5: Transmittal of Purchase Order.	63
5.3	PunchOut Documents.	64
	PunchOut Index Catalog.	65
	PunchOutSetupRequest.	66
	PunchOutSetupResponse.	70
	PunchOutOrderMessage.	70
5.4	Modifications to the Supplier's Web Pages.	72
	Launch Page.	72
	Start Page.	75
	Sender Page.	75
	Order Receiver Page.	78
5.5	PunchOut Website Suggestions.	78
	Implementation Guidelines.	78
	Buyer and Supplier Cookies.	79
	Personalization.	79
5.6	PunchOut Transaction.	80
	Sourcing.	80
	PunchOutSetupRequest.	80
	PunchOutSetupResponse.	85
	PunchOutOrderMessage.	85
5.7	Direct PunchOut.	96
	Authentication Methods.	97
	ProfileResponse.	97
6	Purchase Requisitions.	98
6.1	Purchase Requisition Process.	98
6.2	PurchaseRequisitionRequest.	99
	PurchaseRequisition.	102
7	Purchase Orders.	104
7.1	Purchase Order Process.	104

7.2	OrderRequest Documents.	105
	OrderRequestHeader.	108
	ItemOut.	131
7.3	Response to an OrderRequest.	182
7.4	Accepting Order Attachments.	183
8	Path Routing.	184
8.1	Overview of Path Routing.	184
8.2	Nodes.	185
	Path Element.	185
	Router Nodes.	186
	Copy Nodes.	187
8.3	Adding Nodes to PunchOutOrderMessage.	188
	Path Element.	188
	Credentials.	189
8.4	Creating OrderRequests.	189
	Path Element.	189
	Credentials.	190
8.5	Other Routable Documents.	191
	PunchOutSetupRequest.	191
	ConfirmationRequest and ShipNoticeRequest.	192
8.6	CopyRequest.	192
9	Request for Quotations.	194
9.1	Overview of Request for Quotations.	194
	Quote DTD.	194
	Request for Quotations Document Sequence.	194
9.2	Request for Quotations.	195
	QuoteRequestHeader.	195
	QuoteItemOut.	199
9.3	QuoteMessage.	210
	QuoteMessageHeader.	210
	QuoteItemIn.	212
10	Payment.	214
10.1	Overview of Payment.	214
	PaymentRemittance DTD.	214
	Payment Document Sequence.	215
10.2	PaymentProposalRequest.	215
	PayableInfo.	216
	PaymentMethod.	218
	PaymentPartner.	219

	PaymentTerms.	223
	DiscountBasis.	224
	TaxAdjustment.	224
	NetAmount.	225
10.3	PaymentRemittanceRequest.	225
	PaymentRemittanceRequestHeader.	226
	PaymentRemittanceSummary.	228
	RemittanceDetail.	229
10.4	PaymentBatchRequest.	233
	PaymentBatchRequestHeader.	235
	PaymentBatchSummary.	236
	PaymentRemittanceRequest.	236
10.5	PaymentRemittanceStatusUpdateRequest.	236
	DocumentReference.	237
	PaymentRemittanceStatus.	237
10.6	Example Payment Documents.	238
	PaymentProposalRequest Examples.	239
	PaymentRemittanceRequest Example.	241
	PaymentRemittanceStatusUpdateRequest Example.	243
10.7	TradeRequest.	243
	TradeRequestHeader.	246
	TradeRequestSummary.	247
	TradeItem.	247
10.8	PaymentReceiptConfirmationRequest.	248
	PaymentReceiptConfirmationRequestHeader.	250
	PaymentReceiptDetails.	251
	PaymentReceiptSummary.	253
10.9	ChargeFileRequest.	253
	ChargeFileRequestHeader.	254
	ChargeFileDetails.	255
11	TimeCard Transaction.	257
11.1	TimeCard Requests.	257
	Supplier to Buyer Request.	258
	Buyer to Supplier Request.	258
11.2	TimeCard Element.	258
	OrderInfo.	258
	Contractor.	259
	ReportedTime.	259
	SubmitterInfo.	262
	ApprovalInfo.	262
	DocumentReference.	262

11.3	TimeCard Examples.	262
12	Master Agreements and Contracts.	266
12.1	Overview of Master Agreements.	266
12.2	MasterAgreementRequest.	266
	MasterAgreementRequestHeader.	267
	AgreementItemOut.	268
12.3	ContractRequest.	269
	ContractRequestHeader.	271
	ContractItemIn.	273
12.4	ContractStatusUpdateRequest.	275
	Status.	275
	ContractStatus.	276
	Extrinsic.	276
13	Later Status Changes.	277
13.1	Overview of Status.	277
13.2	StatusUpdateRequest.	277
	DocumentReference.	279
	Status.	279
	PaymentStatus.	279
	SourcingStatus.	281
	InvoiceStatus.	281
	DocumentStatus.	282
	IntegrationStatus.	285
	Extrinsic.	285
13.3	ConfirmationRequest.	286
	OrderReference.	287
	ConfirmationHeader.	288
	ConfirmationItem.	294
13.4	OrderStatusRequest.	299
	OrderStatusRequestHeader.	299
	OrderStatusRequestItem.	301
13.5	ShipNoticeRequest.	302
	ShipNoticeHeader.	304
	ShipControl.	310
	ShipNoticePortion.	316
13.6	ReceiptRequest.	324
	ReceiptRequestHeader.	325
	ReceiptOrder.	326
14	Invoices.	331

14.1	Overview of Invoices.	331
	Early InvoiceRequest Document.	331
	Debit and Credit Amounts.	332
	Shipping Information.	332
	Types of Invoices.	332
	Invoice DTD.	334
14.2	InvoiceDetailRequest.	334
	InvoiceDetailRequestHeader.	334
	InvoiceDetailOrder.	342
	InvoiceDetailHeaderOrder.	366
	InvoiceDetailSummary.	368
14.3	Response.	371
14.4	Invoice Status Update.	372
14.5	Example Invoices.	373
	Standard Header Invoice.	374
	Standard Detail Invoice.	376
	Service Invoice.	380
	Marketplace Invoice.	383
	Line Item Credit Memo for a Return Item.	384
	Invoice with Accounting Distributions.	384
15	Service Sheets.	388
15.1	Overview of Service Sheets.	388
15.2	ServiceEntryRequest.	388
	ServiceEntryRequestHeader.	389
	ServiceEntryOrder.	393
15.3	Service Sheet Status Updates.	401
16	Catalogs.	403
16.1	Catalog Definitions.	403
	Supplier.	403
	Index.	405
16.2	Type Definitions.	407
	TypeProvider.	408
	Type.	408
	TypeAttribute.	409
	PrimitiveType.	411
16.3	Subscription Management Definitions.	412
	Supplier Data.	412
	Supplier Profile Information.	415
	Catalog Subscriptions.	418
16.4	Catalog Upload Transaction.	421

	CatalogUploadRequest.	422
	Response.	426
17	Get Pending/Data Download Transaction.	428
17.1	Introduction to Get Pending/Data Download Transaction.	428
17.2	GetPendingRequest.	428
17.3	GetPendingResponse.	429
	No Documents Waiting.	429
	Documents Waiting.	430
17.4	DataRequest.	432
17.5	DataResponse.	432
18	Provider PunchOut Transaction.	434
18.1	Message Flow.	434
18.2	ProviderSetupRequest Document.	435
	Header.	435
	Request.	435
	Sample.	437
18.3	ProviderSetupResponse Document.	438
	Response.	439
	Status.	439
	ProviderSetupResponse.	439
	StartPage URL.	439
	Sample.	440
18.4	ProviderDoneMessage Document.	440
	Header.	440
	Message.	441
	OriginatorCookie.	441
	ReturnData.	442
	ReturnValue.	442
	Sample.	442
19	Supply Chain Collaboration.	444
19.1	ProductActivityMessage.	444
	ProductActivityHeader.	448
	ProductActivityDetails.	449
19.2	ComponentConsumptionRequest.	461
	ComponentConsumptionHeader.	462
	ComponentConsumptionPortion.	463
19.3	ProductReplenishmentMessage.	467
	ProductReplenishmentHeader.	473
	ProductReplenishmentDetails.	474

19.4	QualityNotificationRequest.	477
	QualityNotificationRequestHeader.	478
	QualityNotificationRequestItem.	486
	Quality Notification Examples.	491
19.5	QualityInspectionRequest.	501
	QualityInspectionRequestHeader.	503
	QualityInspectionRequestDetail.	506
19.6	QualityInspectionResultRequest.	511
	QualityInspectionResultRequestHeader.	513
	QualityInspectionResultRequestDetail.	515
19.7	QualityInspectionDecisionRequest.	517
	QualityInspectionDecisionDetail.	519
19.8	ApprovalRequest.	521
	ApprovalRequestHeader.	523
	AcceptanceItem.	524
	ApprovalItem.	527
19.9	SalesOrderRequest.	528
	SalesOrderHeader.	529
20	Logistics.	532
20.1	Overview of Logistics.	532
	Logistics Terms.	532
	Logistics Process.	533
20.2	TransportRequest.	534
	TransportRequestHeader.	537
	Consignment.	538
	TransportSummary.	544
20.3	TransportConfirmation.	545
	TransportConfirmationHeader.	549
	TransportReference.	549
	ConsignmentConfirmation.	550
20.4	Other Logistics Elements.	552
	DateInfo.	552
	ItemInfo.	553
	TransportIDInfo.	554
	TransportTemperature.	554
21	Alternative Authentication Methods.	555
21.1	Message Authentication Code (MAC).	555
	Overview of MACs.	555
	Computation Algorithm.	555
	Creation and Expiration Dates.	556

	Computation Process.	556
	ProfileResponse.	558
	CredentialMac.	558
21.2	Auth Transaction.	559
	AuthRequest.	560
	AuthResponse.	562
22	cXML Digital Signatures.	563
22.1	Digital Signature Overview.	563
	Options for Signing.	563
22.2	Signing cXML Documents.	564
	cXML Digital Signatures.	564
	Error Status Codes for Digital Signatures.	567
	Digital Signature Example.	567
23	Revision History.	570

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7-19-04

1 New Features in cXML 1.2.045

This section describes the features introduced in cXML version 1.2.045.

Element	Description of change
ChargeFile [page 255]	This is a new element. It contains bank charge file related information. Message: ChargeFileRequest
ChargeFileDetails [page 255]	This is a new element. It contains a list of bank charge files. Message: ChargeFileRequest
ChargeFileRequest [page 253]	This is a new element. It is a cXML request wrapper for a bank charge file. Message: ChargeFileRequest
ChargeFileRequestHeader [page 254]	This is a new element. It contains the required fields to process a bank charge file. Message: ChargeFileRequest
ItemOut [page 131]	The Comments element was updated to support multiple instances. The following attributes were added: unlimitedDelivery, isItemChanged, and isKanban. Message: MasterAgreementRequest, OrderRequest, PunchOutSetupRequest
ItemOutIndustry [page 170]	The following element was added: PackagingDistribution. Message: MasterAgreementRequest, OrderRequest, PunchOutSetupRequest
NumberOfCharges [page 256]	This is a new element. It contains the total number of charges included in the bank charge file. Message: ChargeFileRequest
OrderRequestHeader [page 108]	The Comments element was updated to support multiple instances. Message: OrderRequest
Packaging [page 176]	The following element was added: StoreCode. Message: InvoiceDetailRequest, MasterAgreementRequest, OrderRequest, PunchOutSetupRequest, ShipNoticeRequest, TransportRequest

Element	Description of change
PackagingDistribution [page 175]	<p>This is a new element. It contains packaging distribution information between stores.</p> <p>Message: MasterAgreementRequest, OrderRequest, PunchOutSetupRequest</p>
PaymentAmount [page 252]	<p>This is a new element. It contains the amount paid in the payment receipt.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentDetails [page 252]	<p>This is a new element. It contains details of a payment.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentReceiptConfirmationRequest [page 248]	<p>This is a new element. It defines a payment receipt confirmation request, which is sent to the buyer by a supplier.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentReceiptConfirmationRequestHeader [page 250]	<p>This is a new element. It defines the header for a PaymentReceiptConfirmationRequest.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentReceiptDetails [page 251]	<p>This is a new element. It contains PaymentReceiptItem elements. Each PaymentReceiptItem corresponds to one invoice or payment remittance document.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentReceiptItem [page 251]	<p>This is a new element. It contains details of the individual invoice for which the payment is made.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PaymentReceiptSummary [page 253]	<p>This is a new element. It contains the summary of the payment amount details.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PresentBalance [page 253]	<p>This is a new element. It contains the balance amount to be paid later.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
PreviousBalance [page 252]	<p>This is a new element. It contains the balance amount to be paid before making this payment.</p> <p>Message: PaymentReceiptConfirmationRequest</p>
ProviderName [page 255]	<p>This is a new element. It contains the bank/provider name.</p> <p>Message: OrderRequest</p>

Element	Description of change
StoreCode [page 176]	<p>This is a new element. It contains the code of a store assigned for an item's packaging.</p> <p>Message: InvoiceDetailRequest, MasterAgreementRequest, OrderRequest, PunchOutSetupRequest, ShipNoticeRequest, TransportRequest</p>

2 Introduction to cXML

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

[cXML, an XML Implementation \[page 16\]](#)

[cXML DTDs \[page 16\]](#)

[Audience and Prerequisites \[page 17\]](#)

[Typography \[page 18\]](#)

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.

Document	DTD
Basic cXML documents	http://xml.cXML.org/schemas/cXML/1.0.0/cXML.dtd
Confirmation and Ship Notice	http://xml.cXML.org/schemas/cXML/1.0.0/Fulfill.dtd
Invoice	http://xml.cXML.org/schemas/cXML/1.0.0/InvoiceDetail.dtd
Type Definition	http://xml.cXML.org/schemas/cXML/1.0.0/Catalog.dtd
Payment Remittance	http://xml.cXML.org/schemas/cXML/1.0.0/PaymentRemittance.dtd
Request for Quotations	http://xml.cXML.org/schemas/cXML/1.0.0/Quote.dtd
Contracts	http://xml.cXML.org/schemas/cXML/1.0.0/Contract.dtd
Logistics	http://xml.cXML.org/schemas/cXML/1.0.0/Logistics.dtd

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:

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

3 cXML Basics

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

[Protocol Specification \[page 19\]](#)

[Basic Elements \[page 43\]](#)

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:

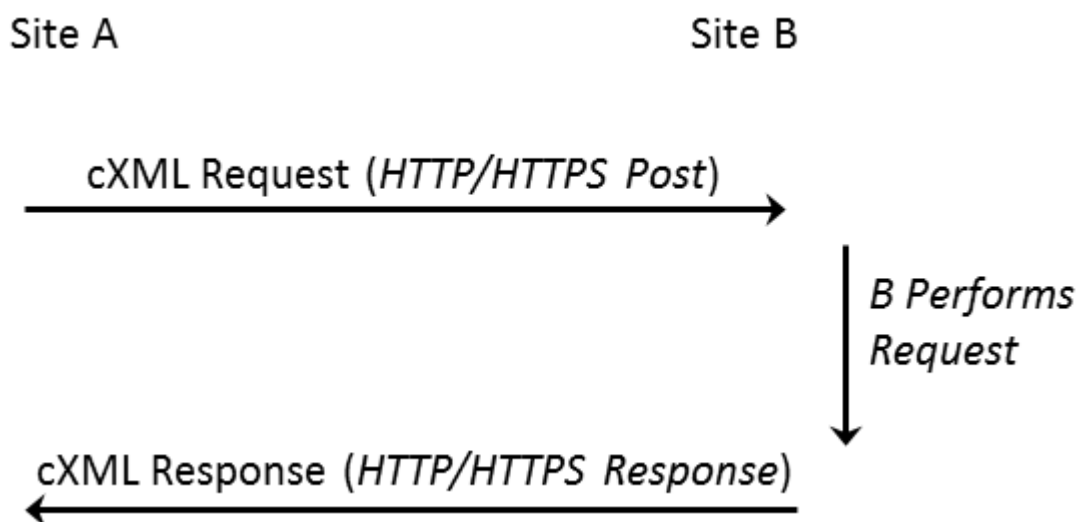


Figure 1: Request-Response Transaction

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 xml: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 \[page 16\]](#)

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.

i 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
```

```

Content-type: multipart/mixed; boundary=something unique
--something unique
Content-type: text/xml; charset="UTF-8"
<?xml version="1.0" encoding="UTF-8"?>
...
    <Attachment>
        <URL>cid:uniqueCID@sender.com</URL>
    </Attachment>
...
--something unique
Content-type: image/jpeg
Content-ID: <uniqueCID@sender.com>
...
--something unique--

```

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:

```

POST /cXML HTTP/1.0
Content-type: multipart/related; boundary=something unique;
    type="text/xml"; start=<uniqueMainCID@sender.com>
--something unique
Content-type: text/xml; charset="UTF-8"
Content-ID: <uniqueMainCID@sender.com>
<?xml version="1.0" encoding="UTF-8"?>
...
    <Attachment>
        <URL>cid:uniqueAttachmentCID@sender.com</URL>
    </Attachment>
...
--something unique
Content-type: image/jpeg
Content-ID: <uniqueAttachmentCID@sender.com>
...
--something unique--

```

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.

```

POST /cXML HTTP/1.0
Content-type: multipart/related; boundary=kdfkajfdksadjfk;
    type="text/xml"; start="<part1.PC028.975@saturn.workchairs.com>"
<--! begin first MIME body part header -->
--kdfkajfdksadjfk
Content-type: text/xml; charset=UTF-8
Content-ID: <part1.PC028.975@saturn.workchairs.com>
<--! end first MIME body part header -->
<?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="12345666@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>
    </Sender>
</Header>
<Request>
    <CatalogUploadRequest operation="new">
        <CatalogName xml:lang="en">Winter Prices</CatalogName>
        <Description xml:lang="en">premiere-level prices</Description>
        <Attachment>
            <!-- ID of MIME attachment follows -->
            <URL>cid:part2.PCO28.975@saturn.workchairs.com</URL>
        </Attachment>
    </CatalogUploadRequest>
</Request>
</cXML>
<!--! begin second MIME body part header -->
--kdfkajfdksadjfk
Content-type: text/plain; charset=US-ASCII
Content-Disposition: attachment; filename=PremiereCatalog.cif
Content-ID: <part2.PCO28.975@saturn.workchairs.com>
Content-length: 364
<!--! end second MIME body part header -->
CIF_I_V3.0
LOADMODE: F
CODEFORMAT: UNSPSC
CURRENCY: USD
SUPPLIERID_DOMAIN: DUNS
ITEMCOUNT: 3
TIMESTAMP: 2001-01-15 15:25:04
DATA
942888710,34A11,C11,"Eames Chair",11116767,400.00,EA,3,"Fast MFG",,,400.00
942888710,56A12,C12,"Eames Ottoman",11116767,100.00,EA,3,"Fast MFG",,,100.00
942888710,78A13,C13,"Folding Chair",11116767,25.95,EA,3,"Fast MFG",,,25.95
ENDOFDATA
<!-- MIME trailer follows -->
--kdfkajfdksadjfk--

```

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.

```
Content-Type: Multipart/Related; boundary=outer-boundary
```

```

[Other headers]
--outer-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/1.2.014/cXML.dtd">
<cXML payloadID="123@sendercompany.com"
      timestamp="2003-11-20T23:59:45-07:00">
  <Header>
    <From>
      <!-- Sender -->
      <Credential domain="AribaNetworkUserId">
        <Identity>sender@sendercompany.com</Identity>
      </Credential>
    </From>
    <To>
      <!-- Recipient -->
      <Credential domain="AribaNetworkUserId">
        <Identity>recipient@recipientcompany.com</Identity>
      </Credential>
    </To>
    <Sender>
      <!-- Sender -->
      <Credential domain="AribaNetworkUserId">
        <Identity>sender@sendercompany.com</Identity>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Sender Application 1.0</UserAgent>
    </Sender>
  </Header>
  <Request deploymentMode="production">
    <CopyRequest>
      <cXMLAttachment>
        <Attachment>
          <URL>cid:222@sendercompany.com</URL>
        </Attachment>
      </cXMLAttachment>
    </CopyRequest>
  </Request>
</cXML>
--outer-boundary
Content-Type: Multipart/Related; boundary=inner-boundary
Content-ID: <222@sendercompany.com>
[Other headers]
--inner-boundary
Content-Type: text/xml; charset=UTF-8
Content-ID: <333@sendercompany.com>
[Other headers]
[Forwarded cXML]
--inner-boundary
[Attachment 1 of the forwarded cXML]
--inner-boundary
[Attachment 2 of the forwarded cXML]
--inner-boundary--
--outer-boundary--

```

More Information About MIME

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

- www.hunnysoft.com/mime

- www.ietf.org/rfc/rfc1341.txt
- www.ietf.org/rfc/rfc2046.txt
- www.ietf.org/rfc/rfc2387.txt

Related Information

[Attachment \[page 121\]](#)

[CopyRequest \[page 192\]](#)

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:

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

cXML has the following attributes:

Attribute	Description
version (deprecated)	<p>This attribute was deprecated in cXML 1.2.007; do not use it in new cXML documents.</p> <p>Specifies the version of the cXML protocol. A validating XML parser could also determine the version attribute from the referenced DTD.</p> <p>Because this version number also appears in the SYSTEM identifier in the cXML document, you should omit this attribute.</p>
xml:lang	<p>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="en-UK"</code> in a request might receive "en" data in return. Specify the most descriptive and specific locale possible.</p>
payloadID (required)	<p>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.</p> <p>The recommended implementation is:</p> <p><code>datetime.process id.random number@hostname</code></p>
timestamp (required)	<p>The date and time the message was sent, in ISO 8601 format. This value should not change for retry attempts.</p> <p>The format is YYYY-MM-DDThh:mm:ss-hh:mm (for example, 2015-07-14T19:20:30+01:00).</p>

Attribute	Description
<code>signatureVersion</code>	If present, implies that the document is digitally signed, that is, that the document contains one or more valid <code>ds:Signature</code> elements immediately following the <code>Request</code> , <code>Response</code> , or <code>Message</code> element. The only valid value for the attribute is 1.0; other values are reserved for future use.

Related Information

[cXML Digital Signatures \[page 563\]](#)

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 World Wide Web Consortium (W3C) Note entitled “Date and Time Formats” available at 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.

i 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:

- Microsoft's XML Data Types Reference, msdn.microsoft.com/library/default.asp?url=/library/en-us/xmlsdk/html/b24aafc2-bf1b-4702-bf1c-b7ae3597eb0c.asp
- The original XML Data proposal to the World 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:

Entity	Character
<	<
>	>
&	&
"	"
'	'

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,

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

could be encoded as

```
<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 & and ' as '. Escape the trademark symbol ® as ®.
 - 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 ®' ' ""'&<>, the XML document might appear as:

which should be encoded as follows:

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:

or the XML document:

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:

```
<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:

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

`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.

i 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 \(MAC\) \[page 555\]](#).

`CredentialMac` has the following attributes:

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

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

```
<Sender>
  <Credential domain="NetworkId">
    <Identity>AN9900000100</Identity>
    <CredentialMac type="FromSenderCredentials"
      algorithm="HMAC-SHA1-96"
      creationDate="2003-01-15T08:42:46-0800"
      expirationDate="2003-01-15T11:42:46-0800">
      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:

Attribute	Description
<code>preferredLanguage</code>	The preferred language of the organization, if it is known.

Identify the unknown organization by using a `Contact` element.

Related Information

[Contact \[page 46\]](#)

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:

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

Related Information

[cXML Digital Signatures \[page 563\]](#)

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:

Attribute	Description
<code>Id</code>	This attribute can be used to call out an element and all its children as a target for a digital signing.

Related Information

[cXML Digital Signatures \[page 563\]](#)

3.1.9.1 Status

This element conveys the success, transient failure, or permanent failure of a request operation.

Status has the following attributes:

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

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:

Range	Meaning
2xx	Success
4xx	Permanent error. Client should not retry. The error prevents the request from being accepted.
5xx	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.

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:

Status	Text	Meaning
200	OK	The server was able to execute the request or deliver it to the final recipient. The returned <code>Response</code> might contain application warnings or errors: the cXML <code>Request</code> 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.
201	Accepted	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 <code>StatusUpdate</code> transactions.
204	No Content	All <code>Request</code> information was valid and recognized. The server has no <code>Response</code> data of the type requested. In a <code>PunchOutOrderMessage</code> , this status indicates that the PunchOut session ended without change to the shopping cart (or client requisition).
211	OK	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.
280		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.
281		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.
400	Bad Request	Request unacceptable to the server, although it parsed correctly.
401	Unauthorized	Credentials provided in the <code>Request</code> (the <code>Sender</code> element) were not recognized by the server.
402	Payment Required	This <code>Request</code> must include a complete <code>Payment</code> element.
403	Forbidden	The user has insufficient privileges to execute this <code>Request</code> .
406	Not Acceptable	Request unacceptable to the server, likely due to a parsing failure.
409	Conflict	The current state of the server or its internal data prevented the (update) operation request. An identical <code>Request</code> is unlikely to succeed in the future, but only after another operation has executed, if at all.
412	Precondition Failed	A precondition of the <code>Request</code> (for example, a PunchOut session appropriate for a <code>PunchOutSetupRequest edit</code>) was not met. This status normally implies the client ignored some portion of a previous transmission from a server (for example, the <code>operationAllowed</code> attribute of a <code>PunchOutOrderMessageHeader</code>).

Status	Text	Meaning
417	Expectation Failed	Request implied a resource condition that was not met. One example might be a <code>SupplierDataRequest</code> asking for information about a supplier unknown to the server. This status might imply lost information at the client or server.
450	Not Implemented	The server does not implement the particular <code>Request</code> . For example, <code>PunchOutSetupRequest</code> or the requested operation might not be supported. This status normally implies the client has ignored the server's profile.
475	Signature Required	The receiver is unwilling to accept the document because it does not have a digital signature.
476	Signature Verification Failed	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.
477	Signature Unacceptable	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.
500	Internal Server Error	Server was unable to complete the <code>Request</code> .
550	Unable to reach cXML server	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.
551	Unable to forward request	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.
560	Temporary server error	For example, a server might be down for maintenance. The client should retry later.

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

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

Status	Text	Meaning
499	Document Size Error	The cXML document is too large.
561	Too Many Catalogs	You cannot upload more than a specific number of catalogs per hour.
562	Publish Disabled	Catalog publishing is temporarily unavailable due to scheduled maintenance. It will be back online by the specified date and time.
563	Catalog Validating	You attempted to update a catalog before validation finished on a previous version of the catalog.

When receiving unrecognized codes, cXML clients must handle them according to their class. Therefore, older clients should treat all new 2xx codes as 200 (success), 4xx codes as 400 (permanent failure), and 5xx codes as 500 (transient error). This behavior allows for both further expansions of the cXML protocol and server-specific codes without loss of interoperability.

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.

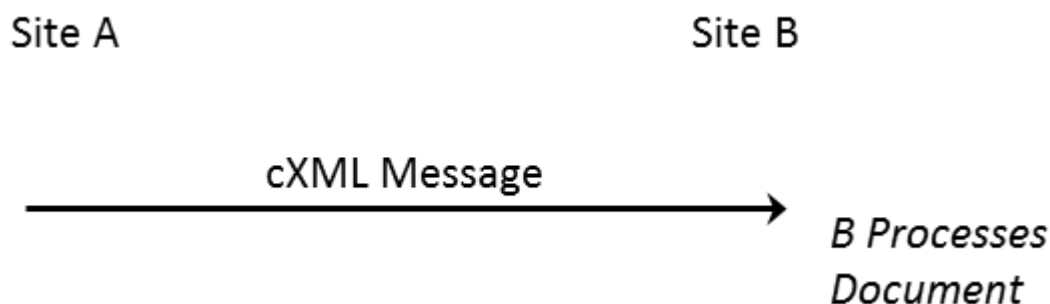


Figure 2: One-Way Message (Asynchronous)

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`.

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 \[page 26\]](#). 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:

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

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 \[page 563\]](#)

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

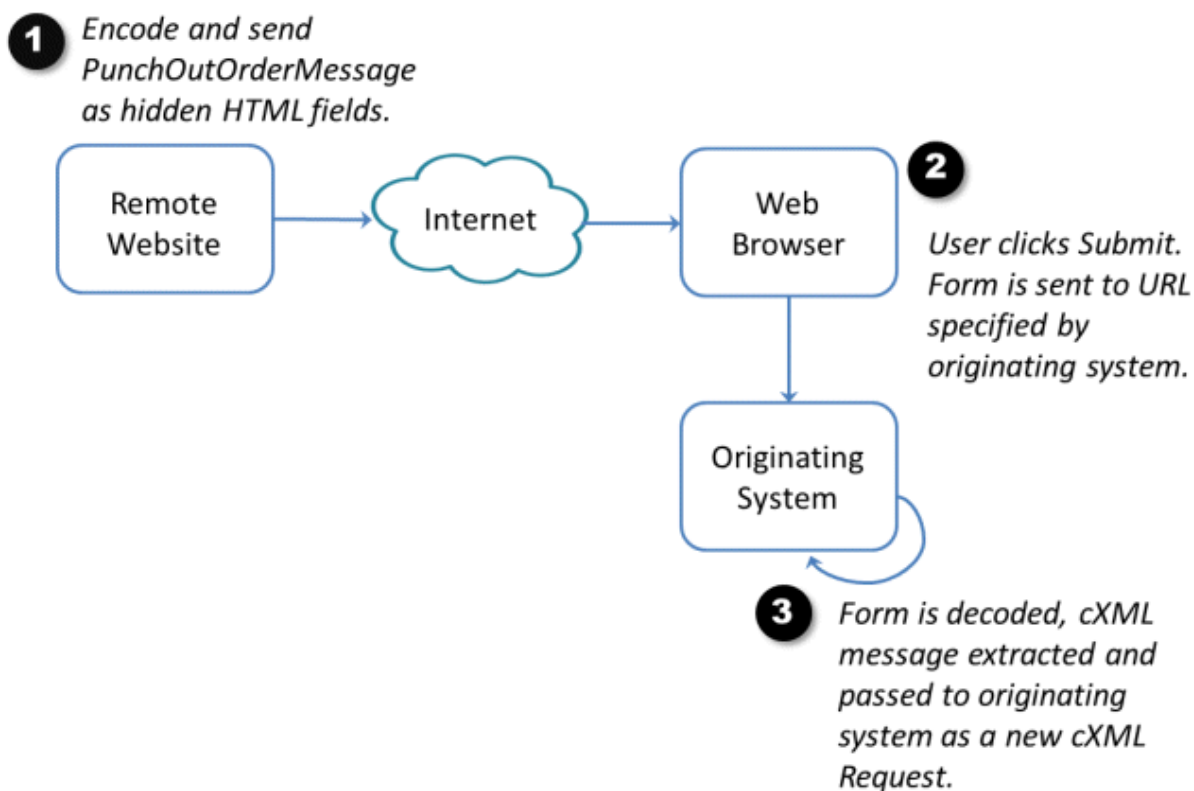
Procurement applications pull information using one-way HTTP communication. The one type of transaction that uses one-way HTTP communication is `GetPendingRequest`.

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.



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:

```
<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 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>
```

i 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

An ISO Language Code from the ISO 639 standard.

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

An ISO Country Code from the ISO 3166 standard.

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. See www.unece.org/cefact/codesfortrade/codes_index.html.

URL

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

Related Information

[cXML Envelope \[page 26\]](#)

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:

```
<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:

```
<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.

State

Contains the state or country subdivision identifier. Contained by the `PostalAddress` element. It has an optional [isoStateCode \[page 43\]](#) attribute.

```
<State isoStateCode="US-CA">CA</State>
```

Country

Contains the name of the country in a location. Contained by the `PostalAddress` element. It has an optional [isoCountryCode \[page 44\]](#) attribute.

```
<Country isoCountryCode="US">United States</Country>
```

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 `TelephoneNumber` element.

```
<TelephoneNumber>
  <CountryCode isoCountryCode="US">1</CountryCode>
  <AreaOrCityCode>800</AreaOrCityCode>
  <Number>5551212</Number>
</TelephoneNumber>
```

Contact

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

```
<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 143]

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.

[Introduction to the Profile Transaction \[page 47\]](#)

[ProfileRequest \[page 47\]](#)

[ProfileResponse \[page 48\]](#)

[Scenarios \[page 52\]](#)

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:

```
<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:

```
<ProfileResponse effectiveDate="2001-03-03T12:13:14-05:00">
  <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:

```
<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:

Attribute	Description
effectiveDate (required)	The date and time when these services became available. Dates should not be in the future.

Attribute	Description
lastRefresh	Indicates when the profile cache was last refreshed. When an application receives a <code>ProfileResponse</code> from a profile caching server, it will know the age of the data in the cache.

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:

Attribute	Description
name (required)	<p>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 <code>ProfileResponse</code> document.</p> <p>Currently defined values for name are "service", "attachments", "changes", and "requestNames".</p>

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:

```
<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>
```

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

Related Information

[PunchOutSetupRequest Options \[page 50\]](#)

[Message Authentication Code \(MAC\) \[page 555\]](#)

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 \[page 49\]](#)

[Message Authentication Code \(MAC\) \[page 555\]](#)

[Auth Transaction \[page 559\]](#)

[Direct PunchOut \[page 96\]](#)

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 \[page 21\]](#)

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:

Attribute	Description
<code>requestName</code> (required)	A specific request that this server accepts at the given URL. Values can be the name of any <code>Request</code> document defined by cXML.

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.

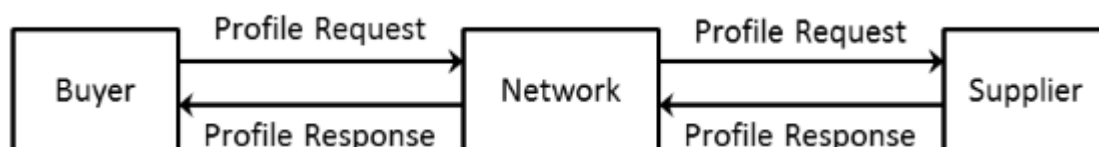


Figure 3: ProfileRequest Sent from Buyer to Supplier

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.

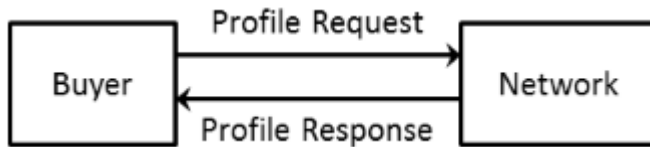


Figure 4: `ProfileRequest` Document Sent from a Buyer to the Network

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 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">
        <Identity>AN01001010101</Identity> <!-- marketplace's id -->
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN01000000001</Identity> <!-- Network -->
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN01001010101</Identity>
        <!-- marketplace's shared secret -->
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Marketplace 7.5</UserAgent>
    </Sender>
  </Header>
  <Request>
    <ProfileRequest />
  </Request>
</cXML>
```

Example `ProfileResponse` document:

```
<?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="OrderStatusSetupRequest">
      <URL>https://superduper.com/a/OrderStatusSetup</URL>
    </Transaction>
    <Transaction requestName="GetPendingRequest">
      <URL>https://superduper.com/a/GetPending</URL>
    </Transaction>
    <Transaction requestName="SubscriptionListRequest">
      <URL>https://superduper.com/b/SubscriptionList</URL>
    </Transaction>
    <Transaction requestName="SubscriptionContentRequest">
      <URL>https://superduper.com/b/SubscriptionContent</URL>
    </Transaction>
    <Transaction requestName="SupplierListRequest">
      <URL>https://superduper.com/c/SupplierList</URL>
    </Transaction>
    <Transaction requestName="SupplierDataRequest">
      <URL>https://superduper.com/c/SupplierData</URL>
    </Transaction>
    <Transaction requestName="ProviderSetupRequest">
      <URL>https://superduper.com/d/ProviderSetup</URL>
    </Transaction>
    <Transaction requestName="SessionStatusRequest">
      <URL>https://superduper.com/d/SessionStatus</URL>
      <Option name="requestNames">OrderStatusSetupRequest</Option>
    </Transaction>
  </ProfileResponse>
</Response>
</cXML>

```

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.

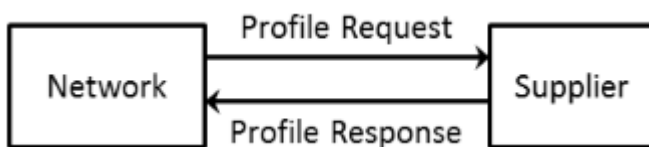


Figure 5: ProfileRequest Sent from Network Hub to a Supplier

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

- `OrderRequest`
- `PunchOutSetupRequest`

Example `ProfileRequest` document:

```

<?xml 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">

```

```

        <Identity>AN01001010101</Identity> <!-- Network's id -->
    </Credential>
</From>
<To>
    <Credential domain="NetworkId">
        <Identity>AN01234663636</Identity> <!-- any supplier's id -->
    </Credential>
</To>
<Sender>
    <Credential domain="NetworkId">
        <Identity>AN01001010101</Identity>
        <!-- Network's sharedsecret -->
        <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Marketplace 7.5</UserAgent>
</Sender>
</Header>
<Request>
    <ProfileRequest />
</Request>
</cXML>

```

Example ProfileResponse document:

```

<?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 `ProfileResponses` will be returned, because profile information can be returned for both the service provider and downstream supplier accounts.

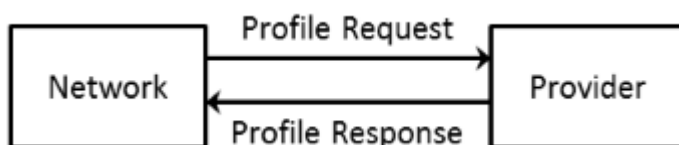


Figure 6: ProfileRequest Sent from a Network Hub to a Service Provider

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.

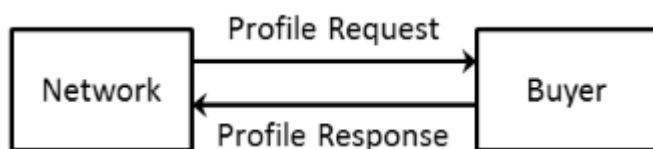


Figure 7: `ProfileRequest` Sent from a Network Hub to a Buyer

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.

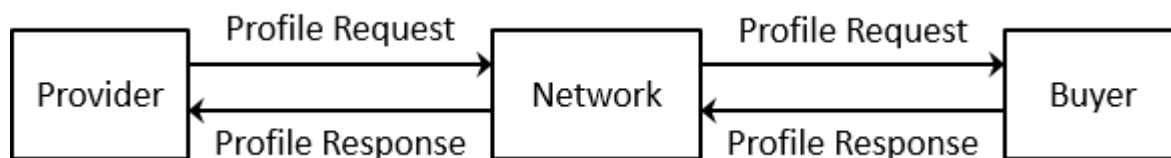


Figure 8: `ProfileRequest` Sent from a Service Provider to a Buyer

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 \[page 57\]](#)

[PunchOut Event Sequence \[page 60\]](#)

[PunchOut Documents \[page 64\]](#)

[Modifications to the Supplier's Web Pages \[page 72\]](#)

[PunchOut Website Suggestions \[page 78\]](#)

[PunchOut Transaction \[page 80\]](#)

[Direct PunchOut \[page 96\]](#)

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:

Level of Pre-existing Infrastructure	Estimated Time for Completion
cXML enabled and integrated with network hub	1-2 weeks with in-house IT staff
	2-3 weeks with contractors
Transactive site with XML infrastructure	3 weeks with in-house IT staff
	3-4 weeks with contractors
Transactive site without XML infrastructure	4 weeks with in-house IT staff
	4-5 weeks with contractors

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 \[page 16\]](#)

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:

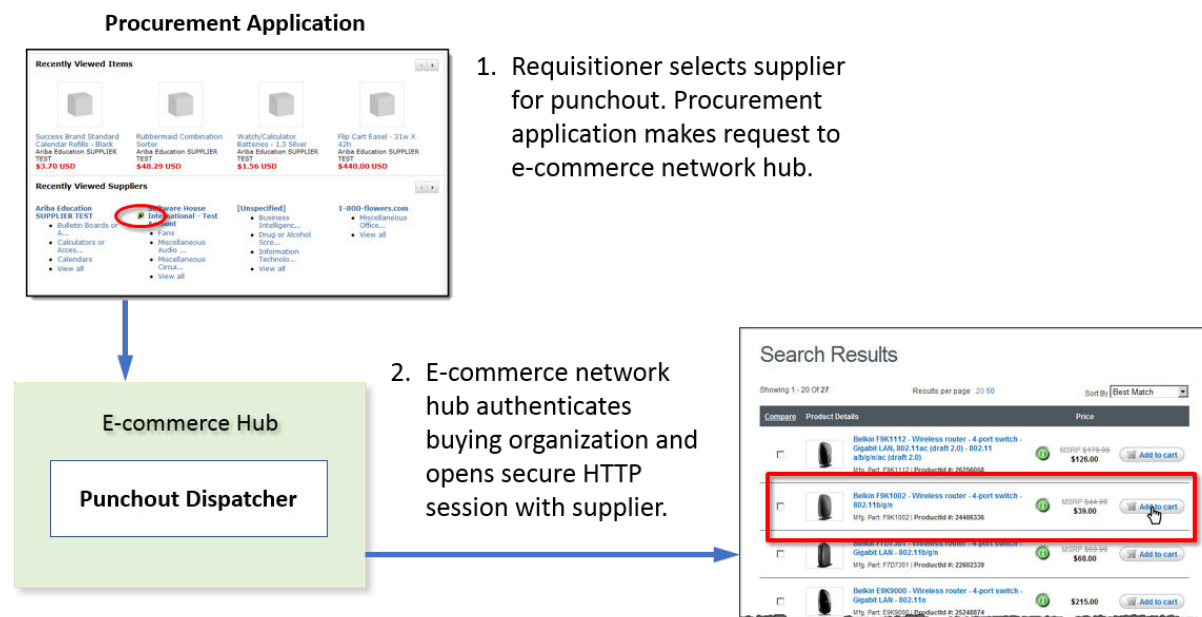


Figure 9: PunchOut Request Steps

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.

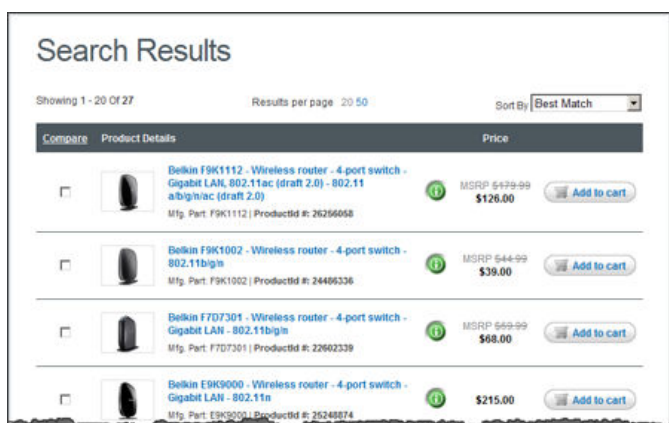
Direct PunchOut is an alternative method for initiating PunchOut sessions, where the PunchOut site, not a network hub, authenticates the PunchOut request.

Related Information

[Direct PunchOut \[page 96\]](#)

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:



3. Requisitioner uses supplier site to find products.

Figure 10: PunchOut Product Selection

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:

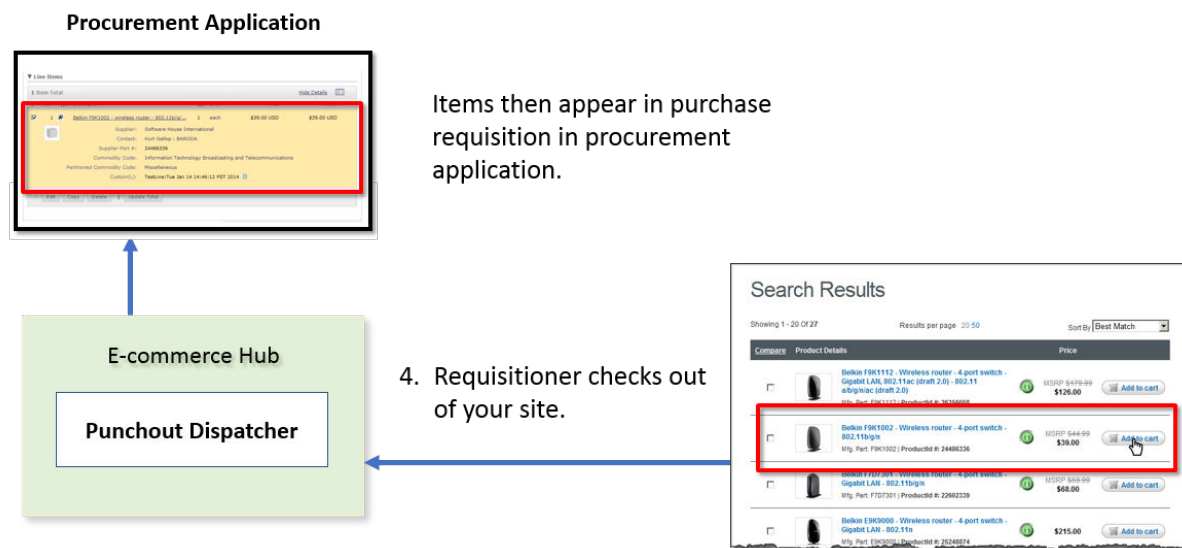


Figure 11: Check-Out Steps

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:

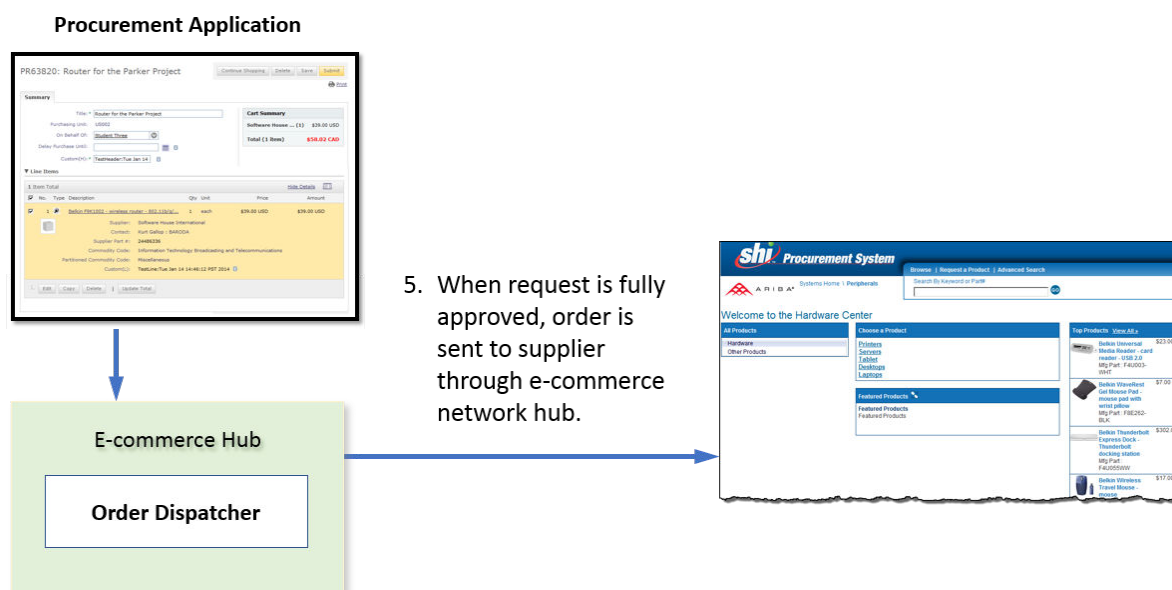


Figure 12: Order Transmittal Steps

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 \[page 104\]](#)

5.3 PunchOut Documents

There are four types of cXML documents:

- [PunchOut Index Catalog \[page 65\]](#)
- [PunchOutSetupRequest \[page 66\]](#)
- [PunchOutSetupResponse \[page 70\]](#)
- [PunchOutOrderMessage \[page 70\]](#)

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 version="1.0" encoding="UTF-8"?>
<!-- type of cXML doc and URL of DTD -->
<!DOCTYPE Index SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.016/cXML.dtd">
<Index>
  <SupplierID domain="DUNS">83528721</SupplierID>
  <IndexItem>
    <IndexItemPunchout>
      <ItemID>
<!-- The supplier's identifier for the PunchOut item -->
        <SupplierPartID>5555</SupplierPartID>
      </ItemID>
      <PunchoutDetail punchoutLevel="shelf">
        <Description xml:lang="en-US">Desk Chairs</Description>
        <Description xml:lang="fr-FR">Chaises de Bureau</Description>
<!-- URL of the PunchOut website (launch page) if not configured elsewhere -->
        <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.

`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.

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 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>
        <SharedSecret>abracadabra</SharedSecret>
      </Credential>
      <UserAgent>Procurement System 2.0</UserAgent>
    </Sender>
  </Header>
  <Request>
    <!-- type of request -->
    <PunchOutSetupRequest operation="create">
      <BuyerCookie>1CX3L4843PPZO</BuyerCookie>
```

```

        <Extrinsic name="UserEmail">jsmith</Extrinsic>
        <Extrinsic name="UniqueName">John Smith</Extrinsic>
        <Extrinsic name="CostCenter">610</Extrinsic>
<!-- destination for final PunchOutOrderMessage -->
        <BrowserFormPost>
            <URL>https://bigbuyer.com:2600/punchout?client=NAwl4Jo</URL>
        </BrowserFormPost>
        <SupplierSetup>
            <URL>http://www.workchairs.com/punchout.asp</URL>
        </SupplierSetup>
        <ShipTo>
            <Address addressID="1000467">
                <Name xml:lang="en">1000467</Name>
                <PostalAddress>
                    <DeliverTo>John Smith</DeliverTo>
                    <Street>123 Main Street</Street>
                    <City>Sunnyvale</City>
                    <State isoStateCode="US-CA">CA</State>
                    <PostalCode>94089</PostalCode>
                    <Country isoCountryCode="US">United States</Country>
                </PostalAddress>
            </Address>
        </ShipTo>
<!-- item selected by user -->
        <SelectedItem>
            <ItemID>
                <SupplierPartID>5555</SupplierPartID>
            </ItemID>
        </SelectedItem>
    </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 version="1.0"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/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>lCX3L4843PPZO</BuyerCookie>
      <Extrinsic name="UserEmail">jsmith</Extrinsic>
      <Extrinsic name="UniqueName">John_Smith</Extrinsic>
      <Extrinsic name="CostCenter">610</Extrinsic>
      <BrowserFormPost>
        <URL>https://bigbuyer.com:2600/punchout?client=NAwliuo</URL>
      </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 \[page 96\]](#)

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

- Email address

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 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 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>website 1</Identity>
      </Credential>
      <UserAgent>Workchairs cXML Application</UserAgent>
    </Sender>
  </Header>
  <Message>
    <PunchOutOrderMessage>
      <BuyerCookie>1CX3L4843PPZO</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.

i 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.

Related Information

[UnitOfMeasure \[page 44\]](#)

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 \[page 72\]](#)
- [Start Page \[page 75\]](#)
- [Sender Page \[page 75\]](#)
- [Order Receiver Page \[page 78\]](#)

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.**

```
<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 + '">\n';
    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=2133hfe&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 = ""
xmlstr = ""
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 %>
<%= prologStr %>
<Response>
    <Status code="400" Text="Bad Request">Invalid Document. Unable to extract
    BuyerCookie.</Status>
</Response>
</cXML>
<% else %>

```

```

<%= prologStr %>
  <Response>
    <Status code="200" text="OK"/>
    <PunchOutSetupResponse>
      <StartPage>
        <URL>http://<%= Request.ServerVariables("LOCAL_ADDR") %>/<%= dir
%>/punchoutredirect.asp?bc=<%= cookie%>&url="<%= url%>"&from=<%= fromUser%>&to=<
%= toUser%>&redirect=<%= StartPage%></URL>
      </StartPage>
    </PunchOutSetupResponse>
  </Response>
</cXML>
<%end if%>

```

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:

```

<!--#include file="punchoutitem.inc"-->
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<!-- saved from url=(0093)https://secure1.shore.net/wbird/cgi/vsc.cgi/wbird/
houses/urban.htm?L+wbird+wadt4101+928011405 -->
<TABLE border=0>

```

```

        <TBODY>
          <TR>
            <TD><IMG src="UrbanHouses_files/uhjm.gif"> </TD>
            <TD><STRONG>Jefferson Memorial</STRONG>- 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.
            </TD>
          </TR>
        </TBODY>
      </TABLE><BR>
      -Jefferson Memorial<STRONG>
      $139.95</STRONG><BR>
      <% AddBuyButton 139.95,101,"Bird Feeder, Jefferson Memorial",5 %>
      <BR>
      <HR>

```

The AddBuyButton function sends the PunchOutOrderMessage back to the user.

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

```

<%
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")
%&"> timestamp="<%= Now %&">
  <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>

```

```

        <UnitPrice>
            <Money currency=&quot;USD&quot;><%= unitPrice%>
            </Money>
        </UnitPrice>
        <Description xml:lang=&quot;en&quot;><%= desc%>
        </Description>
        <UnitOfMeasure>EA</UnitOfMeasure>
        <Classification
            domain=&quot;SupplierPartID&quot;><%= supPartId%>
        </Classification>
    </ItemDetail>
</ItemIn>
</PunchOutOrderMessage>
</Message>
</cXML>
<% end function
function AddBuyButton(unitPrice, supPartId, supPartAuxId, desc)
toUser = Session("toUser")
fromUser = Session("fromUser")
buyerCookie = Session("buyercookie")
url = Session("urlToPost")
if not IsEmpty(buyerCookie) then
    %>
    <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>
<%else%>
</p>
<%
end if
end function
%>

```

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:

```

<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 \[page 104\]](#)

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:

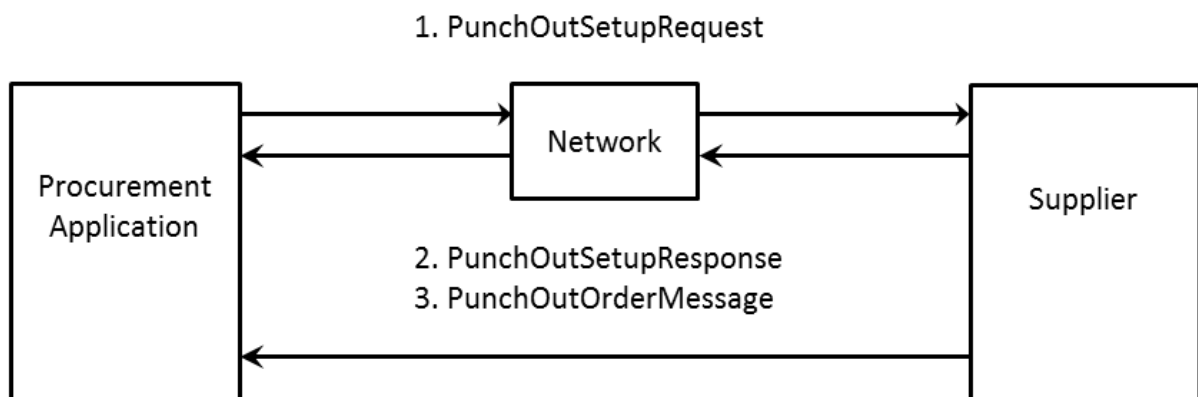


Figure 13: cXML Message Flow in PunchOut Transaction

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 \[page 85\]](#)

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`.

```
<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`:

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

The following example shows a `PunchOutSetupRequest`:

```
<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>
      <PostalAddress>
        <DeliverTo>Betty Buyer</DeliverTo>
        <Street>123 Main Street</Street>
        <City>Sunnyvale</City>
        <State isoStateCode="US-CA">CA</State>
        <PostalCode>94089</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
  </ShipTo>
</PunchOutSetupRequest>
```

`PunchOutSetupRequest` has the following attribute:

Attribute	Description
operation	Specifies the type of <code>PunchOutSetupRequest</code> : "create", "inspect", "edit" or "source".

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 \[page 108\]](#). The `ItemOut` element is discussed in [ItemOut \[page 131\]](#). 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 \[page 86\]](#) and [Empty Shopping Carts \[page 87\]](#)). This list can also describe items to be sourced. For more information, see [Sourcing \[page 80\]](#).

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>
```

```
<Extrinsic name="User">jsmith</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:

```
<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:

```
<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:

Attribute	Description
<code>operationAllowed</code>	Specifies the operations allowed in subsequent <code>PunchOutOrderRequests</code> : "create", "inspect", or "edit".
<code>quoteStatus</code>	Optional attribute specifies whether the order is "pending" or "final". If <code>quoteStatus</code> is "final", the transaction is complete.

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:

Attribute	Description
<code>quantity</code> (required)	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.
<code>openQuantity</code>	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.
<code>promisedQuantity</code>	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.
<code>lineNumber</code>	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 <code>PunchOutOrderMessage</code> .
<code>parentLineNumber</code>	The line number of the corresponding parent line item. This attribute is applicable only for a line item with <code>itemType="item"</code> .
<code>itemType</code>	Specifies the type of item. Possible values: <ul style="list-style-type: none">• <code>composite</code>—Identifies an item group.• <code>item</code>—Identifies an independent line item.• <code>lean</code>—Indicates that no child item is expected for the line.
<code>compositeItemType</code>	Specifies whether a parent item uses group-level pricing. Possible values are <code>"groupLevel"</code> or <code>"itemLevel"</code> .
<code>itemClassification</code>	Specifies whether the current line item is material or service. Possible values: <ul style="list-style-type: none">• <code>material</code>• <code>service</code>
<code>itemCategory</code>	Specifies how a component or material is procured. Possible values: <ul style="list-style-type: none">• <code>materialUnknown</code>—Refers to procuring a material without specifying the material number.• <code>text</code>—Refers to procuring a free-form text item.• <code>stockTransfer</code>—Refers to transfer of stock from one plant to another.• <code>materialGroup</code>—Refers to procuring a material without specifying the value or quantity.• <code>subcontract</code>—Procuring a material by providing component information to a contract manufacturer that makes the finished product.• <code>consignment</code>—Managing a material through a special process where the payment to supplier is withheld until the material or service is consumed by the buyer.• <code>thirdParty</code>—Procuring a material from a third-party vendor.

ItemIn has the following elements:

Element	Description
ItemID (required)	Provides unique identification of an item. See ItemID [page 91] .
Path	A list of nodes that records the path taken by a user through a punchout chaining scenario. See Path Element [page 185] .
ItemDetail (required)	Contains descriptive information about the item that procurement applications present to users. See ItemDetail [page 91] .
SupplierID SupplierList	Specify a list of suppliers that can be involved in a sourcing process: <ul style="list-style-type: none"> • SupplierID is the ID of the supplier. • SupplierList contains the Name and the list of SupplierIDs for each supplier. See SupplierID or SupplierList [page 96] .
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 141] .
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`:

```
<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>
  </ItemDetail>
  <DateInfo type="confirmedShipmentDate" date="2017-06-25T18:02:53-07:00"/>
  <DateInfo type="confirmedDeliveryDate" date="2017-06-27T18:02:53-07:00"/>
</ItemIn>
<ItemIn quantity="2" openQuantity="2" promisedQuantity="1">
  <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 147]

[FeeDetail](#) [page 142]

[LaborDetail](#) [page 142]

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:

Element	Description
<code>SupplierPartID</code> (required)	<code>SupplierPartID</code> is how the supplier identifies an item.
<code>SupplierPartAuxiliaryID</code>	<p>If <code>SupplierPartID</code> does not uniquely identify the item, the supplier should use <code>SupplierPartAuxiliaryID</code> to specify an "auxiliary" key that identifies the part uniquely when combined with the <code>SupplierID</code> and <code>SupplierPartID</code>. For example, a supplier might use the same <code>SupplierPartID</code> for an item, but have a different price for units of "EA" and "BOX". In this case, a reasonable <code>SupplierPartAuxiliaryID</code> for the two items might be "EA" and "BOX."</p> <p><code>SupplierPartAuxiliaryID</code> 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 79].</p> <p><code>SupplierPartAuxiliaryID</code> 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.</p> <p>If <code>SupplierPartAuxiliaryID</code> 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 <code>SupplierPartAuxiliaryID</code> information through applications and back to the originating supplier, an internal subset containing any additional XML elements is insufficient.</p>
<code>BuyerPartID</code>	Represents an item in buyer system. This identifier is specified by the buyer.
<code>IDReference</code>	Defines an ID reference. Within an application context (for example, certain pair of buyer and supplier), the (identifier, domain) pair should be unique.

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:

Element	Description
UnitPrice (required)	Price per unit of the item.
Description (required)	<p>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.</p> <p>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.</p> <p>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.</p> <p>For example:</p> <pre><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></pre> <p>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.</p> <p>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.</p> <p>CIF 3.0 catalog format also supports ShortName. The CIF field name is Short Name.</p>

Element	Description
OverallLimit	<p>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).</p> <p>For example:</p> <pre><OverallLimit> <Money currency="USD">1000.00</Money> </OverallLimit></pre>
ExpectedLimit	<p>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.</p> <p>For example:</p> <pre><ExpectedLimit> <Money currency="USD">800.00</Money> </ExpectedLimit></pre>
UnitOfMeasure (required)	<p>Describes how the product is packaged or shipped. It must conform with UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfor-trade/codes_index.html.</p>
PriceBasisQuantity	<p>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 346].</p>

Element	Description
Classification (required)	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • MaterialGroup • LineOfBusiness • ProductFamily • ProductSubFamily • InternalProgramCode • ExternalProgramCode • PartCategory • PartType <p>Classification has an optional code attribute, which identifies the commodity by its designated code.</p>
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	<p>Specifies the number of days needed for the buyer to receive the product. For example:</p> <pre><LeadTime>14</LeadTime></pre>
Dimension	Specifies item dimensions. See Dimension [page 179] .
ItemDetailIndustry	Contains the detailed industry-specific information. See ItemDetailIndustry [page 139] .
AttachmentReference	Contains a reference to a remote attachment. See AttachmentReference [page 95] .
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 83] .

5.6.4.4.2.1 AttachmentReference

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

Attribute	Description
length	Contains the length of the attachment in bytes.
version	Specifies the version of the external source. Examples: "1.0", "2.4.10" "Beta", "V-2".

AttachmentReference has the following elements:

Element	Description
Name	The name of the attachment.
Description	A description of the attachment.
InternalID	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 "local" for the domain to indicate that the attachment requested is local to the other application.
URL	<p>A link to a referenced source on the buyer's system.</p> <p>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.</p>

Note

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

The following example shows an AttachmentReference that references a URL:

```
<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.

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

```
<ItemOut quantity="6" lineNumber="1">
  <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 \[page 555\]](#)—The server interprets a Message Authentication Code (MAC) in the `Sender` credential in `PunchOutSetupRequest` documents.
- [Auth Transaction \[page 559\]](#)—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.

```
<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>
```

Related Information

[PunchOutSetupRequest Options \[page 50\]](#)

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 \[page 98\]](#)

[PurchaseRequisitionRequest \[page 99\]](#)

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.

i 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:

```
<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 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>
    <Sender>
      <!-- This document has passed from the ERP
```

```

to the Ariba Procurement Solution. -->
<Credential domain="NetworkID">
  <Identity>AN71000002012</Identity>
</Credential>
<Credential domain="EndPointID">
  <Identity>ERP</Identity>
  <SharedSecret>welcome3a</SharedSecret>
</Credential>
<UserAgent>Ariba.com Network V1.0</UserAgent>
</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 isoStateCode="US-NY">NY</State>
              <PostalCode>10001</PostalCode>
              <Country isoCountryCode="US">United States</Country>
            </PostalAddress>
          </Address>
        </ShipTo>
        <BillTo>
          <Address addressID="US006">
            <Name xml:lang="en">New York</Name>
            <PostalAddress>
              <Street>691 Random Ave</Street>
              <City>New York</City>
              <State isoStateCode="US-NY">NY</State>
              <PostalCode>10001</PostalCode>
              <Country isoCountryCode="US">United States</Country>
            </PostalAddress>
          </Address>
        </BillTo>
        <Contact role="preparer">
          <Name xml:lang="en-US">Jane Doe</Name>
          <PostalAddress>
            <Street>123 Anystreet</Street>
            <City>Sunnyvale</City>
            <State isoStateCode="US-CA">CA</State>
            <PostalCode>94089</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>
          <Email>jdoe@company.com</Email>
        </Contact>
        <Contact role="requester">
          <Name xml:lang="en-US">Jane Doe</Name>
          <PostalAddress>
            <Street>123 Anystreet</Street>
            <City>Sunnyvale</City>
            <State isoStateCode="US-CA">CA</State>
            <PostalCode>94089</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>
          <Email>jdoe@company.com</Email>
        </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">AN70000000004</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>
</ItemIn>
</PurchaseRequisition>
</PurchaseRequisitionRequest>
</Request>
</cXML>

```

6.2.1 PurchaseRequisition

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

Element	Description
PurchaseRequisitionHeader (required)	Header element for the purchase requisition. See PurchaseRequisition-Header [page 102] .
ItemIn	Represents an item added from a shopping basket to a requisition in the procurement application. See ItemIn [page 88] .

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:

Attribute	Description
requisitionID	The buyer system requisition ID for this request.
requisitionDate	The date and time the requisition request was created.
type	<p>The type of the requisition request. Possible values:</p> <ul style="list-style-type: none">• new (default)• update• delete <p>Update and delete requisitions must use the DocumentReference element to reference the PurchaseRequisition being changed.</p>
requisitionVersion	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).

PurchaseRequisitionHeader has the following elements:

Element	Description
Shipping	Contains shipping costs for the requisition.
Tax	Contains tax information.
Total	Contains the total cost for the items in the requisition, excluding any tax and shipping.
ShipTo	Contain the ShipTo address for the requisition.

Element	Description
BillTo	Contain the BillTo address for the requisition.
Contact	Contains contact information to follow up on the requisition.
Comments	Contains arbitrary human-readable information associated with this object.
DocumentReference	Provides a reference to an earlier version of the requisition.
Extrinsic	Contains any additional information related to this object.

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 \[page 104\]](#)

[OrderRequest Documents \[page 105\]](#)

[Response to an OrderRequest \[page 182\]](#)

[Accepting Order Attachments \[page 183\]](#)

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:

```
<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>
```

i Note

For information about `OrderStatusRequest`, see [OrderStatusRequest \[page 299\]](#).

The following example shows an `OrderRequest` for an item:

```
<?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">
```

```

<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 isoStateCode="US-CA">CA</State>
            <PostalCode>94089</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>
          <Email name="default">john_smith@acme.com</Email>
          <Phone name="work">
            <TelephoneNumber>
              <CountryCode isoCountryCode="US">
                1</CountryCode>
              <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 isoStateCode="US-CA">CA</State>
            <PostalCode>94128</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>
          <Phone name="work">
            <TelephoneNumber>
              <CountryCode isoCountryCode="US">1</CountryCode>
              <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>
      </Modifications>
      <Modification>
        <OriginalPrice>
          <Money currency = "USD">50.00</Money>
        </OriginalPrice>
        <AdditionalCost>
          <Money currency = "USD">5</Money>
        </AdditionalCost>
        <ModificationDetail>
          <endDate = "2013-11-30T10:15:00-08:00"
            name = "Royalties"
            startDate = "2012-08-03T10:15:00-08:00">
            <Description xml:lang = "en-US">Charge for Royalties
          </Description>
        </ModificationDetail>
      </Modification>
    </Modifications>
  </UnitPrice>
  <Description xml:lang="en">Laptop Computer Notebook Pentium® II
    processor w/AGP, 300 MHz, with 12.1" TFT XGA
    Display</Description>
  <UnitOfMeasure>EA</UnitOfMeasure>
  <Classification domain="UNSPSC">43171801</Classification>
  <URL>http://www.supplier.com/Punchout.asp</URL>
  <Extrinsic name="ExtDescription">Enhanced keyboard</Extrinsic>
</ItemDetail>
<Distribution>
  <Accounting name="DistributionCharge">
    <AccountingSegment id="7720">
      <Name xml:lang="en-US">Account</Name>
      <Description xml:lang="en-US">Office Supplies
    </Description>
  </AccountingSegment>

```

```

        <AccountingSegment id="610">
            <Name xml:lang="en-US">Cost Center</Name>
            <Description xml:lang="en-US">Engineering Management
            </Description>
        </AccountingSegment>
    </Accounting>
    <Charge>
        <Money currency="USD">20.00</Money>
    </Charge>
</Distribution>
</ItemOut>
</OrderRequest>
</Request>
</cXML>

```

7.2.1 OrderRequestHeader

Defines header information that applies to the entire order. This is the data that is sent to the supplier to have them place an order in their order management system.

`OrderRequestHeader` has the following attributes:

Attribute	Description
<code>orderID</code> (required)	The identifier for this order. Analogous to the purchase order number.
<code>orderDate</code> (required)	The date and time this order was placed, in ISO 8601 format.
<code>orderType</code>	Type of order: <code>regular</code> , <code>release</code> (a release against a master agreement or against a blanket purchase order), or <code>blanket</code> (a blanket purchase order).
<code>releaseRequired</code>	Used only if <code>orderType</code> is <code>blanket</code> to indicate whether the blanket order requires releases (purchase orders). If "yes" 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.
<code>type</code>	Type of request: <code>new</code> (default), <code>update</code> , or <code>delete</code> . Update and delete orders must use the <code>DocumentReference</code> element with the <code>payloadID</code> to refer to the original purchase order. See DocumentReference [page 279] .
<code>orderVersion</code>	Specifies the order version number of change orders, starting with "1" for the original order.
<code>isInternalVersion</code>	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.
<code>agreementID</code>	Used only if <code>orderType</code> is <code>release</code> to indicate the buyer's identifier for associated master agreement or blanket purchase order.

Attribute	Description
agreementPayloadID	Used only if <code>orderType</code> is <code>release</code> to indicate the cXML document payload ID for the associated master agreement or blanket purchase order.
parentAgreementID	Used only if <code>orderType</code> is <code>blanket</code> to indicate the parent blanket order.
parentAgreementPayloadID	Used only if <code>orderType</code> is <code>blanket</code> to indicate the document reference identifier for the parent blanket order.
effectiveDate	Required if <code>orderType</code> is <code>blanket</code> to indicate the date the blanket order becomes effective (the date from which releases can be created or invoices submitted for the blanket order).
expirationDate	Used only if <code>orderType</code> is <code>blanket</code> to indicate the date the blanket order expires. Releases cannot be created against the blanket order after this date.
requisitionID	The buyer's requisition identifier for this entire order. It might be the same as <code>orderID</code> , and it might not be included at all. Must not be included if <code>requisitionID</code> is specified in any <code>ItemOut</code> elements.
shipComplete	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 <code>ShipTo</code> elements, only groups of items with common shipping locations should be held until complete when <code>shipComplete</code> ="yes".
pickUpDate	The date when the order should be ready for pickup and delivery.
requestedDeliveryDate	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.

`OrderRequestHeader` has the following elements:

Element	Description
Total (required)	Contains the total cost for the items in the order, excluding any tax and shipping. See Total [page 113] .
ShipTo	Optional <code>ShipTo</code> address for the order. The <code>ShipTo</code> address can also appear at the item level. See ShipTo/BillTo [page 115] .
BillTo (required)	BillTo address for the order See ShipTo/BillTo [page 115] .
LegalEntity	Identifies legal entity in the external system.
OrganizationalUnit	Identifies purchase unit or purchase group in the external system.
Shipping	Contains shipping costs for the order. See Shipping [page 117] .
Tax	Contains the tax associated with the order. See Tax [page 117] .

Element	Description
Payment	Describes the payment instrument used to pay for the order. See Payment [page 118] .
PaymentTerm	Defines a payment term for the order. See PaymentTerm [page 118] .
Contact	Contains contact information for following up on an order. See Contact [page 118] .
Comments	Contains comments associated with this order. See Comments [page 121] .
Followup	Specifies the URL to which future StatusUpdateRequest documents should be posted. See Followup [page 122] .
ControlKeys	Provides elements that allow you to override default business rules for order confirmations, ship notices, service sheets, and invoices. See ControlKeys [page 122] .
DocumentReference	Only needed when the type is "update" or "delete". References the most recent OrderRequest document for the order. See DocumentReference [page 127] .
SupplierOrderInfo	Defines supplier sales order information related to a purchase order. See SupplierOrderInfo [page 127] .
TermsOfDelivery	Specifies the terms of delivery for the shipment described by the order and ship notice. See TermsOfDelivery [page 127] .
DeliveryPeriod	Specifies the start and end dates for delivery. See DeliveryPeriod [page 128] .
IdReference	Defines an ID reference. See IdReference [page 337] .
OrderRequestHeaderIndustry	Contains industry-specific information for an order. See OrderRequestHeaderIndustry [page 129] .
Extrinsic	Contains any additional information related to the order. See Extrinsic [page 131] .

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 in full detail:

```
<OrderRequestHeader
  orderID="D01234"
  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 isoStateCode="US-CA">CA</State>
        <PostalCode>90489</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
    <CarrierIdentifier domain="companyName">UPS</CarrierIdentifier>
    <TransportInformation>
      <Route method="motor"/>
      <ShippingContractNumber>34567</ShippingContractNumber>
      <ShippingInstructions>
        <Description xml:lang="en-US">As per the contract</Description>
      </ShippingInstructions>
    </TransportInformation>
  </ShipTo>
  <BillTo>
    <Address>
      <Name xml:lang="en">Acme Corporation</Name>
      <PostalAddress name="Finance Building">
        <Street>124 Anystreet</Street>
        <City>Sunnyvale</City>
        <State isoStateCode="US-CA">CA</State>
        <PostalCode>90489</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
  </BillTo>
  <Shipping>
    <Money currency="USD">12.5</Money>
    <Description xml:lang="en-US">FedEx 2-day</Description>
  </Shipping>
  <Tax>
    <Money currency="USD">2.5</Money>
```

```

    <Description xml:lang="en">CA State Tax</Description>
  </Tax>
  <Payment>
    <PCard number="1234567890123456" expiration="2015-03-12"/>
  </Payment>
  <PaymentTerm payInNumberOfDays="45">
  </PaymentTerm>
  <PaymentTerm payInNumberOfDays="30">
    <Discount>
      <DiscountPercent percent="2">
      </DiscountPercent>
    </Discount>
  </PaymentTerm>
  <PaymentTerm payInNumberOfDays="20">
    <Discount>
      <DiscountPercent percent="3">
      </DiscountPercent>
    </Discount>
  </PaymentTerm>
  <Contact role="purchasingAgent">
    <Name xml:lang="en-US">Mr. Purchasing Agent</Name>
    <Email>puragent@acme.com</Email>
    <Phone name="Office">
      <TelephoneNumber>
        <CountryCode isoCountryCode="US">1</CountryCode>
        <AreaOrCityCode>800</AreaOrCityCode>
        <Number>5551212</Number>
      </TelephoneNumber>
    </Phone>
  </Contact>
  <Comments xml:lang="en-US">
    Anything well formed in XML can go here.
  </Comments>
  <TermsOfDelivery>
    <TermsOfDeliveryCode value="PriceCondition"/>
    <ShippingPaymentMethod value="AdvanceCollect"/>
    <TransportTerms value="Other">Contract Transport terms</TransportTerms>
    <Address>
      <Name xml:lang="en-US">SN Services</Name>
      <PostalAddress name="default">
        <Street>123 Anystreet</Street>
        <City>Birmingham</City>
        <State isoStateCode="US-AL">AL</State>
        <PostalCode>35505</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
    <Comments xml:lang="en-US" type="Transport">Transport Terms
  </Comments>
    <Comments xml:lang="en-US" type="TermsOfDelivery">Terms per
      the contract</Comments>
    </TermsOfDelivery>
    <DeliveryPeriod>
      <Period startDate="2013-06-10T14:37:31-07:00"
        endDate = "2013-06-11T14:37:31-07:00"></Period>
    </DeliveryPeriod>
    <IDReference></IDReference>
    <SupplierOrderInfo orderID=12345>
  </OrderRequestHeader>

```

The following example shows an OrderRequestHeader for a blanket order:

```

<OrderRequestHeader
  parentAgreementPayloadID="1184102133611.2058850054.0000000002@1zVE0KpZNZLO9HTrpqF2
  7NebqbI="
  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">
    ...
</OrderRequestHeader>

```

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:

```

<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:

Element	Description
<code>OriginalPrice</code>	<p>The original price of the item. The allowances and charges are applied on the original price.</p> <p>This element has the <code>Money</code> element. It also contains an optional <code>type</code> attribute.</p> <p>For example, the <code>type</code> value can be the <code>MSRP</code>, <code>ListPrice</code>, <code>Actual</code>, <code>AverageSellingPrice</code>, <code>CalculationGross</code>, <code>BaseCharge</code>, <code>AverageWholesalePrice</code>, <code>ExportPrice</code>, <code>AlternatePrice</code>, <code>ContractPrice</code>, etc.</p>
<code>AdditionalDeduction</code>	<p>The details of the deductions available for the item.Used only when allowances are applicable.</p> <p>This element can have any one of the following elements that defines the deduction value:</p> <ul style="list-style-type: none"> • <code>DeductionAmount</code>—This element has the <code>Money</code> element. • <code>DeductionPercent</code>—This has a <code>percent</code> attribute. • <code>DeductedPrice</code>—This element has the <code>Money</code> element. It contains the final price of the item. This price overrides the price of the item. <p>The <code>AdditionalDeduction</code> element has an optional <code>type</code> attribute. It contains details on the type of deductions available for the item.</p>
<code>AdditionalCost</code>	<p>The details of the additional charges applied on an item.This element can be specified when the <code>AdditionalDeduction</code> element is not specified.</p> <p>It contains the following elements:</p> <ul style="list-style-type: none"> • <code>Money</code>—Enter the money value in the <code>value</code> attribute. This is a mandatory attribute. <div data-bbox="663 1234 1394 1339"> <p>Note</p> <p>Do not use this element for shipping, special handling, freight, etc.</p> </div> <ul style="list-style-type: none"> • <code>Percentage</code>—Enter the percentage value in the <code>percent</code> attribute. This is a mandatory attribute.
<code>ModificationDetail</code>	<p>The details of any information for the <code>AdditionalDeduction</code> or <code>AdditionalCost</code> element.</p> <p><code>ModificationDetail</code> has the following attributes:</p> <ul style="list-style-type: none"> • <code>name</code> (required)—The name of the modification, for example, "Allowance". • <code>startDate</code>—The start date of the modification. • <code>endDate</code>—The end date of the modification. • <code>code</code>—The service code for the modification. <p><code>ModificationDetail</code> has the following elements:</p> <ul style="list-style-type: none"> • <code>Description</code> • <code>Extrinsic</code>

Element	Description
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 \[page 368\]](#).

```

<OrderRequestHeader
  orderDate = "2012-08-03T10:15:00-08:00"
  orderID = "2482012_5"
  orderType = "regular"
  type = "new">
  <Total>
    <Money currency = "USD">52</Money>
    <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>
  </Total>
</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 119].

The `Address` element contains the following attributes:

Attribute	Description
<code>isoCountryCode</code>	The ISO 3166 2-letter country code for the country containing this location.
<code>addressID</code>	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 <code>ShipTo</code> location identifier could be: <Address isoCountryCode="US" addressID="1000487">
<code>addressIDDomain</code>	Specifies a code that represents the agency or organization responsible for the <code>addressID</code> numbering. For example, DUNS or ILN. This code is required if there is a value in the <code>addressID</code> 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 isoStateCode="US-CA">CA</State>
  <PostalCode>90489</PostalCode>
  <Country isoCountryCode="US">United States</Country>
</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 isoStateCode="US-CA">CA</State>
      <PostalCode>90489</PostalCode>
      <Country isoCountryCode="US">United States</Country>
    </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:

Element	Description
Route	Shipping method for the shipment. This is required if you select a carrier. See Route [page 312] .
ShippingContractNumber	The shipping contract number specified for the transportation of the shipment.
ShippingInstructions	Information for the shipment

Here is an example for the `TransportInformation` element:

```
<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>Birmingham</City>
        <State isoStateCode="US-AL">AL</State>
        <PostalCode>35005</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
    <CarrierIdentifier domain="companyName">UPS</CarrierIdentifier>
    <TransportInformation>
      <Route method="motor"/>
      <ShippingContractNumber>1245</ShippingContractNumber>
      <ShippingInstructions>
        <Description xml:lang="en-US">Contract Instructions</Description>
      </ShippingInstructions>
    </TransportInformation>
  </ShipTo>
</OrderRequestHeader>
```

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

7.2.1.3 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.

7.2.1.4 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.

7.2.1.5 Payment

Describes the payment instrument used to pay for the items requested. 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.

7.2.1.6 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:

Attribute	Description
<code>payInNumberOfDays</code>	Indicates the invoice must be paid in a certain number of days after the invoice effective date.

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.

7.2.1.7 Contact

The supplier uses `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:

Attribute	Description
<code>role</code>	The position of this person within the procurement process.
<code>addressID</code>	An ID for the address. <code>addressID</code> supports address codes for relationships that require ID references.
<code>addressIDDomain</code>	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 <code>addressID</code> attribute.

Possible values for the `role` attribute:

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

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 337].

TelephoneNumber

The `PhoneNumber` 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:

```
<PhoneNumber>
  <CountryCode isoCountryCode="US">1</CountryCode>
  <AreaOrCityCode>800</AreaOrCityCode>
  <Number>5551212</Number>
</PhoneNumber>
```

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

```
<CountryCode isoCountryCode="UK">44</CountryCode>
```

The following, therefore, is an example for London:

```
<PhoneNumber>
  <CountryCode isoCountryCode="UK">44</CountryCode>
  <AreaOrCityCode>137</AreaOrCityCode>
  <Number>2801007</Number>
</PhoneNumber>
```

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 `PhoneNumber` 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 isoStateCode="MX-CH">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:

Extrinsic Item	Description
ContactPerson	The name of a contact person. For example: <code><Extrinsic name = "ContactPerson">JIM SMITH</Extrinsic></code>

7.2.1.8 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 occur multiple times.

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

7.2.1.8.1 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 \[page 22\]](#).

`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:

Attribute	Description
visibility	Indicates the visibility level of the attachment. Specify the value "internal" to indicate that the attachment is for internal purposes only and should not be visible to suppliers.

The following `Attachment` is invisible to suppliers:

```
<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.

7.2.1.9 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.

7.2.1.10 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:

Element	Description
<code>OCInstruction</code>	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 OCInstruction [page 123] .
<code>ASNInstruction</code>	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 123] .
<code>InvoiceInstruction</code>	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 124] .
<code>SESInstruction</code>	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 126] .

Here is an example of the `ControlKeys` element used in the `OrderRequestHeader` element:

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

7.2.1.10.1 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:

Attribute	Description
value (required)	Value that indicates whether an order confirmation is allowed. Possible values: <ul style="list-style-type: none">allowed—Order confirmation is allowed.notAllowed—Order confirmation is not allowed.requiredBeforeASN—Order confirmation is required before a ship notice.

OCInstruction has the following elements:

Element	Description
Lower	Specifies tolerances that define a lower limit.
Upper	Specifies tolerances that define an upper limit.

Here is an example of OCInstruction:

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

7.2.1.10.2 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:

Attribute	Description
value (required)	Value that indicates whether a ship notice is allowed. Possible values: <ul style="list-style-type: none">allowed—Ship notice is allowed.notAllowed—Ship notice is not allowed.

ASNInstruction has the following elements:

Element	Description
Lower	Specifies tolerances that define a lower limit.
Upper	Specifies tolerances that define an upper limit.

Here is an example of ASNInstruction:

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

7.2.1.10.3 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:

Attribute	Description
value (required)	Value that indicates whether an invoice is allowed. Possible values: <ul style="list-style-type: none">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.isNotERS—The order or line item is not flagged for Evaluated Receipt Settlement.allowed—Invoice is allowed.notAllowed—Invoice is not allowed.

Attribute	Description
verificationType	The only supported value is <code>goodsReceipt</code> , 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	<p>Specifies whether a buyer or supplier is allowed to update the unit price while creating an invoice. Possible values:</p> <ul style="list-style-type: none"> 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. <p>If the <code>unitPriceEditable</code> attribute is not present, the system honors the default transaction rules present in the network hub.</p>

InvoiceInstruction has the following elements:

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

Here is an example of InvoiceInstruction:

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

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

```
<ControlKeys>
  <InvoiceInstruction value="allowed">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="5.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="10.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Upper>
  </InvoiceInstruction>
```

```
</ControlKeys>
```

7.2.1.10.4 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:

Attribute	Description
value (required)	Value that indicates whether a service sheet is allowed. Possible values: <ul style="list-style-type: none">allowed—Service sheet is allowed.notAllowed—Service sheet is not allowed.
unitPriceEditable	<p>Specifies whether a buyer or supplier is allowed to update the unit price while creating a service sheet. Possible values:</p> <ul style="list-style-type: none">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. <p>If the unitPriceEditable attribute is not present, the system honors the default transaction rules present in the network hub.</p>

SESInstruction has the following elements:

Element	Description
Lower	Specifies tolerances that define a lower limit.
Upper	Specifies tolerances that define an upper limit.

Here is an example of SESInstruction:

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

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

```
<ControlKeys>
  <SESInstruction value="allowed">
    <Lower>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="5.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <QuantityTolerance>
          <Percentage percent="10.00"/>
        </QuantityTolerance>
      </Tolerances>
    </Upper>
  </SESInstruction>
</ControlKeys>
```

```
</Tolerances>
</Upper>
</SESInstruction>
</ControlKeys>
```

7.2.1.11 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.

7.2.1.12 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:

Attribute	Description
<code>orderId</code>	Supplier sales order id of this order.
<code>orderDate</code>	The date an order is sent to a supplier.

7.2.1.13 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.

i Note

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:

Element	Description
<code>TermsOfDeliveryCode</code>	The Standard delivery terms and Incoterms.

Element	Description
ShippingPaymentMethod	Denotes the mode of shipping payment. <ul style="list-style-type: none"> Account—When shipping charges are charged to an account. Collect—When the consignee pays the freight charges. Prepaid by Seller—When the seller makes the payment to the carrier for freight charges prior to a shipment. Mixed—When the consignment is partially Collect and partially Prepaid. Other—Any other shipping payment method or the third-party pays the shipment charges. You can enter additional information for the payment method.
TransportTerms	The terms of transportation. Possible values: <ul style="list-style-type: none"> Free-Carrier CostAndFreight DeliveredAtFrontier Other—When you specify this option, you can additionally enter a description.
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:

```
<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>Birmingham</City>
      <State isoStateCode="US-AL">AL</State>
      <PostalCode>35005</PostalCode>
      <Country isoCountryCode="US">United States</Country>
    </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>
</Terms Of Delivery>
```

7.2.1.14 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:

Attribute	Description
startDate	Specifies the earliest date that the supplier can deliver the goods, or when the receiver is able to accept incoming shipments.
endDate	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

7.2.1.15 OrderRequestHeaderIndustry

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

Element	Description								
ReferenceDocumentInfo	Contains information about a referenced document. This is an optional element, and it can occur multiple times. See ReferenceDocumentInfo [page 130] .								
Priority	<p>Indicates the priority of orders for the suppliers. This is an optional element. It has a <code>Description</code> element, which describes the priority.</p> <p>Priority has the following attributes:</p> <table><tr><th>Attribute</th><th>Description</th></tr><tr><td>level (required)</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></table>	Attribute	Description	level (required)	Specifies the priority level, an integer from 1 to 5.	sequence	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.	inventory_level	Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.
Attribute	Description								
level (required)	Specifies the priority level, an integer from 1 to 5.								
sequence	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.								
inventory_level	Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.								
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 <code>documentType</code> attribute, which specifies the document type from the external system. It also has an optional <code>Description</code> element.								
QualityInfo	Represents of the quality information for the entire <code>OrderRequest</code> .								
AssetInfo	Provides detailed per-unit asset information for a line item. See AssetInfo [page 323] .								

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

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

7.2.1.15.1 ReferenceDocumentInfo

Contains information about a referenced document.

`ReferenceDocumentInfo` has the following attributes:

Attribute	Description
<code>lineNumber</code>	Line number of an item in the referenced document.
<code>scheduleLineNumber</code>	Schedule line number of a schedule item in the referenced <code>lineNumber</code> . If this attribute has a value, the <code>lineNumber</code> attribute is mandatory.
<code>status</code>	Status used to refer to the referenced document. Possible values are: <ul style="list-style-type: none">• created• released• open• completed• closed• cancelled

`ReferenceDocumentInfo` has the following elements:

Element	Description
<code>DocumentInfo</code> <code>DocumentReference</code>	<code>DocumentInfo</code> identifies an earlier document known to the system. See DocumentInfo [page 284] . <code>DocumentReference</code> provides an exact reference to an earlier order being updated. See DocumentReference [page 127] .
<code>DateInfo</code>	Contains date information associated with this document.
<code>Contact</code>	Contact information for following up on an order. See Contact [page 118] .
<code>Extrinsic</code>	Contains any additional information related to this object.

7.2.1.16 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:

Attribute	Description
<code>quantity</code> (required)	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 <code>PunchOut</code> session. This value should never be negative.
<code>lineNumber</code>	Position of the item within an order. This ordinal value increases once per <code>ItemOut</code> in a “new” <code>OrderRequest</code> . Clients should always specify this attribute in an <code>OrderRequest</code> , although it might not be useful in other <code>ItemOut</code> contexts.
<code>requisitionID</code>	The buyer’s requisition identifier for this line item. Must not be included if <code>requisitionID</code> is specified in the <code>OrderRequestHeader</code> .
<code>agreementItemNumber</code>	The buyer’s master agreement identifier for the line item.
<code>requestedDeliveryDate</code>	The date item was requested for delivery, which allows item-level delivery dates in the <code>OrderRequest</code> . It must be in ISO 8601 format.

Attribute	Description
isAdHoc	<p>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.</p> <p>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.</p>
parentLineNumber	The line number of the corresponding parent line item. This is a mandatory field and applicable only for a line item with <code>itemType="item"</code> .
itemType	<p>Specifies the type of item. Possible values:</p> <ul style="list-style-type: none"> <code>composite</code>—Identifies an item group. <code>item</code>—Identifies an independent line item. <code>lean</code>—Indicates that no child item is expected for the line.
requiresServiceEntry	Specifies whether or not the item requires a <code>ServiceEntryRequest</code> service sheet to describe how it was serviced.
confirmationDueDate	Specifies the date by which the supplier must respond to the buyer confirming receipt of the purchase order.
compositeItemType	Specifies whether a parent item uses group-level pricing. Possible values are <code>"groupLevel"</code> or <code>"itemLevel"</code> .
itemClassification	<p>Specifies whether the current line item is material or service. Possible values:</p> <ul style="list-style-type: none"> <code>material</code> <code>service</code>
itemCategory	<p>Specifies how a component or material is procured. Possible values:</p> <ul style="list-style-type: none"> <code>materialUnknown</code>—Refers to procuring a material without specifying the material number. <code>text</code>—Refers to procuring a free-form text item. <code>stockTransfer</code>—Refers to transfer of stock from one plant to another. <code>materialGroup</code>—Refers to procuring a material without specifying the value or quantity. <code>subcontract</code>—Procuring a material by providing component information to a contract manufacturer that makes the finished product. <code>consignment</code>—Managing a material through a special process where the payment to supplier is withheld until the material or service is consumed by the buyer. <code>thirdParty</code>—Procuring a material from a third-party vendor.
subcontractingType	<p>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:</p> <ul style="list-style-type: none"> <code>regular</code>—Standard subcontracting scenario. <code>refurbWithoutChange</code>—Refurbishment without changed material. <code>refurbWithChange</code>—Refurbishment with changed material. <code>replacement</code>—Replacement of the materials.

Attribute	Description
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.
unlimitedDelivery	Set to yes to indicate that the line item supports unlimited quantity deliveries. Corresponding unlimited delivery tolerance is flagged on the ERP. This flag is used during ship notice creation only.
isItemChanged	Set to yes to indicate that the item has changed.
isKanban	Set to yes to indicate that the item is flagged for the Kanban process. Kanban-related orders require in time and 100% delivery quality.

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.

ItemOut has the following elements:

Element	Description
ItemID	Provides unique identification of an item. See ItemID [page 91] .
Path	Provides node and path information for a document. See Path Element [page 185] .
ItemDetail BlanketItemDetail	ItemDetail contains descriptive information about a line item that procurement applications present to users. See ItemDetail [page 91] . BlanketItemDetail provides supplier and commodity level details specific to blanket orders. See BlanketItemDetail [page 140]
SupplierID SupplierList	SupplierID is the ID of the supplier. SupplierList defines a list of suppliers that might be associated with a quote item. See SupplierID or SupplierList [page 96] .
ShipTo	Specifies the Ship To address for the item.
Shipping	Contains shipping costs for the item.
Tax	Contains tax information for the item.
SpendDetail	Provides detailed information regarding travel, fee, and labor line items. See SpendDetail [page 141] .
Distribution	Divides the cost of an item among multiple parties. See Distribution [page 145] .
Contact	Contains contact information for following up on an order. See Contact [page 118] .

Element	Description
TermsOfDelivery	Specifies the terms of delivery for the ship notice. See TermsOfDelivery [page 127] .
Comments	Contains comments associated with this item. See Comments [page 121] .
Tolerances	Specifies line item quantity tolerances. See Tolerances [page 166] .
ControlKeys	Provides elements that allow you to override default business rules for order confirmations, ship notices, service sheets, and invoices. See ControlKeys [page 167] .
ScheduleLine	Contains information related to delivery schedules for a line item. See Schedule-Line [page 168] .
MasterAgreementReference MasterAgreementIDInfo	<p>MasterAgreementReference contains a reference to the master agreement from which the release is derived.</p> <p>MasterAgreementIDInfo contains the ID of the master agreement from which the release is derived.</p>
ItemOutIndustry	Contains industry-specific information. See ItemOutIndustry [page 170] .
Packaging	Specifies the details about the packaging of the line item. See Packaging [page 176] .
ReleaseInfo	Contains details about a release of items or materials. See ReleaseInfo [page 181] .
Batch	Contains batch information for material or goods produced in a single manufacturing run. See Batch [page 181] .

The following example shows a more complicated ItemOut.

```
<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>
    <UnitOfMeasure>EA</UnitOfMeasure>
    <Classification domain="UNSPSC">12345</Classification>
    <ManufacturerPartID>234</ManufacturerPartID>
    <ManufacturerName xml:lang="en">foobar</ManufacturerName>
    <URL>www.bar.com</URL>
  </ItemDetail>
  <ShipTo>
    <Address>
      <Name xml:lang="en">Acme Corporation</Name>
      <PostalAddress name="Headquarters">
        <Street>123 Anystreet</Street>
        <City>Sunnyvale</City>
        <State isoStateCode="US-CA">CA</State>
        <PostalCode>90489</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
  </ShipTo>
</ItemOut>
```

```

        </PostalAddress>
    </Address>
</ShipTo>
<Shipping>
    <Money currency="USD">1.34</Money>
    <Description xml:lang="en-US">FedEx 2-day</Description>
</Shipping>
<Tax>
    <Money currency="USD">1.34</Money>
    <Description xml:lang="en">foo</Description>
</Tax>
<Distribution>
    <Accounting name="DistributionCharge">
        <AccountingSegment id="23456">
            <Name xml:lang="en-US">G/L Account</Name>
            <Description xml:lang="en-US">Entertainment</Description>
        </AccountingSegment>
        <AccountingSegment id="2323">
            <Name xml:lang="en-US">Cost Center</Name>
            <Description xml:lang="en-US">Western Region Sales
            </Description>
        </AccountingSegment>
    </Accounting>
    <Charge>
        <Money currency="USD">.34</Money>
    </Charge>
</Distribution>
<Distribution>
    <Accounting name="DistributionCharge">
        <AccountingSegment id="456">
            <Name xml:lang="en-US">G/L Account</Name>
            <Description xml:lang="en-US">Travel</Description>
        </AccountingSegment>
        <AccountingSegment id="23">
            <Name xml:lang="en-US">Cost Center</Name>
            <Description xml:lang="en-US">Europe Implementation
            </Description>
        </AccountingSegment>
    </Accounting>
    <Charge>
        <Money currency="USD">1</Money>
    </Charge>
</Distribution>
    <Comments xml:lang="en-US">Comment</Comments>
</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 \[page 117\]](#).

The following example shows an `ItemOut` for a return item:

```

<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:

```

<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>
    <InvoiceItemModifications>
      <Modification>
        <AdditionalDeduction>
          <DeductionAmount>
            <Money currency="USD">47.25</Money>
          </DeductionAmount>
          <DeductionPercent percent="15"></DeductionPercent>
        </AdditionalDeduction>
        <ModificationDetail name="Contract Allowance">
          <Description xml:lang="en"/>
        </ModificationDetail>
      </Modification>
    </InvoiceItemModifications>
    <TotalAllowances>
      <Money currency="USD">25.00</Money>
    </TotalAllowances>
  </InvoiceDetailItem>

```

```

    </TotalAllowances>
    <TotalAmountWithoutTax>
      <Money currency="USD">290.00</Money>
    </TotalAmountWithoutTax>
    <NetAmount>
      <Money currency="USD">290.00</Money>
    </NetAmount>
  </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"
    itemType="composite" compositeItemType="itemLevel">
    <UnitOfMeasure></UnitOfMeasure>
    <UnitPrice>
      <Money currency="USD">0.00</Money>
    </UnitPrice>
    <InvoiceDetailItemReference lineNumber="1">
      <ItemID>
        <SupplierPartID>1</SupplierPartID>
      </ItemID>
      <Description xml:lang="en">Parent Item</Description>
    </InvoiceDetailItemReference>
  </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>
    <InvoiceItemModifications>
      <Modification>
        <AdditionalDeduction>
          <DeductionAmount>
            <Money currency="USD">47.25</Money>
          </DeductionAmount>
          <DeductionPercent percent="15"/>
        </AdditionalDeduction>
        <ModificationDetail name="Contract Allowance">
          <Description xml:lang="en"></Description>
        </ModificationDetail>
      </Modification>
    </InvoiceItemModifications>
    <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):

```

<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 ItemDetail

The basic `ItemDetail` element, which contains descriptive information about a line item that procurement applications present to users. See [ItemDetail \[page 91\]](#).

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 \[page 113\]](#).

7.2.2.1.1 ItemDetailIndustry

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

Attribute	Description
<code>isConfigurableMaterial</code>	Set to "yes" to indicate that the item is defined as a configurable material and therefore has product characteristics.

`ItemDetailIndustry` has the following element:

Element	Description
<code>ItemDetailRetail</code>	Contains the detailed item-specific information for the retail industry. This is an optional element. See ItemDetailRetail [page 139] .

The following example shows `ItemDetailIndustry`:

```
<ItemDetail>
  <ItemDetailIndustry>
    <ItemDetailRetail>
      <EANID>815-12</EANID>
      <EuropeanWasteCatalogID>5-12</EuropeanWasteCatalogID>
    </ItemDetailRetail>
  </ItemDetailIndustry>
</ItemDetail>
<ItemOutIndustry>
  <ItemOutRetail>
    <PromotionVariantID>815-12</PromotionVariantID>
    <PromotionDealID>8-13</PromotionDealID>
  </ItemOutRetail>
</ItemOutIndustry>
```

7.2.2.1.1.1 ItemDetailRetail

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

Element	Description
<code>EANID</code>	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.
<code>EuropeanWasteCatalogID</code>	Specifies a unique ID for articles listed in the EU Waste Catalog (EWC) if it requires special handling. This is an optional element.

Element	Description								
Characteristic	<p>Specifies detailed information about an item that can be used across several different industries. This is an optional element.</p> <p>Characteristic has the following attributes:</p> <table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td>domain (required)</td><td> <p>Type of characteristic.</p> <p>Examples:</p> <p>size, sizeCode, color, colorCode, quality, qualityCode, grade, gradeCode</p> </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> </table>	Attribute	Description	domain (required)	<p>Type of characteristic.</p> <p>Examples:</p> <p>size, sizeCode, color, colorCode, quality, qualityCode, grade, gradeCode</p>	value (required)	Value for the domain.	code	Code associated with a characteristic, such as a currency code or unit of measure.
Attribute	Description								
domain (required)	<p>Type of characteristic.</p> <p>Examples:</p> <p>size, sizeCode, color, colorCode, quality, qualityCode, grade, gradeCode</p>								
value (required)	Value for the domain.								
code	Code associated with a characteristic, such as a currency code or unit of measure.								

7.2.2.2 BlanketItemDetail

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

Element	Description
Description (required)	Describes the item in a textual form.
MaxAmount	Defines the maximum amount allowed.
MinAmount	Defines the minimum amount allowed.
MaxContractAmount	Defines a maximum amount allowed for contract items, as specified by the buyer.
MaxAdhocAmount	Defines a maximum amount allowed for unplanned items, as specified by the buyer.
MaxQuantity	Defines the maximum quantity allowed.
MinQuantity	Defines the minimum quantity allowed.
UnitPrice	Price per unit of the item.
UnitOfMeasure	The line item's unit of measure. See UnitOfMeasure [page 44].

Element	Description
PriceBasisQuantity	Describes the quantity-based pricing for a line item. It has the <code>UnitOfMeasure</code> and <code>Description</code> as elements and <code>quantity</code> and <code>conversionFactor</code> as attributes. See PriceBasisQuantity [page 346] .
Classification	<p>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.</p> <p><code>Classification@domain</code> can also be used to specify product hierarchy and commodity information used by a backend system.</p> <p><code>Classification</code> has an optional <code>code</code> attribute, which identifies the commodity by its designated code.</p>
Extrinsic	Contains any additional information related to this object. See Extrinsic [page 83] .

The following example shows `BlanketItemDetail`:

```
<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>
```

7.2.2.3 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`:

```
<!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 \[page 88\]](#).

7.2.2.3.1 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:

Attribute	Description
isRecurring	Indicates that the fee is recurring.

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.

7.2.2.3.2 LaborDetail

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

```
<!ELEMENT LaborDetail (  
  UnitRate+,  
  Period,  
  Contractor?,  
  JobDescription?,
```

```
Supervisor?,  
WorkLocation?,  
Extrinsic*)>
```

`LaborDetail` has the following attribute:

Attribute	Description
<code>supplierReferenceCode</code>	The supplier's quote or proposal ID, for cross reference.

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:

Attribute	Description
<code>termName</code> (required)	The name of the ID attribute containing the term.
<code>term</code> (required)	The value of that attribute, that is, the term itself.

Here is a sample `UnitRate` with a `TermReference`:

```
<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 \[page 257\]](#)

`Contractor` has the following elements:

Element	Description				
<code>ContractorIdentifier</code>	Uniquely identifies the contractor for both the buyer and supplier. <code>ContractorIdentifier</code> has the following attribute: <table><tr><th>Attribute</th><th>Description</th></tr><tr><td><code>domain</code> (required)</td><td>The domain in which the contractors identity is represented. This attribute allows the buyer and supplier systems to determine who assigned the identification. <code>buyerReferenceID</code> implies that the identification was generated in the buyer system. <code>supplierReferenceID</code> implies that the identification was generated in the supplier system.</td></tr></table>	Attribute	Description	<code>domain</code> (required)	The domain in which the contractors identity is represented. This attribute allows the buyer and supplier systems to determine who assigned the identification. <code>buyerReferenceID</code> implies that the identification was generated in the buyer system. <code>supplierReferenceID</code> implies that the identification was generated in the supplier system.
Attribute	Description				
<code>domain</code> (required)	The domain in which the contractors identity is represented. This attribute allows the buyer and supplier systems to determine who assigned the identification. <code>buyerReferenceID</code> implies that the identification was generated in the buyer system. <code>supplierReferenceID</code> implies that the identification was generated in the supplier system.				
<code>Contact</code>	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.

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

7.2.2.3.3 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:

```
<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.

7.2.2.4 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:

Attribute	Description
<code>name</code> (required)	The name for this accounting combination. The account from which this charge will be paid.

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:

```
<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:

Attribute	Description
<code>id</code> (required)	The unique identifier within this <code>AccountingSegment</code> type. This value might be the actual account code if the type were "Cost Center".

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.

Attribute	Description
currency (required)	The unique ISO standard three-letter currency code. For example, "USD" = United States Dollar.
alternateAmount	The amount of money in the alternateCurrency. Optional and used to support dual-currency requirements such as the Euro.
alternateCurrency	Specifies the currency for the alternateAmount. Must conform to ISO 4217 currency codes.

7.2.2.5 TermsOfDelivery

Specifies the terms of delivery for the ship notice. See [TermsOfDelivery \[page 127\]](#).

7.2.2.6 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:

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

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

```
<OrderRequest... >
  <OrderRequestHeader >
    ...
  </OrderRequestHeader >
  <ItemOut>
    <ItemDetail >
      ...
    </ItemDetail>
    <SpendDetail>
      <TravelDetail>
        ...
      </TravelDetail>
    </SpendDetail>
  </ItemOut>
</OrderRequest>
```

`TravelDetail` has the following attributes:

Attribute	Description
<code>confirmationNumber</code> (required)	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.
<code>pnrLocator</code>	Passenger Name Record (PNR) locator used by the travel booking provider.
<code>quoteExpirationTime</code>	Date and time that this quote will expire. This value is normally supplied in the <code>PunchoutOrderMessage</code> . If no value is supplied, it is assumed that this quote will not expire.

7.2.2.7 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 World 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 \[page 27\]](#) 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:

Attribute	Description
<code>preferred</code> (required)	Is this a preferred vendor? yes no

Vendor has the following element:

Element	Description				
Address	<p>The basic <code>Address</code> element provides the physical address of the vendor. Typically, this is the address the vendor's a business location or headquarters. <code>Address</code> is described further in cXML Conventions [page 20].</p> <p>The <code>Address</code> element contains an <code>addressIDDomain</code> attribute which specifies a code that represents the agency or organization responsible for the <code>addressID</code> numbering. For example, <code>DUNS</code> or <code>ILN</code>. This code is required if there is a value in the <code>addressID</code> field.</p> <p><code>Address</code> has the following element:</p> <ul style="list-style-type: none">• <code>SupplierID</code> <code>SupplierID</code> for this vendor. This is a (domain, value) pair so that travel booking providers can define their <code>SupplierID</code> elements according to the convention they prefer, such as <code>D-U-N-S</code> or <code>TaxID</code>. <p><code>SupplierID</code> has one required attribute:</p> <table><tr><th>Attribute</th><th>Description</th></tr><tr><td><code>domain</code> (required)</td><td>Domain of the supplier ID.</td></tr></table> <p>Each travel booking provider can specify multiple <code>SupplierID</code> values. This capability enables a provider to use a single implementation to coordinate with various enterprise implementations that use different <code>SupplierID</code> domains.</p>	Attribute	Description	<code>domain</code> (required)	Domain of the supplier ID.
Attribute	Description				
<code>domain</code> (required)	Domain of the supplier ID.				

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:

Element	Description
Description	Text description of terms and conditions. If <code>TermsAndConditions</code> is present, <code>Description</code> is required.

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:

Attribute	Description
<code>level</code> (required)	The level of the <code>PolicyViolation</code> : <code>warning</code> <code>violation</code> <code>warning</code> - a non-serious violation <code>violation</code> - a serious violation of company policy

`PolicyViolation` has the following elements:

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

Penalty

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

Element	Description
<code>Money</code>	The penalty amount.
<code>Description</code>	Textual description of the cause of the penalty. For example, a change fee associated with an air ticket.

AvailablePrice

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

`AvailablePrice` has one attribute:

Attribute	Description
<code>type</code> (required)	Description of the level of compliance with company policy.

Possible values for the `type` attribute of `AvailablePrice`:

Value	Description
lowest	Lowest price available regardless of the travel policies
lowestCompliant	Lowest price available that is compliant with travel policies
highestCompliant	Highest price available that is compliant with travel policies
highest	Highest price available regardless of the travel policies
other	Other, specify in the <code>Description</code>

`AvailablePrice` has the following elements:

Element	Description
Money	The amount of an available price.
Description	A text description of an available price, including information on how the price was found or particular requirements for the price.

Rate

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

```
<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:

Attribute	Description
quantity (required)	The quantity for the rate. For example, a four-night stay at a hotel would be expressed as: quantity = 4 UnitofMeasure in UnitRate = DAY

Rate has the following elements:

Element	Description
Total	The total amount for the rate. The total amount must equal to <code>quantity x UnitRate</code> . All Rate amounts for a line item must add up to the Total for that line item.
UnitRate	<p>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 <code>Money</code> equal to the nightly rate amount and the <code>UnitOfMeasure</code> equal to DAY.</p> <p>The amount to be paid per unit (of time or other measure). In the case of multiple <code>UnitRates</code> (a rate schedule), use <code>TermReference</code> elements to distinguish them.</p>
Description	Textual description for the rate. For a hotel stay, the Description could contain "hotel nightly rate."

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:

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

For information on car rental codes, see ["CarRentalDetail" \[page 158\]](#).

`BookingClassCode` has the following attributes:

Attribute	Description
domain (required)	The domain for this code, for example, IATA.
code (required)	An industry standard code, or per agreement of buyer-travel booking provider pair.

`BookingClassCode` has the following element:

Element	Description
Description	Contains a text description of the code.

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:

Attribute	Description
<code>airportCode</code> (required)	The three-letter IATA airport code. For information on the International Air Transport Association (IATA) standard, see: www.iata.org/nr/rdonlyres/3346f400-3450-48a6-a543-86a3921c23f7/0/xml_fuel_transaction_v202.pdf .

`Airport` has the following optional element:

Element	Description
<code>Address</code>	Provides the physical address of the airport.

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:

Element	Description
<code>Description</code>	A text description of the meal, including any special needs such as vegetarian, gluten-free, or dairy-free.

Element	Description																																
BookingClassCode	<p>The common <code>BookingClassCode</code> element is defined at BookingClassCode [page 152]. Defines the code for the meal. For example, airlines typically use the following meal codes:</p> <table> <tr> <th>Code</th><th>Description</th></tr> <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> </table>	Code	Description	B	Breakfast	C	Complimentary liquor	D	Dinner	F	Food for purchase	G	Food and beverage for purchase	H	Hot meal	K	Continental breakfast	L	Lunch	M	Meal	N	No meal service	O	Cold meal	P	Liquor for purchase	R	Refreshments	S	Snack or brunch	V	Refreshments for purchase
Code	Description																																
B	Breakfast																																
C	Complimentary liquor																																
D	Dinner																																
F	Food for purchase																																
G	Food and beverage for purchase																																
H	Hot meal																																
K	Continental breakfast																																
L	Lunch																																
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O	Cold meal																																
P	Liquor for purchase																																
R	Refreshments																																
S	Snack or brunch																																
V	Refreshments for purchase																																

7.2.2.7.1 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`:

```
<!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:

Attribute	Description
type (required)	round: round trip oneWay: one-way trip multiLeg: multi-leg or open-jaw trip

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>

```

`AirLeg` has the following attributes:

Attribute	Description
<code>travelSegment</code> (required)	Text description to identify this travel segment. This information is specific to the travel booking provider.
<code>departureTime</code> (required)	Local departure date and time for this air leg.
<code>arrivalTime</code> (required)	Local arrival date and time for this air leg.
<code>flightNumber</code> (required)	Flight number for this air leg.
<code>seatNumber</code>	Seat number for this air leg.
<code>seatType</code>	Seat type: window, aisle, or middle
<code>upgrade</code>	Is this ticket an upgrade: no (default), or yes
<code>stops</code>	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.
<code>equipment</code>	The plane equipment information for this air leg. For example, the model of airplane used.

`AirLeg` has the following elements:

Element	Description
<code>Vendor</code>	The common <code>Vendor</code> element, which provides information about the vendor of a service, is defined at Vendor [page 148] .

Element	Description
AirLegOrigin AirLegDestination	These elements contain the addresses of the AirLegOrigin and AirLegDestination entities on the AirLeg.

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 \[page 153\]](#).
 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.

```
<AirLegOrigin>
  <Airport airportCode="SFO">
    <Address>
      <Name xml:lang="en">San Francisco Internal Airport</Name>
      <PostalAddress>
        <Street>San Francisco International Airport</Street>
        <City>San Francisco</City>
        <State isoStateCode="US-CA">CA</State>
        <PostalCode>94128</PostalCode>
        <Country isoCountryCode="US">United States</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 isoStateCode="US-FL">FL</State>
        <PostalCode>33122</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Address>
  </Airport>
</AirLegDestination>
```

- BookingClassCode**
 The common BookingClassCode element is defined at [BookingClassCode \[page 152\]](#). 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:

IATA Codes	Description
F, FN, P, R, A	first class

Element	Description						
	<table> <tr> <th>IATA Codes</th><th>Description</th></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> </table>	IATA Codes	Description	C, CN, D, J, I, Z	business class	Y, YN, B, BN, M, H, V, VN, O, Q, QN, S, K, KN, L, U, T, W	coach class
IATA Codes	Description						
C, CN, D, J, I, Z	business class						
Y, YN, B, BN, M, H, V, VN, O, Q, QN, S, K, KN, L, U, T, W	coach class						
	<p>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.</p> <p>BookingClassCode has the following elements:</p> <ul style="list-style-type: none"> Rate <ul style="list-style-type: none"> The common Rate element is defined at Rate [page 151]. The total of all specified AirLeg rates must equal the line item total. Meal <ul style="list-style-type: none"> The common Meal element, which describes one meal in a travel line item, is defined at Meal [page 153]. 						

AvailablePrice

The optional, common AvailablePrice element, which defines available prices that the user did not select, is defined at [AvailablePrice \[page 150\]](#). 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 \[page 150\]](#). The Penalty element of an AirLeg describes extra charges for changes to, or cancellation of, an air travel reservation.

7.2.2.7.2 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:

```
<!ELEMENT CarRentalDetail (
  Vendor,
  CarRentalPickup,
  CarRentalDropoff,
  BookingClassCode?,
  CarRentalFee+,
  LimitedMileage?,
```

```
AvailablePrice*)>
```

`CarRentalDetail` has the following attributes:

Attribute	Description
<code>travelSegment</code> (required)	Text description used to identify this travel segment. The description is specific to the travel booking provider.
<code>pickupTime</code> (required)	Intended local pickup date and time.
<code>dropoffTime</code> (required)	Intended local drop-off date and time.

Vendor

The common `Vendor` element, which provides information about the vendor of a service, is defined at [Vendor \[page 148\]](#).

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:

1st Letter	M (Mini)
	E (Economy)
	C (Compact)
	S (Standard)
	I (Intermediate)
	F (Full size)
	P (Premium)
	L (Luxury)
	V (MiniVan)
	X (Special)

2nd Letter	B (2 door) C (2/4 door) D (4 door) T (Convertible) F (Four wheel drive) V (Van) W (Wagon) S (Sport) X (Special)
3rd Letter	A (Automatic) M (Manual)
4th Letter	R (A/C) N (No A/C)

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:

Attribute	Description
<code>type</code>	The type of fee, expressed in the form "baseRate".

Possible values for the `type` of a `CarRentalFee` are:

Value	Description
<code>additionalDriver</code>	Additional driver fee
<code>airportAccessFee</code>	Airport access fee
<code>baseRate</code>	Base rental rate
<code>childSeat</code>	Child seat charge
<code>collisionDamageInsurance</code>	Collision damage insurance
<code>dropOffCharge</code>	Drop off charge
<code>liabilityInsurance</code>	Liability insurance
<code>luggageRack</code>	Luggage rack charge

Value	Description
mobilePhone	Mobile phone base charge
navigationSystem	Navigation system
other	Other charges
prepaidGasoline	Prepaid gasoline charge
touristTax	Tourist tax
vehicleLicensingFee	Vehicle licensing fee

CarRentalFee has the following elements:

Element	Description
Total	Total amount for this CarRentalFee. All Rate amounts for a line item must add up to the Total for that line item.
Rate	Fee information for individual charges for this CarRentalFee.

LimitedMileage

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

LimitedMileage has one attribute:

Attribute	Description
quantity (required)	The mileage limit amount, expressed as a numeral.

LimitedMileage has one element:

Element	Description
UnitOfMeasure	Unit of measure, expressed in miles or kilometers. See UnitOfMeasure [page 44] .

AvailablePrice

The optional, common AvailablePrice element, which defines available prices that the user did not select, is defined at [AvailablePrice \[page 150\]](#).

7.2.2.7.3 HotelDetail

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

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

`HotelDetail` has the following attributes:

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

Vendor

The common `Vendor` element, which provides information about the vendor of a service, is defined at [Vendor \[page 148\]](#). 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:

Attribute	Description
smoking (required)	Smoking or non-smoking room: yes no
numberOfBed	The number of beds in the room.
bedType	The type of bed in the room: king queen full double single other

RoomType has the following elements:

Element	Description
Description	Text description of the hotel room.
Amenities	<p>Text description of amenities. For example, DSL connection, two telephone lines, and other information about a hotel room.</p> <p>Amenities has no attributes. It has one element:</p> <ul style="list-style-type: none">Description Text description of the amenities. For example, DSL connection, two telephone lines, and other information about the hotel room.

BookingClassCode

The common BookingClassCode element is defined at [BookingClassCode \[page 152\]](#). Each buyer-travel booking provider pair can use any standard they choose.

Meal

The common Meal element is defined at [Meal \[page 153\]](#). 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 \[page 151\]](#). 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 \[page 150\]](#). 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.

7.2.2.7.4 RailDetail

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

```
<!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:

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

Possible values for the `type` attribute of `TripType`:

Value	Description
round	round trip
oneWay	one-way trip
multiLeg	multi-leg or open-jaw trip

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:

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

```
BookingClassCode?,  
Rate?,  
Meal*) >
```

RailLeg has the following attributes:

Attribute	Description
travelSegment (required)	Text information to identify this travel segment. This information is specific to the travel booking provider.
departureTime (required)	Local date and time of departure from the originating location.
arrivalTime (required)	Local date and time of arrival at the destination location.
trainNumber (required)	Train number.
seatNumber	Seat number.
carType	The type of the rail car.

Vendor

The common `Vendor` element, which provides information about the vendor of a service, is defined at [Vendor \[page 148\]](#). 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:

Element	Description
Airport	<p>The common <code>Airport</code> element, which contains the three-letter IATA airport code in the <code>airportCode</code> attribute, and an optional <code>Address</code> element, is defined at Airport [page 153].</p> <p>For information on the International Air Transport Association (IATA) standard, see: www.iata.org/codes.</p>
Address	<p>The physical address of the rail station.</p> <p>Neither <code>RailLegOrigin</code> nor <code>RailLegDestination</code> has any attributes.</p>

BookingClassCode

The common `BookingClassCode` element is defined at [BookingClassCode \[page 152\]](#). 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 \[page 151\]](#). 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 \[page 153\]](#). 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 \[page 150\]](#). 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 \[page 150\]](#). The `Penalty` element of `RailLeg` defines extra charges for changes to, or cancellation of, a rail travel reservation.

7.2.2.8 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:

Element	Description
Percentage	The percentage for the quantity tolerance.
Value	The quantity number for the quantity tolerance. You can specify one these elements in the <code>QuantityTolerance</code> element.

PriceTolerance

The price tolerance for a line item. This element has the following elements:

Element	Description
Percentage	The percentage for the price tolerance.
Money	The amount and currency for the price tolerance. You can specify one these elements in the <code>PriceTolerance</code> element.

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:

Attribute	Description
limit (required)	Specifies the time tolerance limit.
type	Specifies the type of time limit. Possible values are: <ul style="list-style-type: none">minuteshoursdays (default)weeks

7.2.2.9 ControlKeys

Provides elements that allow you to override default business rules for order confirmations, ship notices, service sheets, and invoices. See [ControlKeys \[page 122\]](#).

Here is an example of the `ControlKeys` element used in the `ItemOut` element:

```
<ItemOut lineNumber="1" quantity="2" requestedDeliveryDate="2015-12-31">
  ...
  <ControlKeys>
    <InvoiceInstruction value="notAllowed"/>
    <SESInstruction value="notAllowed"/>
  </ControlKeys>
</ItemOut>
```

7.2.2.10 ScheduleLine

`ScheduleLine` contains information related to delivery schedules for a line item. It has the following attributes:

Attribute	Description
quantity (required)	Quantity of items to be shipped.
requestedDeliveryDate (required)	Date that the specified quantity is expected to be delivered.
deliveryWindow	Duration of time in which the quantity is expected to be delivered.
lineNumber	A line number can be added as a line identifier for a specific schedule line.
requestedShipmentDate	The ship date requested by the buyer for the item.
originalRequestedDeliveryDate	The original date that the specified quantity is expected to be delivered. This date is not subject to changes.

`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:

Attribute	Description
commitmentCode (required)	A string value to identify the type of the delivery. Possible values: <ul style="list-style-type: none">• <code>firm</code>—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.• <code>tradeoff</code>—Go-ahead for material procurement. Vendor can ship against the schedule line if rule is enabled. Buyer is responsible for cost of material procurement.• <code>forecast</code>—Informational. Customer can change the schedule line without incurring any liabilities with the vendor.
cumulativeScheduledQuantity (required)	Total quantity to be shipped for a particular line item up through the schedule line.
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:

Attribute	Description
quantity (required)	Quantity of the subcontracting component required to produce the finished goods in a unit of measurement.
requirementDate	The date on which the requested quantity of subcontracting component is required.
materialProvisionIndicator	The material provision indicator used to identify the subcontracting type of a part for the components. Possible values are: <ul style="list-style-type: none">• <code>reworkTo</code>—Rework material to subcontractor.• <code>reworkFrom</code>—Rework material from subcontractor.• <code>regular</code>—Vendor provides stock.

SubcontractingComponent has the following elements:

Element	Description
ComponentID	An identifier for a subcontracting component within the procurement process.

Element	Description
UnitOfMeasure	Unit of measure code.
Description	Description of subcontracting component
Product	Information about the subcontracting component, such as buyer product ID, supplier product ID, standard product ID, or internal product ID.
ProductRevisionID	An identifier that is assigned when changes are made to component.
Batch	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.

ShipTo

The ship to address for the line item.

Extrinsic

Alternately, use the `Extrinsic` element list to insert additional data about the `ScheduleLine` element.

7.2.2.11 ItemOutIndustry

This element contains the industry-specific information. This is an optional element, and it has the following optional attribute:

Attribute	Description
planningType	Specifies the planning strategy. Possible values are: <ul style="list-style-type: none"> • MTO—Make to Order • MTS—Make to Stock • ATO—Assemble to Order • CTO—Configure to Order
requiresRealTimeConsumption	Set to <code>yes</code> to indicate that real time consumption is required for this item.
isHUMandatory	Set to <code>yes</code> 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.

ItemOutIndustry has the following elements:

Element	Description								
ItemOutRetail	<p>Contains the retail industry item-specific information. This is an optional element.</p> <p>ItemOutRetail has the following elements:</p> <ul style="list-style-type: none"> PromotionVariantID 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). This is an optional element. PromotionalDealID 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. 								
ReferenceDocumentInfo	<p>Contains information about a referenced document. This is an optional element, and it can occur multiple times. See ReferenceDocumentInfo [page 130].</p>								
Priority	<p>Indicates the priority of orders for the suppliers. This is an optional element. It has a Description element, which describes the priority.</p> <p>Priority has the following attributes:</p> <table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td>level (required)</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> </table>	Attribute	Description	level (required)	Specifies the priority level, an integer from 1 to 5.	sequence	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.	inventory_level	Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.
Attribute	Description								
level (required)	Specifies the priority level, an integer from 1 to 5.								
sequence	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.								
inventory_level	Shows the percent inventory (buffer) level with respect to the target, specified as a decimal value from 0.00 to 100.00.								
QualityInfo	<p>Represents the quality information requirements for a line item. See QualityInfo [page 172].</p>								
SerialNumberInfo	<p>Represents the serial number information of a line item. See SerialNumberInfo [page 174].</p>								
BatchInfo	<p>Controls whether batch information is required or not for an item when a supplier creates an order response. See BatchInfo [page 175].</p>								
AssetInfo	<p>Provides detailed per-unit asset information for a line item. See AssetInfo [page 323].</p>								
PackagingDistribution	<p>Contains packaging distribution information between stores. See PackagingDistribution [page 175].</p>								

The following example shows an ItemOutIndustry element:

```
<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>
<PackagingDistribution quantity="25.00">
  <StoreCode>Store A</StoreCode>
  <UnitOfMeasure>EA</UnitOfMeasure>
</PackagingDistribution>
<PackagingDistribution quantity="25.00">
  <StoreCode>Store B</StoreCode>
  <UnitOfMeasure>EA</UnitOfMeasure>
</PackagingDistribution>
</ItemOutIndustry>

```

7.2.2.11.1 QualityInfo

The `QualityInfo` element represents the quality information requirements for a line item.

`QualityInfo` has the following attribute:

Attribute	Description
<code>requiresQualityProcess</code>	Set to <code>yes</code> to indicate that this item requires a quality process.

`QualityInfo` has the following element:

Element	Description
<code>IdReference</code> <code>CertificateInfo</code>	<p><code>IdReference</code> contains quality material control code and inspection certificate type information for the line item. For quality material control code, the domain is <code>"controlCode"</code>. For inspection certificate type, the domain is <code>"certificateType"</code>.</p> <p>Use <code>CertificateInfo</code> to send certificate information. Here you can declare a certificate as optional or mandatory. Each element supports one certificate.</p>

The following example shows a `QualityInfo` element using an `IdReference`:

```

<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>

```

```
</QualityInfo>
</ItemOutIndustry>
```

Here is another example showing a `QualityInfo` element with one required certificate and one optional certificate:

```
<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>
```

7.2.2.11.1.1 CertificateInfo

The `CertificateInfo` element represents certificate information. It has the following attribute:

Attribute	Description
<code>isRequired</code>	Indicates whether the certificate is required.

`CertificateInfo` has the following element:

Element	Description
<code>IdReference</code>	Use this element to send Quality Material Control Code and Inspection Certificate type information. For Quality Material Control Code, the <code>domain</code> is "controlCode". For Inspection Certificate type, the <code>domain</code> is "certificateType".

7.2.2.11.2 SerialNumberInfo

Represents the serial number information of a line item.

SerialNumberInfo has the following attributes:

Attribute	Description
requiresSerialNumber	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.
type	Specifies the type of serial number number. Possible values: <ul style="list-style-type: none">list—A list of acceptable serial numbers.range—A range of acceptable serial numbers, only valid for numeric ranges.profile—A format of acceptable serial numbers.

SerialNumberInfo has the following elements:

Element	Description
SerialNumber	List of serial numbers. Required when SerialNumberInfo@type is "list".
PropertyValue	<p>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.</p> <p>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.</p> <p>When Characteristic@domain is "type", Characteristic@value supports "numeric", "text", and "numericAndText" to provide the serial number format.</p> <p>When Characteristic@domain is "minLength", Characteristic@value provides the minimum acceptable length of the serial number.</p> <p>When Characteristic@domain is "maxLength", Characteristic@value provides the maximum acceptable length of the serial number.</p>

The following example shows serial numbers specified as a list:

```
<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):

```

<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):

```

<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>

```

7.2.2.11.3 BatchInfo

Controls whether batch information is required or not for an item when a supplier creates an order response. It has the following attribute:

Attribute	Description
<code>requiresBatch</code>	Set to <code>yes</code> to indicate that this item requires a batch number to be provided by the supplier in the <code>Batch</code> element in the <code>ShipNoticeItem/ConfirmationStatus</code> element of the corresponding <code>ShipNoticeRequest/ConfirmationRequest</code> documents.

7.2.2.11.4 PackagingDistribution

Contains packaging distribution information between stores. It has the following optional attribute:

Attribute	Description
<code>quantity</code> (required)	Number of this packaging distribution information. Expressed in the units given in the <code>UnitOfMeasure</code> element.

PackagingDistribution has the following elements:

Element	Description
StoreCode (required)	The code of the store assigned for this packaging distribution information.
UnitOfMeasure (required)	The unit of measure for the quantity. It must conform with UN/CEFACT Unit of Measure Common Codes.

The following example shows a PackagingDistribution element:

```
<ItemOutIndustry>
  <PackagingDistribution quantity="25.00">
    <StoreCode>Store A</StoreCode>
    <UnitOfMeasure>EA</UnitOfMeasure>
  </PackagingDistribution>
  <PackagingDistribution quantity="25.00">
    <StoreCode>Store B</StoreCode>
    <UnitOfMeasure>EA</UnitOfMeasure>
  </PackagingDistribution>
</ItemOutIndustry>
```

7.2.2.11.4.1 StoreCode

Contains the code of a store assigned for an item's packaging. If packaging is distributed between multiple stores, then multiple store codes are specified in the distribution.

Related Information

[PackagingDistribution \[page 175\]](#)

[Packaging \[page 176\]](#)

7.2.2.12 Packaging

Specifies the details about the packaging of the line item.

Packaging has the following elements:

Element	Description
(PackagingCode, Dimension) Dimension (required)	PackagingCode specifies the unique ID of packaging material (box, container, pallet, rack). See PackagingCode [page 178] . Dimension specifies a single dimension for the packaging of the item. See Dimension [page 179] .

Element	Description
Description	Provides a description of the package.
PackagingLevelCode	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.
PackageTypeCode- IdentifierCode	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.
ShippingContainer- SerialCode	The serial number of a package that helps to identify a package during transportation and inventory.
ShippingContainer- SerialCodeReference	Contains the reference from a package shipping code to the shipping code of the next higher package level.
PackageID	Contains package-related IDs. See PackageID [page 179] .
ShippingMark	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.
OrderedQuantity	Specifies the number of items/products for a given line item in a purchase order. See OrderedQuantity [page 180] .
DispatchQuantity	Specifies the delivered quantity (compared to the ordered quantity). See Dispatch-Quantity [page 180] .
FreeGoodsQuantity	Specifies the quantity that will be delivered without any cost to the buyer. See Free-GoodsQuantity [page 180] .
QuantityVarianceNote	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.
BestBeforeDate	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.
AssetInfo	Contains information for the asset referenced by the packaging. See AssetInfo [page 323] .
StoreCode	The code of the store assigned for this packaging.
Extrinsic	Contains any additional information related to this Packaging element.

Here is an example of Packaging:

```
<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"/>
  <AssetInfo tagNumber="asset2" serialNumber="0000002"/>
  <AssetInfo tagNumber="asset3" serialNumber="0000003"/>
  <StoreCode>Store A</StoreCode>
  <Extrinsic name="AribaNetwork.packId">5</Extrinsic>
  <Extrinsic name="AribaNetwork.parentPackId"/>
  <Extrinsic name="AribaNetwork.mixedInstruction">false</Extrinsic>
  <Extrinsic name="AribaNetwork.shipNoticeLineIndex">1.0</Extrinsic>
</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:

Attribute	Description
xml:lang (required)	Specifies one language-specific code for the packaging of the item. Values such as "pallet", "skid", and "truck load" might be appropriate for an English-based locale. The xml:lang attribute specifies the language or locale in which the PackagingCode content is written.

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:

Attribute	Description
quantity (required)	Specifies the size in this dimension. Expressed in the units given in the UnitOfMeasure element.
type (required)	Type of dimension. Possible values: <ul style="list-style-type: none">length—The length of the packaging or item.width—The width of the packaging or item.height—The height of the packaging or item.weight—The weight or net weight of the packaging or item.volume—The volume or net volume of the packaging or item.stackHeight—The stack height of the packaging. This indicates total height of the stacked packages.grossWeight—The gross weight is the total weight including packaging.grossVolume—The total volume, including packaging.unitGrossWeight—The gross weight per unit of the item.unitNetWeight—The net weight per unit of the item.

Dimension has the following element:

Element	Description
UnitofMeasure	See UnitOfMeasure [page 44] .

PackageID

Package-related IDs.

PackageID has the following elements:

Element	Description
GlobalIndividualAssetID	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.
ReturnablePackageID	Specifies an ID that facilitates the return of a package to the supplier.
PackageTrackingID	Specifies additional information to track packages based on the supplier's internal numbering scheme.

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:

Element	Description
UnitofMeasure	See UnitOfMeasure [page 44] .

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:

Element	Description
UnitofMeasure	See UnitOfMeasure [page 44] .

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:

Element	Description
UnitofMeasure	See UnitOfMeasure [page 44] .

7.2.2.13 ReleaseInfo

The `ReleaseInfo` element stores the details about a release of items or materials.

`ReleaseInfo` contains the following attributes:

Attribute	Description
<code>releaseType</code> (required)	A mandatory field. A string value to identify the type of delivery schedule against the schedule agreement release. Possible values: <ul style="list-style-type: none">• <code>JIT</code> (Just-In-Time)• <code>Forecast</code>
<code>cumulativeReceivedQuantity</code> (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.
<code>releaseNumber</code>	A string indicating the release number.
<code>productionGoAheadEndDate</code>	An optional field. Date denoting the end of the production go-ahead period (go-ahead for production).
<code>materialGoAheadEndDate</code>	Date denoting the end of the material go-ahead period (go-ahead for purchase of input materials).

`ReleaseInfo` contains the following elements:

Element	Description
<code>ShipNoticeReleaseInfo</code>	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.
<code>UnitofMeasure</code>	Unit of measure for the quantity specified for the schedule line item.
<code>Extrinsic</code>	Any additional information for the schedule line item.

7.2.2.14 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:

Attribute	Description
<code>productionDate</code>	Date on which when a batch of material or goods is produced.
<code>expirationDate</code>	Date on which when a batch of material/goods becomes expired.
<code>inspectionDate</code>	Date on which when a batch of material/goods will be inspected.

Attribute	Description
shelfLife	Duration that a product is expected to remain within its approved product specification after production date. This attribute is used for information purposes only. The lexical representation for duration is the ISO 8601 extended format <code>PnYnMnDTnH nMnS</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 60 days, one would write: P0Y0M60D .
originCountryCode	Country of origin for a batch of material or goods.
batchQuantity	Quantity for a batch of material or goods.

Batch has the following elements:

Element	Description
BuyerBatchID	An identifier from the buyer to identify the material/goods produced in a single manufacturing run.
SupplierBatchID	An identifier from the supplier to identify the material/goods produced in a single manufacturing run. See SupplierBatchID [page 322] .
PropertyValuation	The property and its associated values. It has the following elements: <ul style="list-style-type: none"> PropertyReference The property being assigned values. ValueGroup Contains a group of values for a property.

The following example shows a `Batch` element:

```
<Batch productionDate="2017-01-05T10:27:05 08:00"
expirationDate="2017-12-05T10:27:05-08:00"
inspectionDate="2017-11-05T10:27:05-08:00"
shelfLife="P0Y0M60D"
originCountryCode="US"
batchQuantity="100">
  <BuyerBatchID>BAT-L-3</BuyerBatchID>
  <SupplierBatchID>BAT-C-3</SupplierBatchID>
</Batch>
```

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 \[page 22\]](#)

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 \[page 184\]](#)

[Nodes \[page 185\]](#)

[Adding Nodes to PunchOutOrderMessage \[page 188\]](#)

[Creating OrderRequests \[page 189\]](#)

[Other Routable Documents \[page 191\]](#)

[CopyRequest \[page 192\]](#)

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:

```
<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:

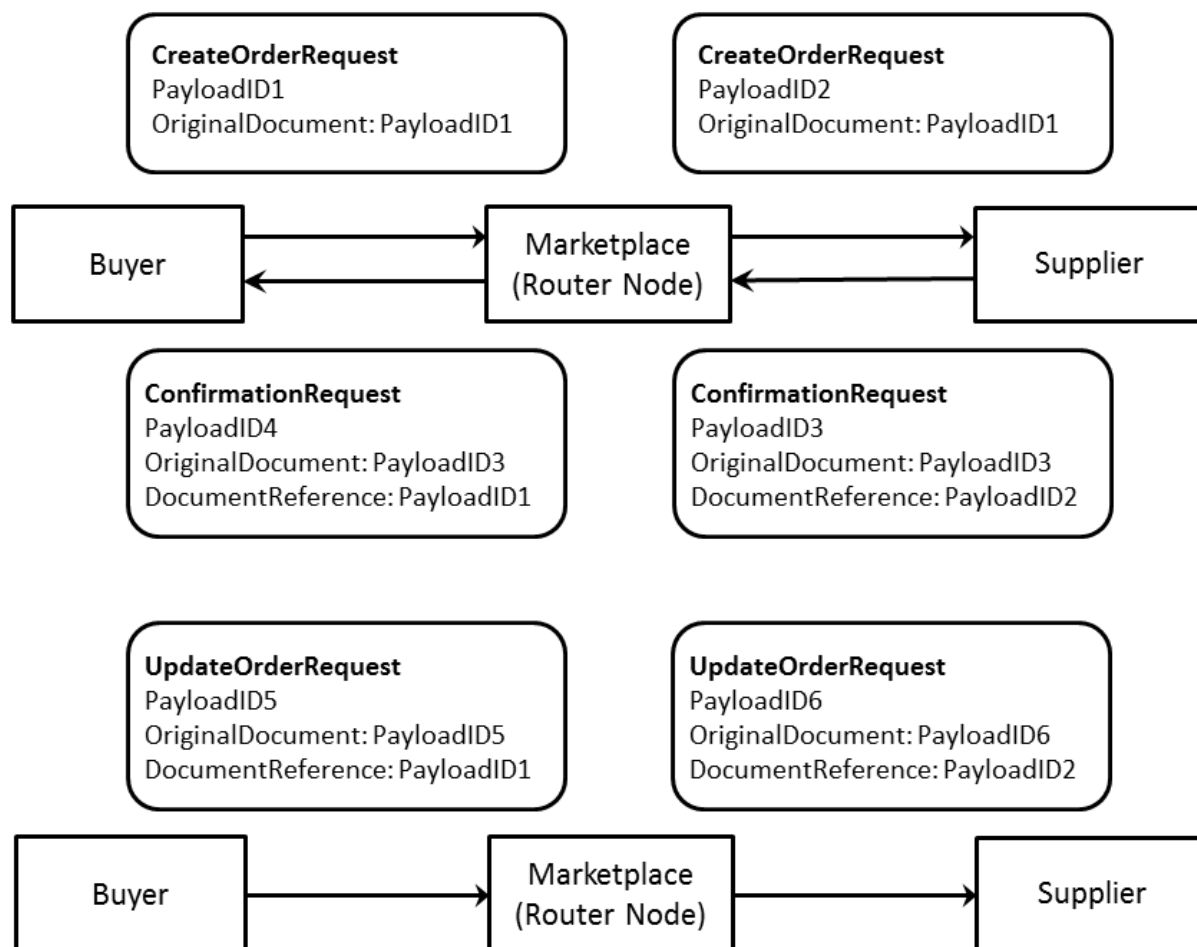


Figure 14: Updating `DocumentReference` Elements in New Documents

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:

```
<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>
```

```

        </Credential>
        <UserAgent>Ariba Buyer 7.0</UserAgent>
    </Sender>
    <Path>
        <!-- Contract Manufacturer -->
        <Node type="copy">
            <Credential domain="NetworkId">
                <Identity>AN01000000170</Identity>
            </Credential>
        </Node>
        <!-- Component Supplier A -->
        <Node type="copy">
            <Credential domain="NetworkId">
                <Identity>AN01000000171</Identity>
            </Credential>
        </Node>
        <!-- Component Supplier B -->
        <Node type="copy">
            <Credential domain="NetworkId">
                <Identity>AN01000000172</Identity>
            </Credential>
        </Node>
    </Path>
    <!-- Original order to copy -->
    <OriginalDocument
payloadID="989280592595-5564367883689744433@10.11.128.149"/>
</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:

```

<ItemIn quantity="1">
    <ItemID>
        <SupplierPartID>1234</SupplierPartID>
    </ItemID>
    <Path>

```

```

</ItemID>
<Path>
  <Node type="copy">
    <Credential domain="NetworkId">
      <Identity>AN01000000111</Identity>
    </Credential>
  </Node>
  <Node type="route">
    <Credential domain="NetworkId">
      <Identity>AN01000000233</Identity>
    </Credential>
  </Node>
</Path>
<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>
</ItemDetail>
</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:

Attribute	Description
<code>processingMode</code>	Indicates the processing mode for the cXML document. Possible values: <ul style="list-style-type: none"><code>info</code>—The document is for information only.<code>process</code>—The recipient of the document should process the document.<code>copy</code>—The document is a copy as a result of a <code>Path</code> element with copy nodes (<code>type="copy"</code>) in the source document.

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>
```

```

        <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>
</cXML>
--mime-boundary
Content-Type: text/xml; charset=UTF-8
Content-ID: <222@sendercompany.com>
[Other headers]
[Forwarded cXML]
--mime-boundary--

```

Related Information

[Attachments \[page 22\]](#)

[Attachment Examples \[page 23\]](#)

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 \[page 194\]](#)

[Request for Quotations \[page 195\]](#)

[QuoteMessage \[page 210\]](#)

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:

```
<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:

Attribute	Description
requestID (required)	Unique internal number from the buyer's system for the request for quotations.
requestDate (required)	The date and time of the <code>quoteRequest</code> document.
type	Type of <code>quoteRequest</code> . The default value is "new". Possible values: <ul style="list-style-type: none">• new• update• delete
openDate (required)	The date the <code>quoteRequest</code> is open for suppliers to respond.
closeDate (required)	The date the <code>quoteRequest</code> is closed for supplier responses.
previewDate	The date the <code>quoteRequest</code> is available to suppliers.
templateName	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.
currency (required)	Currency for the <code>quoteRequest</code> and <code>quoteMessage</code> . Must be a three-letter ISO currency code.

Attribute	Description
<code>xml:lang</code> (required)	The language for the <code>quoteRequest</code> and <code>quoteMessage</code> .
<code>quoteReceivingPreference</code>	<p>The buyer's system preference on how they want to receive the <code>quoteMessage</code> from the sourcing application.</p> <p>The default value is based on the value configured in the template used by the sourcing application. If the buyer wants to override the value configured in the template, they must specify the required value in this attribute.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • <code>winningOnly</code>—The winning quotes that are awarded are sent to the buyer from the sourcing application. • <code>finalBidsFromAll</code>—Quotes are sent to the buyer from the sourcing application only after all the bids have been received and the event is closed. • <code>all</code>—Quotes are sent to the buyer from the sourcing application as soon as suppliers submit the bid. The sourcing application does not wait for the event to close to send the quote.

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:

Attribute	Description
<code>matchingType</code>	<p>Specifies how suppliers are invited for a <code>quoteRequest</code>.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • <code>invitationOnly</code>—Only invited suppliers. Suppliers that can join the event are specified in the <code>OrganizationID</code> element. • <code>approvedVendorOnly</code>—Suppliers from the approved supplier list. However, the sourcing application may filter the suppliers that can bid based on the commodity and territory matching rules. • <code>public</code>—Any public supplier. The supplier can also exist in the approved supplier list. However, the sourcing application may filter the suppliers that can bid based on the commodity and territory matching rules.

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:

Attribute	Description
<code>supplierStatus</code>	Status of supplier in the buyer's system. Possible values: <ul style="list-style-type: none"><code>approved</code>—The supplier exists in the buyer's system and is approved by the buyer. The default value is "approved."<code>contracted</code>—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 <code>MasterAgreementIDInfo</code>.

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:

Element	Description
<code>LegalEntity</code>	A legal entity in the external system. It has an <code>IdReference</code> element.
<code>OrganizationalUnit</code>	Identifies the Purchase Unit or Purchase group in the external system. It has an <code>IdReference</code> element.
<code>PaymentTerms</code>	Defines the payment terms in a <code>PaymentProposalRequest</code> document.
<code>FollowUpDocument</code>	Provides a hint about the way to follow up on a <code>QuoteMessage</code> response. See FollowUpDocument [page 272] .

Element	Description
DocumentReference	Contains the payload ID of a previous QuoteMessage that was sent in a response.
Extrinsic	Contains any additional information related to this object.

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 QuoteItemOut

Stores details on the line items sent in a `QuoteRequest`.

The `QuoteItemOut` element has the following attributes:

Attribute	Description
quantity (required)	The number of items.
lineNumber	Line position (counting from 1) of the item in a <code>QuoteRequest</code> . Used to maintain a reference between the items in the document with the type as "new" and "update".
parentLineNumber	Position (counting from 1) of this item's parent in a <code>QuoteRequest</code> . Used to maintain a hierarchical reference between items in documents.
requestedDeliveryDate	The delivery date requested for the line item.
itemClassification	Specifies whether the current line item is "material" or "service".
itemType	Specifies the type of item. Possible values: <ul style="list-style-type: none"> • <code>composite</code>—Identifies an item group. • <code>item</code>—Identifies an independent line item. • <code>lean</code>—Indicates that no child item is expected for the line.
serviceLineType	Represents the type of the service line. Possible values: <ul style="list-style-type: none"> • <code>standard</code>—Standard service. • <code>blanket</code>—Blanket service for which you don't specify a quantity. It is settled as a lump sum. • <code>contingency</code>—A service that is not absolutely necessary to perform the order. • <code>openquantity</code>—A service for which the sold-to party requires that the bidder offer the quantity for a specific partial service. • <code>information</code>—The line type does not describe a service and is for information purposes only.

QuoteItemOut has the following elements:

Element	Description
ItemID	Provides unique identification of an item. See ItemID [page 91] .
ItemDetail (required)	Contains descriptive information about the item that procurement applications present to users. See ItemDetail [page 91] .
ShipTo	The ship to address for a item. ShipTo contains four elements: Address, CarrierIdentifier, TransportInformation, and IdReference.
Shipping	Contains additional information for transportation of the shipment.
Tax	Contains tax information.
SpendDetail	Captures spend detail information. See SpendDetail [page 141] .
Total	Contains the total cost for the items in the order, excluding any tax and shipping. See Total [page 113] .
TermsOfDelivery	Specifies the terms of delivery for the ship notice. See TermsOfDelivery [page 127] .
ReferenceDocumentInfo	Contains information about a referenced document. See ReferenceDocumentInfo [page 130] .
Contact	The contact information for the supplier. Can specify more than one Contact element. See Contact [page 118] .
Comments	Contains comments associated with this RFQ line item. The Comments element can contain an Attachment element for including external files.
Alternative	Represents an alternative option to service specification lines. See Alternative [page 200] .
SupplierSelector	Defines the way suppliers are selected for responding to an RFQ. See SupplierSelector [page 196] .

9.2.2.1 Alternative

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.

The `Alternative` element has the following attributes:

Attribute	Description
<code>alternativeType</code> (required)	The alternative type of a service line item. Possible values: <ul style="list-style-type: none"><code>noAlternative</code>—Describes a service that cannot be performed in alternative ways.<code>basicLine</code>—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.<code>alternativeLine</code>—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 parquet flooring and an alternative line for ceramic tiles.
<code>basicLineNumber</code>	When an alternative type is set as <code>alternativeLine</code> , the line number of the service line whose alternative type is set as <code>basicLine</code> is set here. This enables this service line item to identify for which service line item this is alternative to.

Here is an example of `Alternative`:

```
<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:

```
<QuoteRequest>
  <QuoteRequestHeader closeDate="" currency=""
    openDate="" previewDate="" quoteReceivingPreference="winningOnly"
    requestDate="" requestID="" templateName="" type="new" xml:lang="EN">
    <Name xml:lang="EN">Name</Name>
    <SupplierSelector matchingType="invitationOnly" />
    <Total>
      <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
    </Total>
    <Description type="" xml:lang="EN" />
    <ShipTo>
      <Address addressID="" addressIDDomain="" isoCountryCode="">
        <Name xml:lang="EN">Name</Name>
      </Address>
    </ShipTo>
    <Contact addressID="" addressIDDomain="" role="nmtoken">
```

```

        <Name xml:lang="EN">Name</Name>
    </Contact>
    <Comments type="" xml:lang="EN" />
    <QuoteHeaderInfo />
    <Extrinsic name="" />
</QuoteRequestHeader>
<QuoteItemOut itemClassification="material"
    itemType="composite" lineNumber="" parentLineNumber="" quantity=""
    requestedDeliveryDate="" serviceLineType="standard">
    <ItemID>
        <SupplierPartID revisionID="">SupplierPartID</SupplierPartID>
    </ItemID>
    <ItemDetail>
        <UnitPrice>
            <Money alternateAmount="" alternateCurrency=""
                currency="">Money</Money>
            <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>
                                <Scales scaleType="From">
                                    <Scale from ='0'>
                                        <CostTermValue>
                                            <Money currency='USD'>120</Money>
                                        </CostTermValue>
                                    </Scale>
                                    <Scale from ='100'>
                                        <CostTermValue>
                                            <Money currency='USD'>110</Money>
                                        </CostTermValue>
                                    </Scale>
                                    <Scale from ='500'>
                                        <CostTermValue>
                                            <Money currency='USD'>100</Money>
                                        </CostTermValue>
                                    </Scale>
                                </Scales>
                            </ConditionType>
                            <!--Discount for Q1-->
                            <ConditionType name='Discount'>
                                <CostTermValue >
                                    <Money currency='USD'>-5</Money>
                                </CostTermValue>
                                <Scales scaleType="From">
                                    <Scale from ='0'>
                                        <CostTermValue>
                                            <Money currency='USD'>-20</Money>
                                        </CostTermValue>
                                    </Scale>
                                    <Scale from ='100'>
                                        <CostTermValue>
                                            <Money currency='USD'>-15</Money>
                                        </CostTermValue>
                                    </Scale>
                                    <Scale from ='500'>
                                        <CostTermValue>
                                            <Money currency='USD'>-10</Money>
                                        </CostTermValue>
                                    </Scale>
                                </Scales>
                            </ConditionType>
                        </ConditionTypes>
                    </ValidityPeriod>
                </ValidityPeriods>
            </PricingConditions>
        </UnitPrice>
    </ItemDetail>
</ItemOut>

```

```

</ValidityPeriod>
<!--Period Q2-->
<ValidityPeriod from='01.04.2019' to='30.06.2019'>
  <ConditionTypes>
    <!--Price for Q2-->
    <ConditionType name='Price'>
      <CostTermValue >
        <Money currency="USD">125</Money>
      </CostTermValue>
      <Scales scaleType="From">
        <Scale from ='0'>
          <CostTermValue>
            <Money currency='USD'>125</Money>
          </CostTermValue>
        </Scale>
        <Scale from ='100'>
          <CostTermValue>
            <Money currency='USD'>115</Money>
          </CostTermValue>
        </Scale>
        <Scale from ='500'>
          <CostTermValue>
            <Money currency='USD'>105</Money>
          </CostTermValue>
        </Scale>
      </Scales>
    </ConditionType>
    <!--Surcharge for Q2-->
    <ConditionType name='Discount'>
      <CostTermValue >
        <Money currency='USD'>5</Money>
      </CostTermValue>
      <Scales scaleType="From">
        <Scale from ='0'>
          <CostTermValue>
            <Money currency='USD'>-10</Money>
          </CostTermValue>
        </Scale>
        <Scale from ='100'>
          <CostTermValue>
            <Money currency='USD'>-5</Money>
          </CostTermValue>
        </Scale>
        <Scale from ='500'>
          <CostTermValue>
            <Money currency='USD'>-15</Money>
          </CostTermValue>
        </Scale>
      </Scales>
    </ConditionType>
  </ConditionTypes>
</ValidityPeriod>
</ValidityPeriods>
</PricingConditions>
</UnitPrice>
<Description type="" xml:lang="EN" />
<UnitOfMeasure>UnitOfMeasure</UnitOfMeasure>
<Classification code="" domain="">Classification</Classification>
</ItemDetail>
<ShipTo>
  <Address addressID="" addressIDDomain="" isoCountryCode="">
    <Name xml:lang="EN">Name</Name>
  </Address>
</ShipTo>
<Shipping tracking="" trackingDomain="" trackingId="">
  <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
  <Description type="" xml:lang="EN" />
</Shipping>

```

```

<Tax>
  <Money alternateAmount="" alternateCurrency="" currency="">Money</Money>
  <Description type="" xml:lang="EN" />
</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>
  </AirDetail>
</TravelDetail>
</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 \[page 205\]](#)

[PricingConditions \[page 205\]](#)

[ValidityPeriods \[page 205\]](#)

[ValidityPeriod \[page 206\]](#)

[ConditionTypes \[page 206\]](#)

[ConditionType \[page 207\]](#)

[CostTermValue \[page 207\]](#)

[Scales \[page 207\]](#)

[Scale \[page 208\]](#)

9.2.2.2.1 UnitPrice

Price per unit of item. It has the following elements:

Element	Description
Money (required)	Contains the final amount after applying Modifications.
Modifications	Contains details of the allowances and charges applicable at the line-item level.
PricingConditions	Pricing condition that represents the cost elements with validity period and optional scales. See PricingConditions [page 205] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.2 PricingConditions

References a pricing condition object for a given line item. It has the following element:

Element	Description
ValidityPeriods (required)	References a list of validity periods. See ValidityPeriods [page 205] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.3 ValidityPeriods

References a list of validity periods. It has the following element:

Element	Description
ValidityPeriod (required)	References a pricing condition validity period. See ValidityPeriod [page 206] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.4 ValidityPeriod

References a pricing condition validity period. It has the following attributes:

Attribute	Description
from (required)	Start date of the validity period.
to (required)	End date of the validity period.

ValidityPeriod has the following element:

Element	Description
ConditionTypes (required)	References a condition types list.

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.5 ConditionTypes

References a condition types list. It has the following element:

Element	Description
ConditionType (required)	References a pricing condition type. See ConditionType [page 207] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.6 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:

Attribute	Description
<code>name</code> (required)	Name of the condition type. Examples: Price, Surcharge.

`ConditionType` has the following elements:

Element	Description
<code>CostTermValue</code>	Reference to a pricing condition cost term. See CostTermValue [page 207] .
<code>Scales</code>	Reference to a pricing condition scales vector. See Scales [page 207] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.7 CostTermValue

References a pricing condition cost term. It contains a `Money` or `Percentage` value.

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.8 Scales

References a pricing condition scales vector.

`Scales` has the following attributes:

Attribute	Description
<code>scaleType</code> (required)	Represents the scale type for the validity period. Possible values: <ul style="list-style-type: none">• <code>From</code>• <code>To</code>• <code>Graduated</code>
<code>scaleBasis</code>	Represents the scale basis, a string. The default is <code>"quantity"</code> .

`Scales` has the following element:

Element	Description
<code>Scale</code> (required)	Represents the volume scale. See Scale [page 208] .

Related Information

[Specifying Pricing Conditions \[page 201\]](#)

9.2.2.2.9 Scale

Represents the volume scale. There can be more than one cost term per scale.

i Note

The [Scales \[page 207\]](#) element specifies the scale type.

`Scale` has the following attributes:

Attribute	Description
<code>from</code>	Lower bound value for the scale.
<code>to</code>	Upper bound value for the scale.

`Scale` has the following element:

Element	Description
<code>CostTermValue</code> (required)	References a pricing condition cost term. See CostTermValue [page 207] .

The attributes required for a scale depend on the scale type selected:

Scale Type	Scale Attributes Required
From	from
To	to
Graduated	from, to

Example: From scale

```
<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

```
<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

```
<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 \[page 201\]](#)

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:

Attribute	Description
<code>type</code> (required)	The type of <code>quoteMessage</code> . Possible values: <ul style="list-style-type: none">• <code>accept</code>• <code>reject</code>• <code>update</code>• <code>final</code>• <code>award</code>
<code>quoteID</code> (required)	Unique ID of the quote.
<code>quoteDate</code> (required)	Date on which the quote was submitted.
<code>currency</code> (required)	Currency for the <code>quoteRequest</code> and <code>quoteMessage</code> . Must be a three-letter ISO currency code.
<code>xml:lang</code> (required)	The language for the <code>quoteRequest</code> and <code>quoteMessage</code> .

`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:

Attribute	Description
<code>requestID</code> (required)	Unique internal number from the buyer's system for the request for quotations.
<code>requestDate</code> (required)	The date and time of the <code>quoteRequest</code> document.

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 \[page 198\]](#).

9.3.1.8 Extrinsic

This is an optional field.

9.3.2 QuoteItemIn

The `QuoteItemIn` element has the following attributes:

Attribute	Description
<code>type</code> (required)	The type of <code>quoteMessage</code> . Possible values: <ul style="list-style-type: none">• <code>accept</code>• <code>reject</code>• <code>update</code>• <code>final</code>• <code>award</code>
<code>quantity</code> (required)	The number of items.
<code>lineNumber</code>	Line position (counting from 1) of the item in the <code>QuoteRequest</code> . Used to maintain a reference between the items in the document with the type as "new" and "update".
<code>parentLineNumber</code>	Position (counting from 1) of this item's parent in a <code>QuoteRequest</code> . Used to maintain a hierarchical reference between items in documents.
<code>requestedDeliveryDate</code>	The delivery date requested for the line item.
<code>rank</code>	The rank of the quote.
<code>itemClassification</code>	Specifies whether the current line item is "material" or "service".
<code>itemType</code>	Specifies the type of item. Possible values: <ul style="list-style-type: none">• <code>composite</code>—Identifies an item group.• <code>item</code>—Identifies an independent line item.• <code>lean</code>—Indicates that no child item is expected for the line.

Attribute	Description
serviceLineType	<p>Represents the type of the service line. Possible values:</p> <ul style="list-style-type: none"> • <code>standard</code>—Standard service. • <code>blanket</code>—Blanket service for which you don't specify a quantity. It is settled as a lump sum. • <code>contingency</code>—A service that is not absolutely necessary to perform the order. • <code>openquantity</code>—A service for which the sold-to party requires that the bidder offer the quantity for a specific partial service. • <code>information</code>—The line type does not describe a service and is for information purposes only.

QuoteItemIn has the following elements:

- ItemID
- ItemDetail
- ShipTo
- Shipping
- Tax
- SpendDetail
- Total
- TermsOfDelivery
- ReferenceDocumentInfo
- Contact
- Comments
- Alternative (see [Alternative \[page 200\]](#))

Related Information

[Purchase Orders \[page 104\]](#)

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 \[page 214\]](#)

[PaymentProposalRequest \[page 215\]](#)

[PaymentRemittanceRequest \[page 225\]](#)

[PaymentBatchRequest \[page 233\]](#)

[PaymentRemittanceStatusUpdateRequest \[page 236\]](#)

[Example Payment Documents \[page 238\]](#)

[TradeRequest \[page 243\]](#)

[PaymentReceiptConfirmationRequest \[page 248\]](#)

[ChargeFileRequest \[page 253\]](#)

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:

Attribute	Description
<code>paymentProposalID</code> (required)	A buyer-generated identifier for the scheduled payment.
<code>operation</code> (required)	Defines the operation to be performed. Possible values: <ul style="list-style-type: none"><code>new</code>—Creates a new scheduled payment.<code>update</code>—Updates an existing scheduled payment identified by <code>paymentProposalID</code>.<code>delete</code>—Cancels an existing scheduled payment identified by <code>paymentProposalID</code>. All optional attributes and sub-elements of <code>PaymentProposalRequest</code> will be ignored.<code>hold</code>—Puts on hold an existing scheduled payment identified by <code>paymentProposalID</code>. All optional attributes and sub-elements of <code>PaymentProposalRequest</code> are ignored.
<code>isNetworkPayment</code>	Set to "yes" if this scheduled payment is to be paid through a network hub. By default it is set to "no".
<code>paymentDate</code>	The date that the bank initiates payment.
<code>companyCode</code>	The buyer's paying company code for this payment proposal.

`PaymentProposalRequest` has the following elements:

Element	Description
<code>PayableInfo</code> (required)	Provides a reference to the payable document, such as an invoice, order, or master agreement. See PayableInfo [page 216] .
<code>PaymentMethod</code>	Specifies the method of payment. Must be provided if <code>isNetworkPayment</code> is set to "yes". See PaymentMethod [page 218] .

Element	Description
PaymentPartner	Specifies all partners involved in the payment, such as payer, payee, originating bank, receiving bank, and remitTo. See PaymentPartner [page 219] .
PaymentTerms	Defines the payment terms in a <code>PaymentProposalRequest</code> document. See PaymentTerms [page 223] .
GrossAmount	The gross payment amount.
DiscountBasis	Defines the discount basis for the payable. See DiscountBasis [page 224] .
DiscountAmount	The discount amount.
AdjustmentAmount	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).
Tax	Defines the tax for the payable. See Tax [page 350] .
TaxAdjustment	Defines the tax adjustment for the payable. See TaxAdjustment [page 224] .
NetAmount	Defines the net amount. See NetAmount [page 225] .
Comments	Contains comments associated with this object.
Extrinsic	Contains any additional information related to this object.

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`:

```
<!ELEMENT PayableInfo (PayableInvoiceInfo | PayableOrderInfo |
    PayableMasterAgreementInfo)>
```

The following example shows the structure of a minimum valid `PayableInfo` element:

```
<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`:

```
<PayableInfo>
```

```

    <PayableInvoiceInfo>
      <InvoiceIDReference or InvoiceIDInfo>
        <PayableOrderInfo>
          <OrderIDInfo>
            .....
          </OrderIDInfo>
        </PayableOrderInfo>
      </InvoiceIDReference or InvoiceIDInfo>
    </PayableInvoiceInfo>
  </PayableInfo>

```

PayableInfo has no attributes.

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:

Attribute	Description
invoiceID (required)	The ID of an invoice known to the supplier system
invoiceDate	The invoice date

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:

Attribute	Description
<code>type</code> (required)	The type of the payment method. Possible values: <ul style="list-style-type: none">• <code>ach</code>—Automated Clearing House• <code>cash</code>—Cash payment• <code>check</code>—Check payment• <code>creditCard</code>—Credit card or PCard payment• <code>debitCard</code>—Debit card payment• <code>draft</code>—A written payment order, directing a second party to pay a third party• <code>wire</code>—Wire transfer• <code>other</code>—Other, not defined in cXML

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.

ShortName

A short string describing something in fewer characters than the entire `Description`. Use the `ShortName` element when limited space is available. For example, a table of elements might show the `ShortName`. A linked “details” view would show the entire `Description`. Without a `ShortName`, the user interface must default to a truncation of `Description`.

This element does not require an `xml:lang` attribute because it appears only within a `Description` element. The language of the `ShortName` must match that of the surrounding `Description`.

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 \[page 219\]](#)

[IdReference \[page 220\]](#)

[PCard \[page 222\]](#)

[NatureOfBusiness \[page 223\]](#)

[IncorporationType \[page 223\]](#)

10.2.3.1 Contact

Contact information of the payment partner.

Contact has the following attributes:

Attribute	Description
role	The role of the payment partner. Possible values: <ul style="list-style-type: none">• payer—The payer of this transaction.• payee—The recipient of the payment.• originatingBank—The bank from which the payment will be drawn. Required for bank transfers.• receivingBank—The bank to which the payment will be deposited. Required for bank transfers.• originatingCorrespondentBank—(optional) The bank that will hold the payment and transfer it to the receiving bank or the receiving correspondent bank.• receivingCorrespondentBank—(optional) The bank that will receive the payment and transfer it to the receiving bank.• intermediaryBank—(optional) The intermediary bank.• payeeContact—(optional) The supplier contact name.• remitTo—(optional) The supplier's remittance address. For this role value, the IdReference and PCard elements can be omitted.
addressID	An ID for the address. addressID supports address codes for relationships that require ID references.
addressIDDomain	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.

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:

Attribute	Description
identifier (required)	The unique identifier of the IdReference within the domain.

Attribute	Description
domain (required)	<p>The domain of the <code>IdReference</code>. Possible values:</p> <ul style="list-style-type: none"> • <code>bankRoutingID</code>—The routing ID of this payment partner's bank • <code>accountReceivableID</code>—The ID of the payee's accounts receivable account or department • <code>bankAccountID</code>—The ID of this payment partner's bank account • <code>ibanID</code>—The International Bank Account Number for this payment partner, as specified in ISO 13616 • <code>abaRoutingNumber</code>—The American Banking Association 9-digit routing transit number of this payment partner's bank • <code>bankNationalID</code>—A national clearing code that is specific to a country. This should uniquely identify the bank within the country specified in the <code>Contact</code> • <code>isoBicID</code>—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) • <code>swiftID</code>—SWIFT ID (Society for Worldwide Interbank Financial Telecommunications) identification number • <code>bankBranchID</code>—The identification number of the bank branch • <code>companyRegistrationNumber</code>—The company registration number of the payment partner.

The bank account identification is specified as follows:

Value	Description
<code>identifier</code>	The unique identifier of the <code>IdReference</code> within the domain.
<code>domain</code>	<p>The domain of the account ID. Possible values:</p> <ul style="list-style-type: none"> • <code>abaRoutingNumber</code>—ABA (American Banking Association) routing number • <code>swiftID</code>—SWIFT ID (Society for Worldwide Interbank Financial Telecommunications) identification number • <code>chipsID</code>—CHIPS ID (Clearing House Interbank Payment System) identification number • <code>isoBicID</code>—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). • <code>bankNationalID</code>—If none of the above bank identification methods is applicable, then use the <code>bankNationalID</code> to indicate national clearing codes that are specific to a country. This should uniquely identify the bank within the country specified in the <code>Contact</code>.

The bank branch identification, if necessary, is specified as follows:

Value	Description
<code>bankBranchID</code>	The bank branch ID.

The following table illustrates some valid `role` - `domain` value combinations for `Contact` and `IdReference`:

Contact@role	IdReference@domain
payer	bankAccountID ibanID
payee	bankAccountID ibanID
originatingBank	abaRoutingNumber bankNationalID isoBicID swiftID bankBranchID (optional)
receivingBank	abaRoutingNumber bankNationalID isoBicID swiftID bankBranchID (optional)
originatingCorrespondentBank	abaRoutingNumber isoBicID swiftID
receivingCorrespondentBank	abaRoutingNumber isoBicID swiftID
intermediaryBank	abaRoutingNumber isoBicID swiftID

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`:

```
<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`:

```
<IncorporationType>Corporation</IncorporationType>
```

10.2.4 PaymentTerms

Defines the payment terms in a `PaymentProposalRequest` document. It has the following attribute:

Attribute	Description
<code>paymentTermCode</code> (required)	The payment term code defined in the buyer's system.

`PaymentTerms` has the following elements:

Element	Description
<code>PaymentTerm</code>	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 118].
<code>Description</code>	Contains a description of the payment terms.
<code>Extrinsic</code>	Contains any additional information related to this object.

10.2.5 DiscountBasis

`DiscountBasis` defines the discount basis for the payable. It has the following element:

Element	Description
<code>Money</code> (required)	Monetary amount for the discount basis.

10.2.6 TaxAdjustment

`TaxAdjustment` defines the tax adjustment for the payable. It has the following elements:

Element	Description
<code>Money</code> (required)	Describes the total tax adjustment given on the payable.
<code>TaxAdjustmentDetail</code>	Defines the details of adjustments given over category and region.

i Note

This element is deprecated in the `PaymentProposalRequest` document in cXML 1.2.042. Use `Tax.TaxAdjustmentAmount` instead. See [Tax \[page 350\]](#).

10.2.6.1 TaxAdjustmentDetail

`TaxAdjustmentDetail` defines the details of adjustments given over category and region. It has the following attributes:

Attribute	Description
<code>category</code> (required)	String describing the tax adjustment category.
<code>region</code>	String describing the region where the tax adjustment occurred.

`TaxAdjustmentDetail` has the following element:

Element	Description
<code>Money</code> (required)	Monetary amount of the tax adjustment given on the payable for a particular category or region.

i Note

This element is deprecated in the `PaymentProposalRequest` document in cXML 1.2.042. Use `TaxDetail.TaxAdjustmentAmount` instead. See [TaxDetail \[page 351\]](#).

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`:

```
<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 \[page 239\]](#).

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`:

```
<PaymentRemittanceRequestHeader>
  <PaymentMethod>
    <Description>
      <ShortName/>
    </Description>
  </PaymentMethod>
  <PaymentPartner>
    <Contact/>
    <IdReference/>
    <PCard/>
  </PaymentPartner>
  <PaymentReferenceInfo>
    <PaymentReference/>
    <DocumentReference/>
  </PaymentReferenceInfo>
  <Comments/>
  <Extrinsic/>
</PaymentRemittanceRequestHeader>
```

`PaymentRemittanceRequestHeader` has the following attributes:

Attribute	Description
<code>paymentRemittanceID</code> (required)	A unique identifier for this <code>PaymentRemittance</code> , generated by the buying organization's system.
<code>paymentDate</code> (required)	The date and time this Payment or Remittance transaction was created. <code>paymentDate</code> should be earlier than the timestamp of the actual <code>PaymentRemittanceRequest</code> .
<code>isPayment</code>	Indicates whether this request is intended for making payment or is for remittance advice only. If the request is for payment purposes, set the attribute to "yes." Remittance advice information can be included in a <code>PaymentRemittanceRequest</code> with <code>isPayment = yes</code> . If <code>isPayment</code> is not specified, the document is assumed to be for remittance advice only.
<code>paymentReferenceNumber</code>	Indicates a payment transaction reference or payment identification number. For example, for check payments, the <code>paymentReferenceNumber</code> is the check number, and for electronic payments, it is an electronic reference or confirmation number.
<code>status</code>	Status of the payment remittance. Possible values are "new" (default) or "void".
<code>companyCode</code>	Company code of the buyer.

[PaymentMethod](#) [page 227]

[PaymentPartner](#) [page 227]

[PaymentReferenceInfo](#) [page 227]

[Comments \[page 228\]](#)
[Extrinsic \[page 228\]](#)

10.3.1.1 PaymentMethod

Identifies the method for a payment. For more information, see [PaymentMethod \[page 218\]](#).

10.3.1.2 PaymentPartner

Identifies a party involved in the payment. For more information, see [PaymentPartner \[page 219\]](#).

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:

Attribute	Description
paymentRemittanceID	The paymentRemittanceID of the request.
	<div><div>i Note</div><div>Do not use the transaction identification number, such as check number.</div></div>
paymentDate	The payment date.

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:

Attribute	Description
payloadID (required)	A unique identifier for the prior PaymentRemittanceRequest. The payloadID is copied directly from the cXML element of the PaymentRemittanceRequest.

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:

Attribute	Description
paymentRemittanceID (required)	The paymentRemittanceID of the request. <div> <i>Note</i> Do not use the transaction identification number, such as check number. </div>
paymentDate	The payment date.

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 \[page 229\]](#)

[GrossAmount \[page 229\]](#)

[DiscountAmount \[page 229\]](#)

[AdjustmentAmount \[page 229\]](#)

10.3.2.1 NetAmount

The `NetAmount` element defines the total net payment amount. `NetAmount` should satisfy the following equation:

$$\text{NetAmount} = \text{GrossAmount} - \text{DiscountAmount} - \text{AdjustmentAmount}$$

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.

```
<RemittanceDetail>
  <PayableInfo/>
  <NetAmount/>
  <GrossAmount/>
  <DiscountAmount/>
  <AdjustmentAmount/>
  <Comments/>
  <Extrinsic/>
</RemittanceDetail>
```

RemittanceDetail has the following attributes:

Attribute	Description
lineNumber (required)	The line number of the associated payable.
referenceDocumentNumber	Any external document number (a string) for the remittance detail.
paymentProposalID	The payment proposal identifier (a string) that's associated with this invoice.

Here is an example of RemittanceDetail:

```
<RemittanceDetail lineNumber="1" referenceDocumentNumber="R0001"
  paymentProposalID="1234">
  <PayableInfo>
    <PayableInvoiceInfo>
      <InvoiceIDInfo invoiceDate="2015-11-02T12:00:01-08:00"
        invoiceID="i1003"></InvoiceIDInfo>
    </PayableInvoiceInfo>
  </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>
    <Modifications>
      <Modification>
        <AdditionalDeduction type="withholdingTax">
          <DeductionAmount>
            <Money currency="USD">200.00</Money>
          </DeductionAmount>
        </AdditionalDeduction>
      </Modification>
    </Modifications>
  </AdjustmentAmount>
</RemittanceDetail>
```

[PayableInfo \[page 230\]](#)

[NetAmount \[page 232\]](#)

[GrossAmount \[page 232\]](#)

[DiscountAmount \[page 232\]](#)

[AdjustmentAmount \[page 232\]](#)

10.3.3.1 PayableInfo

A reference to the payable document, such as an invoice, order, or master agreement. See [PayableInfo \[page 216\]](#).

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:

Element	Description						
<code>InvoiceReference</code>	Provides a clear reference to a prior <code>InvoiceDetailRequest</code> document. The <code>InvoiceReference</code> is copied from the <code>InvoiceDetailRequest</code> message.						
<code>InvoiceIDInfo</code>	Defines the ID of an invoice known to the supplier system. <code>InvoiceIDInfo</code> is a container for two attributes: <table><tr><th>Attribute</th><th>Description</th></tr><tr><td><code>invoiceID</code> (required)</td><td>The ID of an invoice known to the supplier system</td></tr><tr><td><code>invoiceDate</code></td><td>The invoice date</td></tr></table>	Attribute	Description	<code>invoiceID</code> (required)	The ID of an invoice known to the supplier system	<code>invoiceDate</code>	The invoice date
Attribute	Description						
<code>invoiceID</code> (required)	The ID of an invoice known to the supplier system						
<code>invoiceDate</code>	The invoice date						

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:

Element	Description
<code>OrderReference</code>	The reference to the order being paid.
<code>OrderIDInfo</code>	The order ID from the procurement application.

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:

Attribute	Description
<code>type</code>	Type of adjustment amount, for example, "withholdingTax".

`AdjustmentAmount` has the following elements:

Element	Description
<code>Money</code>	The adjustment for this payable in dollar (or other currency) amount. If there are multiple <code>Modification</code> elements inside the <code>Modifications</code> element, then <code>Money</code> = (Sum of all <code>AdditionalDeduction</code>) - (Sum of all <code>AdditionalCost</code>).
<code>Description</code>	The reason for the adjustment
<code>Modifications</code>	Details of the <code>AdjustmentAmount</code> . Can contain multiple <code>Modification</code> elements.

The following example shows `AdjustmentAmount` and `Comments` elements for a `PaymentRemittanceRequest` document. One of the deductions is for withholding tax (`type="withholdingTax"`), which indicates the amount of tax withheld for the payment line item.

```
<AdjustmentAmount>
  <Money currency="USD">110.00</Money>
```

```

    <Modifications>
      <Modification>
        <AdditionalDeduction type="withholdingTax">
          <DeductionAmount>
            <Money currency="USD">95.00</Money>
          </DeductionAmount>
        </AdditionalDeduction>
      </Modification>
      <Modification>
        <AdditionalDeduction type="other">
          <DeductionAmount>
            <Money currency="USD">15.00</Money>
          </DeductionAmount>
        </AdditionalDeduction>
      </Modification>
    </Modifications>
  </AdjustmentAmount>
  <Comments>Tax Withheld</Comments>

```

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`:

```

<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`:

```

<Request deploymentMode="production">
  <PaymentBatchRequest>
    <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>
</Request>

```

```

</PaymentBatchSummary>
<PaymentRemittanceRequest>
  <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 isoStateCode="US-CA">CA</State>
          <PostalCode>94089</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Contact>
      <IdReference domain="bankAccountID"
        identifier="214109887"></IdReference>
    </PaymentPartner>
    <PaymentPartner>
      <Contact role="payee">
        <Name xml:lang="en">s11@company.com</Name>
        <PostalAddress>
          <Street>601 108th Ave NE</Street>
          <City>Bellevue</City>
          <State isoStateCode="US-WA">WA</State>
          <PostalCode>98004</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Contact>
      <IdReference domain="NetworkID"
        identifier="AN02001670305"/>
      <IdReference domain="VendorID" identifier="1000"/>
      <IdReference domain="bankAccountID"
        identifier="393848477"></IdReference>
    </PaymentPartner>
    <PaymentPartner>
      <Contact role="originatingBank">
        <Name xml:lang="en">OBank</Name>
        <PostalAddress>
          <Street>691 Random Ave</Street>
          <City>Sunnyvale</City>
          <State isoStateCode="US-CA">CA</State>
          <PostalCode>94300</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Contact>
      <IdReference domain="abaRoutingNumber" identifier="121000358"/>
      <IdReference domain="accountType" identifier="checking"/>
    </PaymentPartner>
    <PaymentPartner>
      <Contact role="receivingBank">
        <Name xml:lang="en">RBank</Name>
      </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>
    <AdjustmentAmount>

```

```

        <Money currency="USD">0.00</Money>
      </AdjustmentAmount>
    </PaymentRemittanceSummary>
    <RemittanceDetail lineNumber="1" referenceDocumentNumber="R0001"
      paymentProposalID="1234">
      <PayableInfo>
        <PayableInvoiceInfo>
          <InvoiceIDInfo invoiceDate="2015-11-02T12:00:01-08:00"
            invoiceID="i1003"></InvoiceIDInfo>
          </PayableInvoiceInfo>
        </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>
        <Modifications>
          <Modification>
            <AdditionalDeduction type="withholdingTax">
              <DeductionAmount>
                <Money currency="USD">200.00</Money>
              </DeductionAmount>
            </AdditionalDeduction>
          </Modification>
        </Modifications>
      </AdjustmentAmount>
    </RemittanceDetail>
  </PaymentRemittanceRequest>
</PaymentBatchRequest>
</Request>

```

10.4.1 PaymentBatchRequestHeader

The `PaymentBatchRequestHeader` element defines the header information of a `PaymentBatchRequest`. It has the following attributes:

Attribute	Description
batchID (required)	Unique identifier of a batch.
paymentDate (required)	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.
creationDate (required)	Date and time this payment batch was created.

`PaymentBatchRequestHeader` has the following elements:

Element	Description
PaymentMethod	Payment method of the batch. If exists, the payment method at each individual payment remittance will be ignored. See PaymentMethod [page 218] .
Extrinsic	Contains any additional information related to this object.

10.4.2 PaymentBatchSummary

Contains the summary information of a `PaymentBatchRequest`.

[ControlSum \[page 236\]](#)

[NumberOfPayments \[page 236\]](#)

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 \[page 225\]](#).

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:

```
<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>
    </PaymentRemittanceStatusUpdateRequest>
    .....
  </PaymentRemittanceStatus>
</Request>
```

```
</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:

```
<DocumentReference payloadID="0c300508b7863dcclb_14999"/>
```

`DocumentReference` contains no elements, but has the following attribute:

Attribute	Description
<code>payloadID</code> (required)	A unique identifier for the document. Copied directly from the cXML element of the previous <code>PaymentRemittanceRequest</code> .

10.5.2 PaymentRemittanceStatus

Defines the status for a payment transaction specified by an existing `PaymentRemittanceRequest`. `PaymentRemittanceStatus` has the following attributes:

Attribute	Description
<code>type</code> (required)	The status type of the payment transaction.
<code>paymentReferenceNumber</code>	Indicates a unique number for a payment. For a check payment, for example, the <code>paymentReferenceNumber</code> would be the check number.

Possible values of the `type` attribute in `PaymentRemittanceStatus` are:

Value	Description
<code>paying</code>	The payment transaction is in progress.
<code>paid</code>	The payment transaction was completed successfully.
<code>failed</code>	The payment transaction failed. Under certain conditions, a <code>PaymentRemittance</code> of type "failed" can be resubmitted by the buying organization.
<code>canceled</code>	The payment transaction was canceled.

[PaymentRemittanceStatusDetail \[page 238\]](#)

[Extrinsic \[page 238\]](#)

Related Information

[Status \[page 34\]](#)

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:

Attribute	Description
<code>code</code> (required)	Payment transaction status code provided by the payment provider.
<code>description</code> (required)	Textual description of the status code (not specific issue).
<code>xml:lang</code> (required)	The language in which the text attribute and element content are written.

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:

Attribute	Description
<code>name</code> (required)	The value used to indicate the type or nature of the data.

10.6 Example Payment Documents

The following examples illustrate payment documents:

[“PaymentProposalRequest Example” \[page 239\]](#)

[“PaymentRemittanceRequest Example” \[page 239\]](#)

[“PaymentRemittanceStatusUpdateRequest Example” \[page 243\]](#)

10.6.1 PaymentProposalRequest Examples

The following scheduled payment is for an ACH payment.

```
<?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>
      </PayableInfo>
      <PaymentMethod type="ach"/>
      <Contact role="remitTo" addressID="Billing">
        <Name xml:lang="en">Lisa Dollar</Name>
        <PostalAddress name="billing department">
          <DeliverTo>Lisa Dollar</DeliverTo>
          <Street>100 Castro Street</Street>
          <City>Mountain View</City>
          <State isoStateCode="US-CA">CA</State>
          <PostalCode>95035</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
        <Email name="default">ldollar@workchairs.com</Email>
        <Phone name="work">
          <TelephoneNumber>
            <CountryCode isoCountryCode="US">1</CountryCode>
            <AreaOrCityCode>650</AreaOrCityCode>
            <Number>9990000</Number>
          </TelephoneNumber>
        </Phone>
      </Contact>
      <GrossAmount>
        <Money currency="USD">3000.00</Money>
      </GrossAmount>
    </PaymentProposalRequest>
  </Request>
</cXML>
```

```

    </GrossAmount>
    <DiscountAmount>
      <Money currency="USD">160.00</Money>
    </DiscountAmount>
    <AdjustmentAmount>
      <Money currency="USD">30.00</Money>
    </AdjustmentAmount>
    <NetAmount>
      <Money currency="USD">2810.00</Money>
    </NetAmount>
  </PaymentProposalRequest>
</Request>
</cXML>

```

The following payment proposal passes a discount basis and tax amounts:

```

<PaymentProposalRequest paymentProposalID="1100000124"
  operation="new" paymentDate="2016-04-05T11:59:20-07:00">
  <PayableInfo>
    <PayableInvoiceInfo>
      <InvoiceIDInfo invoiceID="INV8291087"
invoiceDate="2016-04-01T18:31:35+05:30"></InvoiceIDInfo>
    </PayableInvoiceInfo>
    </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>
      <Description xml:lang="en">Tax Summary</Description>
      <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>
      </TaxableAmount>
    </Tax>
  </PaymentProposalRequest>
</cXML>

```

```

    <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>
</Tax>
<NetAmount>
  <Money currency="USD">12180</Money>
</NetAmount>
<Extrinsic name="Scheduling"></Extrinsic>
<Extrinsic name="Scheduled">yes</Extrinsic>
<Extrinsic name="immediatepay">yes</Extrinsic>
</PaymentProposalRequest>

```

10.6.2 PaymentRemittanceRequest Example

This example shows a minimum valid PaymentRemittanceRequest.

```

<?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 isoStateCode="US-CA">CA</State>
              <PostalCode>94089</PostalCode>
              <Country isoCountryCode="US">United States</Country>
            </PostalAddress>
          </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 isoStateCode="US-CA">CA</State>
          <PostalCode>94089</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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 isoStateCode="US-CA">CA</State>
          <PostalCode>94087</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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 isoStateCode="US-CA">CA</State>
          <PostalCode>97123</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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>
        <PayableOrderInfo>
          <OrderIDInfo orderID="P0-031204-01"></OrderIDInfo>
        </PayableOrderInfo>
      </PayableInvoiceInfo>
    </PayableInfo>
    <NetAmount>
      <Money currency="USD">2.00</Money>
    </NetAmount>
  </RemittanceDetail>
</PaymentRemittanceRequest>

```

```

    <GrossAmount>
      <Money currency="USD">2.85</Money>
    </GrossAmount>
    <DiscountAmount>
      <Money currency="USD">0.35</Money>
    </DiscountAmount>
    <AdjustmentAmount>
      <Money currency="USD">0.50</Money>
    </AdjustmentAmount>
  </RemittanceDetail>
</PaymentRemittanceRequest>
</Request>
</cXML>

```

10.6.3 PaymentRemittanceStatusUpdateRequest Example

This example shows a `PaymentRemittanceStatusUpdateRequest` sent from a buyer to a supplier:

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/
PaymentRemittance.dtd">
<cXML payloadID="1068173501644--6417095366782271471@10.10.13.124"
timestamp="2003-04-20T23:59:45-07:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN99123456789</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN99987654321</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>Procurement Application 1.0</Identity>
      </Credential>
    </Sender>
  </Header>
  <Request deploymentMode="production">
    <PaymentRemittanceStatusUpdateRequest>
      <DocumentReference
        payloadID="1234567890123-1234567890123456789@10.10.10.100">
      </DocumentReference>
      <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:

```
<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>
          <CountryCode isoCountryCode = "BE">32</CountryCode>
          <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>
```

```

<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>
</AdjustmentAmount>
<DaysPaidEarly>10</DaysPaidEarly>
<Amount> <!-- trade amount: GrossAmount - AdjustmentAmount - FeeAmount-->
  <Money currency="USD">900</Money>
</Amount >
<!-- fee information, optional and not in credit memo -->
<FeeAmount>
  <Money currency="USD">15.00</Money> <!-- total fee -->
  <Fee type="serviceProvider">
    <Money currency="USD">5.00</Money>
  </Fee>
  <Fee type="community">
    <Money currency="USD">5.00</Money>
  </Fee>
  <Fee type="funder">
    <Money currency="USD">5.00</Money>
  </Fee>
</FeeAmount>
</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="cml23"></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>
</AdjustmentAmount>
<DaysPaidEarly>0</DaysPaidEarly>
<Amount>
  <Money currency="USD">0</Money>
</Amount>

```

```
</TradeItem>
</TradeRequest>
```

[TradeRequestHeader \[page 246\]](#)

[TradeRequestSummary \[page 247\]](#)

[TradeItem \[page 247\]](#)

10.7.1 TradeRequestHeader

Contains header information for a `TradeRequest` object. It has the following attributes:

Attribute	Description
<code>operation</code> (required)	The operational mode of the trade document. Possible values are "new" or "update".
<code>status</code> (required)	The status of the <code>TradeRequest</code> . Possible values: <ul style="list-style-type: none">• <code>accepted</code>—The funder has accepted the trade request.• <code>rejected</code>—The funder has rejected the trade request. The funder may update the status to "accepted" later.
<code>tradeID</code> (required)	ID of a trade transaction in the Supply Chain Financing provider's system.
<code>tradeDate</code>	The date and time the trade was created.
<code>tradeApprovedDate</code>	The date and time that the trade was approved by the funder.
<code>settlementDate</code>	The date and time that the payment will be paid in the supplier's bank account.
<code>autoTrade</code>	Indicates whether it's an automatic trade ("yes" or "no").

`TradeRequestHeader` has the following elements:

Element	Description
<code>PaymentPartner</code> (required)	Contains payer and payee information. Payer is required. You can specify multiple <code>PaymentPartner</code> elements. See PaymentPartner [page 219] .
<code>Contact</code>	The supplier user who created this <code>TradeRequest</code> .
<code>Comments</code>	Textual comments for this <code>TradeRequest</code> .
<code>Extrinsic</code>	Additional information related to this payment. Should not duplicate anything in <code>TradeRequest</code> .

10.7.2 TradeRequestSummary

Contains summary information for a `TradeRequest` object. It has the following elements:

Element	Description
<code>OriginalAmount</code> (required)	The total original net payment amount. All amounts for all <code>TradeItem</code> objects should add up to the total in <code>TradeRequestSummary</code> .
<code>CreditApplied</code>	The total amount of all credit memos in the trade.
<code>FeeAmount</code> (required)	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 <code>FeeAmount</code> elements in <code>TradeItem</code> objects.
<code>Amount</code> (required)	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 <code>NetAmount</code> values for <code>TradeItem</code> objects, and it should satisfy the following equation: $\text{Amount} = \text{OriginalAmount} - \text{FeeAmount}$

10.7.3 TradeItem

Contains trading information about a payment proposal or a credit memo. It has the following attribute:

Attribute	Description
<code>lineNumber</code>	Line number for the trade item from the associated payable document.
<code>paymentProposalID</code> (required)	Original payment proposal number.
<code>maturityDate</code>	The maturity date of the payment proposal of the trade item.

`TradeItem` has the following elements:

Element	Description
<code>PayableInfo</code> (required)	A reference to the payable document, such as an invoice, order, or master agreement.
<code>OriginalAmount</code> (required)	Original amount for this payable. This amount is negative for credit memo items.
<code>AdjustmentAmount</code>	Adjustment amount applied to the <code>GrossAmount</code> . The only adjustment that can be applied is a credit memo, which has an <code>AdditionalDeduction</code> with type <code>"creditMemoApplied"</code> .
<code>DaysPaidEarly</code> (required)	The number of days that the supplier is paid early.

Element	Description
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: <ul style="list-style-type: none"> • Money—Fee amount. • Fee—Different types of individual fees. The optional type attribute for Fee can be one of the following values: <ul style="list-style-type: none"> ◦ serviceProvider ◦ community ◦ funder
Extrinsic	Contains any additional information related to this object.

10.8 PaymentReceiptConfirmationRequest

Defines a payment receipt confirmation request, which is sent to the buyer by a supplier. It transmits a Payment Receipt confirmation request to a buyer, and it provides information related to the payment, including payment partner details, supplier tax ID, buyer tax ID, document submission method, and so on. This document must be sent to the location specified in the buyer's *ProfileResponse*.

Payment receipts are defined by certain tax authorities, such as the Mexican Tax Authority (SAT). Payment receipts must be issued by suppliers when they receive payments in installments or after the invoice date.

PaymentReceiptConfirmationRequest has the following elements:

Element	Description
PaymentReceiptConfirmationRequestHeader (required)	Header of a <i>PaymentReceiptConfirmationRequest</i> , which is sent to the buyer to confirm the payment received by the supplier or contractor. See PaymentReceiptConfirmationRequestHeader [page 250] .
PaymentReceiptDetails (required)	Contains detailed information of the receipt associated with the payment made. See PaymentReceiptDetails [page 251] .
PaymentReceiptSummary (required)	Contains a summary of the payment made. See PaymentReceiptSummary [page 253] .
Extrinsic	Contains any additional information related to the <i>PaymentReceiptConfirmationRequest</i> , including country-specific information like payment receipt submission method, classification code, and so on.

The following example shows a *PaymentReceiptConfirmationRequest*:

```
<Request deploymentMode="test">
```

```

    <PaymentReceiptConfirmationRequest>
      <PaymentReceiptConfirmationRequestHeader
issuedDate="2019-01-27T12:00:00+05:30" paymentReceiptID="gem-inv-01-028-006"
paymentReceivedDate="2018-11-09T12:00:00" >
        <paymentMethod type="03" />
        <PaymentPartner>
          <Contact role="payee">
            <Name xml:lang="en">Buyer</Name>
            <PostalAddress>
              <Street>100 Supplier12 Way</Street>
              <City>Fremont</City>
              <State isoStateCode="US-CA">CA</State>
              <PostalCode>99999</PostalCode>
              <Country isoCountryCode="MX">Mexico</Country>
            </PostalAddress>
          </Contact>
          <IdReference domain="bankAccountID" identifier="0447428774"/>
          <IdReference domain="taxID" identifier="AAA010101AAA"/>
        </PaymentPartner>
        <PaymentPartner>
          <Contact role="payer">
            <Name xml:lang="en">Buyer</Name>
            <PostalAddress>
              <Street>100 Buyer Way</Street>
              <City>Fremont</City>
              <State isoStateCode="US-CA">CA</State>
              <PostalCode>99999</PostalCode>
              <Country isoCountryCode="MX">Mexico</Country>
            </PostalAddress>
          </Contact>
          <IdReference domain="bankAccountID" identifier="179610679"/>
          <IdReference domain="taxID" identifier="PR086050267A"/>
        </PaymentPartner>
        <PaymentPartner>
          <Contact role="originatingBank">
            <Name xml:lang="en">Buyer's Bank</Name>
            <PostalAddress>
              <Street>100 Way</Street>
              <City>Fremont</City>
              <State isoStateCode="US-CA">CA</State>
              <PostalCode>99999</PostalCode>
              <Country isoCountryCode="MX">Mexico</Country>
            </PostalAddress>
          </Contact>
          <IdReference domain="taxID" identifier="GB179610679"/>
        </PaymentPartner>
        <PaymentPartner>
          <Contact role="receivingBank">
            <Name xml:lang="en">Supplier's Bank</Name>
            <PostalAddress>
              <Street>100 Way</Street>
              <City>Fremont</City>
              <State isoStateCode="US-CA">CA</State>
              <PostalCode>99999</PostalCode>
              <Country isoCountryCode="MX">Mexico</Country>
            </PostalAddress>
          </Contact>
          <IdReference domain="taxID" identifier="GB179610679"/>
        </PaymentPartner>

      <Extrinsic name="paymentReceiptSubmissionMethod">LegalDocumentViaXML
      </Extrinsic>
      <Extrinsic name="taxRegime">601</Extrinsic>
      <Extrinsic name="serviceCode">
        <Classification domain="CFDI">G01</Classification>
      </Extrinsic>
      <Extrinsic name="paymentReceiptUUID">5DB00B0E-7E57-4EFD-8B42-68CA7B80D6AC
      </Extrinsic>
    </PaymentReceiptConfirmationRequest>

```

```

</PaymentReceiptConfirmationRequestHeader>
<PaymentReceiptDetails>
  <PaymentReceiptItem paymentLineNumber="1" installmentNumber="1" >
    <PaymentDetails >
      <PaymentAmount>
        <Money currency="MXN">88305.94</Money>
      </PaymentAmount>
      <PreviousBalance>
        <Money currency="MXN">00.00</Money>
      </PreviousBalance>
      <PresentBalance>
        <Money currency="MXN">00.00</Money>
      </PresentBalance>
    </PaymentDetails>
    <ReferenceDocumentInfo documentType="invoice" >
      <DocumentIdInfo documentID="invoice_123"></DocumentIdInfo>
    </ReferenceDocumentInfo>
    <Extrinsic name="refDocumentExchangeRate" ></Extrinsic>
    <Extrinsic name="refDocumentPaymentMethod" >PPD</Extrinsic>
  </PaymentReceiptItem>
  <PaymentReceiptItem paymentLineNumber="1" >
    <PaymentDetails >
      <PaymentAmount>
        <Money currency="MXN">88305.94</Money>
      </PaymentAmount>

      </PaymentDetails>
      <ReferenceDocumentInfo documentType="invoice" >
        <DocumentIdInfo documentID="invoice_123"></DocumentIdInfo>
      </ReferenceDocumentInfo>
      <Extrinsic name="refDocumentExchangeRate" ></Extrinsic>
      <Extrinsic name="refDocumentPaymentMethod" >PPD</Extrinsic>
    </PaymentReceiptItem>
  </PaymentReceiptDetails>
  <PaymentReceiptSummary>
    <NetAmount>
      <Money currency="MXN">88305.94</Money>
    </NetAmount>
  </PaymentReceiptSummary>
  <Extrinsic name="paymentChain"></Extrinsic>
  <Extrinsic name="paymentVoucher"></Extrinsic>

</PaymentReceiptConfirmationRequest>
</Request>

```

10.8.1 PaymentReceiptConfirmationRequestHeader

Defines the header for a `PaymentReceiptConfirmationRequest`. It has the following attributes:

Attribute	Description
paymentReceiptID (required)	A supplier generated identifier for the payment receipt.
issuedDate (required)	Date and time this payment receipt was created.
paymentReceivedDate (required)	Date and time at which payment was received by the payee.

Attribute	Description
paymentReferenceNumber	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.

PaymentReceiptConfirmationRequestHeader has the following elements:

Element	Description
PaymentMethod	The payment method used for the payment.
PaymentPartner (required)	Payer (buyer user) and payee (supplier user), originating bank, and receiving bank contact details.
Comments	Contains comments associated with this PaymentReceiptConfirmationRequest.
Extrinsic	Contains any additional information related to the PaymentReceiptConfirmationRequest. Should not duplicate anything in PaymentReceiptConfirmationRequest.

10.8.2 PaymentReceiptDetails

Contains PaymentReceiptItem elements. Each PaymentReceiptItem corresponds to one invoice or payment remittance document.

PaymentReceiptDetails has the following element:

Element	Description
PaymentReceiptItem	Contains details of the individual invoice for which the payment is made. See PaymentReceiptItem [page 251].

10.8.2.1 PaymentReceiptItem

Contains details of the individual invoice for which the payment is made. It has the following attributes:

Attribute	Description
paymentLineNumber (required)	Line number of the payment in payment receipt document.
installmentNumber	The installment number of the payment number.

PaymentReceiptItem has the following elements:

Element	Description
PaymentDetails (required)	Contains details of the payment. See PaymentDetails [page 252] .
ReferenceDocumentInfo (required)	Contains details of the reference document for which the payment is made. See ReferenceDocumentInfo [page 130] .
Extrinsic	Contains any additional information, including country-specific information, related to the PaymentReceiptItem.

10.8.2.1.1 PaymentDetails

Contains details of the payment. It has the following elements:

Element	Description
PaymentAmount (required)	Amount paid in the payment receipt. See PaymentAmount [page 252] .
PreviousBalance	Balance amount to be paid before making this payment. See PreviousBalance [page 252] .
PresentBalance	Balance amount to be paid later. See PresentBalance [page 253] .
Extrinsic	Contains any additional information, including country-specific information, related to the PaymentDetails.

10.8.2.1.1.1 PaymentAmount

Contains the amount paid in the payment receipt.

The following example shows a PaymentAmount:

```
<PaymentAmount>
  <Money currency="MXN">88305.94</Money>
</PaymentAmount>
```

10.8.2.1.1.2 PreviousBalance

Contains the balance amount to be paid before making this payment.

The following example shows a PreviousBalance in Mexican pesos:

```
<PreviousBalance>
```

```
<Money currency="MXN">250.00</Money>
</PreviousBalance>
```

10.8.2.1.1.3 PresentBalance

Contains the balance amount to be paid later.

The following example shows a zero `PresentBalance`:

```
<PresentBalance>
  <Money currency="MXN">00.00</Money>
</PresentBalance>
```

10.8.3 PaymentReceiptSummary

Contains the summary of the payment amount details. It has the following elements:

Element	Description
NetAmount (required)	Contains the net amount paid through the payment receipt.
Extrinsic	Contains any additional information, including country-specific information, related to the <code>PaymentReceiptSummary</code> .

The following example shows a `PaymentReceiptSummary`:

```
<PaymentReceiptSummary>
  <NetAmount>
    <Money currency="MXN">88305.94</Money>
  </NetAmount>
</PaymentReceiptSummary>
```

10.9 ChargeFileRequest

cXML request wrapper for a bank charge file. Each request is guaranteed to be for one buyer from one bank account. Therefore, the request uniquely identifies the buyer associated with the charge file. The `ChargeFileRequest` document is sent by the provider to the buyer.

`ChargeFileRequest` has the following elements:

Element	Description
ChargeFileRequestHeader (required)	Contains required fields to process a bank charge file. See ChargeFileRequestHeader [page 254].

Element	Description
ChargeFileDetails (required)	Contains a list of bank charge files. See ChargeFileDetails [page 255] .

The followin example shows a ChargeFileRequest:

```
<Request deploymentMode="production">
  <ChargeFileRequest>
    <ChargeFileRequestHeader>
      <ProviderName xml:lang="en">Standard Chartered</ProviderName>
      <Extrinsic name="test">External Extrinsic</Extrinsic>
    </ChargeFileRequestHeader>
    <ChargeFileDetails>
      <ChargeFile filename="SC_Buyer1.csv" size="10000" format="BAI2"
        frequency="daily" statementDate="12-12-2019">
        <Period startDate="12-11-2019" endDate="12-12-2019"/>
        <Attachment>
          <URL>cid:part2.PCO28.975@saturn.workchairs.com</URL>
        </Attachment>
        <NumberOfCharges>2</NumberOfCharges>
      </ChargeFile>
      <Comments xml:lang="en" type="general">These are some comments</Comments>
      <IdReference domain="bankAccountID" identifier="214109887"/>
      <Extrinsic name="test">CharFileRequest</Extrinsic>
    </ChargeFileDetails>
    <ChargeFileDetails>
      <ChargeFile filename="SC_Buyer2.csv" size="10000" format="BAI2"
        frequency="daily" statementDate="12-13-2019">
        <Period startDate="12-12-2019" endDate="12-13-2019"/>
        <Attachment>
          <URL>cid:part2.PCO28.966@saturn.workchairs.com</URL>
        </Attachment>
        <NumberOfCharges>2</NumberOfCharges>
      </ChargeFile>
      <Comments xml:lang="en" type="general">These are some comments</Comments>
      <IdReference domain="bankAccountID" identifier="214109887"/>
      <Extrinsic name="test">CharFileRequest</Extrinsic>
    </ChargeFileDetails>
  </ChargeFileRequest>
</Request>
```

10.9.1 ChargeFileRequestHeader

Contains the required fields to process a bank charge file. It has the following elements:

Element	Description
ProviderName (required)	Contains the bank/provider name for the ChargeFileRequest.
Comments	Comments associated with these bank charge files.
IdReference	Defines an ID reference. For example, the identifier/domain pair could identify the buyer.
Extrinsic	Contains any additional information related to the bank charge files.

10.9.1.1 ProviderName

Contains the bank/provider name for a `ChargeFileRequest`. It has the following attribute:

Attribute	Description
<code>xml:lang</code> (required)	Language or locale in which the <code>ProviderName</code> is written.

10.9.2 ChargeFileDetails

Contains a list of bank charge files. It has the following elements:

Element	Description
<code>ChargeFile</code> (required)	Bank charge file related information. See ChargeFile [page 255] .
<code>Comments</code>	Comments associated with these bank charge files.
<code>IdReference</code>	Defines an ID reference. For example, the identifier/domain pair could identify the buyer.
<code>Extrinsic</code>	Contains any additional information related to the bank charge files.

10.9.2.1 ChargeFile

Contains bank charge file related information. The bank charge file is the file sent by banks to the buyer for reconciliation purposes.

`ChargeFile` has the following attributes:

Attribute	Description
<code>filename</code>	Name of the bank charge file.
<code>size</code>	Size of the bank charge file.
<code>frequency</code> (required)	Defines the frequency of the bank charge file. Possible values: <ul style="list-style-type: none">• <code>daily</code>• <code>weekly</code>• <code>monthly</code>
<code>format</code>	Defines the standard format of the bank charge file, for example, MT940, CAMT.053, BAI2, or CSV.

Attribute	Description
statementDate (required)	Date of generation of this charge file statement.

ChargeFile has the following elements:

Element	Description
Period (required)	Defines the period for the charge file.
Attachment (required)	Contains a URL reference to the attached charge file.
NumberOfCharges (required)	Contains the number of charges contained in the attachment.

10.9.2.1.1 NumberOfCharges

Contains the total number of charges included in the bank charge file.

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 \[page 257\]](#)

[TimeCard Element \[page 258\]](#)

[TimeCard Examples \[page 262\]](#)

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.

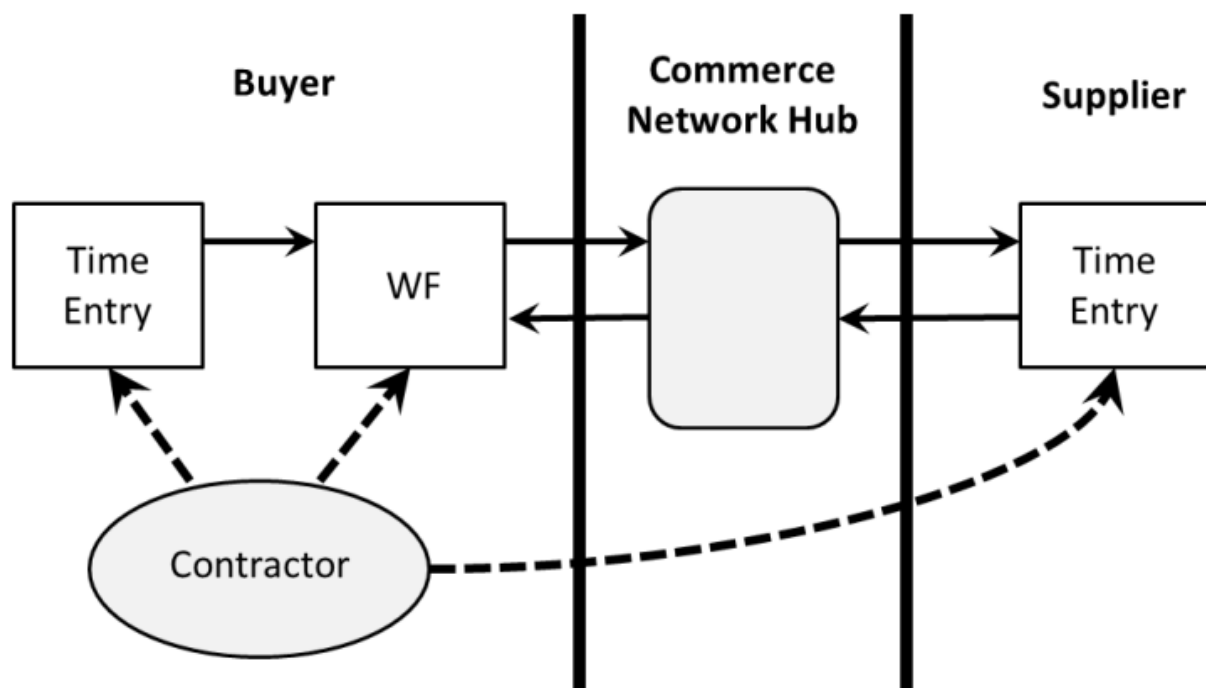


Figure 15: Timecard Document Flow

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`:

```
<!ELEMENT TimeCard (
  OrderInfo,
  Contractor,
  ReportedTime,
  SubmitterInfo,
  ApprovalInfo*,
  Comments?,
  DocumentReference?)>
```

The `TimeCard` element has the following attributes:

Attribute	Description
<code>type</code>	Possible values are <code>new</code> , <code>update</code> , and <code>delete</code> . The value defaults to <code>new</code> , unless the original timecard is updated.
<code>status</code>	Possible values are <code>submitted</code> , <code>approved</code> , <code>denied</code> . The default value is <code>submitted</code> .
<code>timeCardID</code> (required)	Represents the unique identifier for this timecard in the buyer and supplier systems.

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:

Attribute	Description
<code>domain</code> (required)	The domain in which the <code>ContractorIdentifier</code> is represented. Possible values are <code>supplierReferenceID</code> or <code>buyerReferenceID</code> , indicating the system in which the <code>ContractorIdentifier</code> originated.

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:

Attribute	Description
<code>duration</code> (required)	<p>The duration of time being claimed for the line item, represented in the ISO 8601 format <code>PnYn MnDTnH nMnS</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>.</p> <p>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>.</p>
<code>payCode</code> (required)	<p>The pay code to be used. Recommended pay codes include:</p> <ul style="list-style-type: none">• Regular• Overtime• Doubletime• Mealbreak• Triplettime• WeeklyRestDay• HolidayWorked• RegularNightShift• OvertimeNightShift• DoubletimeNightShift• TripletNightShift• WeeklyRestDayNightShift• RegularMixedShift• OvertimeMixedShift• DoubletimeMixedShift• TriplettimeMixedShift• WeeklyRestDayMixedShift
<code>isNonBillable</code>	<p>Implied attribute that designates whether or not the time is billable. The default behavior is billable.</p>

11.2.3.3 Expense

The `Expense` element represents any expense a contractor reported on a timecard. It contains the following attributes:

Attribute	Description
<code>expenseDate</code> (required)	The date of the expense.
<code>expenseType</code>	The type of expense. Recommended expense types include: <ul style="list-style-type: none">• <code>mileage</code>• <code>airfare</code>• <code>fuel</code>• <code>taxi</code>• <code>perDiem</code>• <code>hotel</code>
<code>isNonBillable</code> (required)	Implied attribute that designates whether or not the expense is billable. The default behavior is billable.

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:

Attribute	Description
<code>startDate</code>	The first date in the billable period.
<code>endDate</code>	The last date in the billable period.

11.2.4 SubmitterInfo

The `SubmitterInfo` element contains information about the person submitting the timecard. It has the following attribute:

Attribute	Description
<code>submittedDate</code> (required)	The time when the timecard was submitted.

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:

Attribute	Description
<code>approvedDate</code> (required)	The time when the timecard was approved.

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 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>
```

```

<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>
</Header>
<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="2003-09-26T18:00:00-08:00"/>
        <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="2003-09-22T012:00:00-08:00"
          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"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-24T08:00:00-08:00"/>
        </TimeCardTimeInterval>
        <TimeCardTimeInterval duration="PT8H" payCode="Regular">
          <TimeRange startDate="2003-09-25T08:00:00-08:00"/>
        </TimeCardTimeInterval>
        <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>
    </TimeCard>
  </TimeCardInfoRequest>
</Request>

```

</cXML>

This example show an update sent upon approval to the supplier.

```
<?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-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="2003-09-26T18:00:00-08:00"/>
          <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="2003-09-22T012:00:00-08:00"
              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"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular" >
            <TimeRange startDate="2003-09-24T08:00:00-08:00"/>
          </TimeCardTimeInterval>
          <TimeCardTimeInterval duration="PT8H" payCode="Regular" >
            <TimeRange startDate="2003-09-25T08:00:00-08:00"/>
          </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"/>
</TimeCard>
</TimeCardInfoRequest>
</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 \[page 266\]](#)

[MasterAgreementRequest \[page 266\]](#)

[ContractRequest \[page 269\]](#)

[ContractStatusUpdateRequest \[page 275\]](#)

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:

```
<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>
```

```

        <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 isoStateCode="US-CA">CA</State>
            <PostalCode>90489</PostalCode>
            <Country isoCountryCode="US">United States</Country>
        </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:

Attribute	Description
<code>agreementID</code> (required)	The procurement system agreement ID for this request.

Attribute	Description
agreementDate (required)	The date and time the agreement request was created. This is different from the effective and expiration date of the agreement.
type	Specifies whether the agreement refers to a value or quantity.
effectiveDate (required)	Specifies the date the agreement is available for ordering or releases.
expirationDate (required)	Specifies the date the agreement is no longer available
parentAgreementPayloadID	Payload ID for the corresponding parent document from which this agreement is derived.
operation	Specifies the type of the agreement request. Can be "new", "update" or "delete". Defaults to "new". The "delete" operation is used to cancel an existing agreement. The delete request should be an exact replica of the original request.

MasterAgreementHeader can contain the following optional child elements:

Element	Description
MaxAmount	Contains the maximum amount for all line items in the Master Agreement.
MinAmount	Contains the committed amount for all line items on the Master Agreement.
MaxReleaseAmount	The contractual maximum amount per release of this Master Agreement.
MinReleaseAmount	The contractual minimum amount per release of this Master Agreement.
Contact	Supplies any additional Address or Location information.
Comments	Contains additional information about the status of the overall Master Agreement.
Extrinsic	Can be used to insert additional data about the Master Agreement for application consumption.

12.2.2 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:

Attribute Name	Description
maxQuantity	Specifies the maximum quantity for this particular line Item.
minQuantity	Specifies the minimum quantity for this particular line Item.
maxReleaseQuantity	Specifies the maximum quantity per release for this particular line Item.
minReleaseQuantity	Specifies the minimum quantity per release for this particular line Item.

AgreementItemOut can contain the following optional child elements:

Element	Description
MaxAmount	Contains the maximum amount for this particular line Item.
MinAmount	Contains the minimum amount for this particular line Item.
MaxReleaseAmount	Indicates the item level maximum amount per release.
MinReleaseAmount	Indicates the item level minimum amount per release.
ItemOut (required)	<p>A line item that is part of the master agreement.</p> <p>The <code>lineNumber</code> attribute in the <code>ItemOut</code> specifies the corresponding <code>lineNumber</code> on the Master Agreement in the Procurement Application.</p> <p>The <code>quantity</code> attribute in the <code>ItemOut</code> should be set to "one" and ignored at the Master Agreement implementation processing stage.</p>

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`:

```
<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>
  <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"

```

```

        documentDate = "2015-11-07T07:03:34-05:00">
      </DocumentInfo>
    </ReferenceDocumentInfo>
    <ReferenceDocumentInfo lineNumber = "3">
      <DocumentInfo documentID = "RFQ2345"
        documentType = "RFQ"
        documentDate = "2015-11-07T07:03:34-05:00">
      </DocumentInfo>
    </ReferenceDocumentInfo>
  </ContractItemIn>
</ContractRequest>
</Request>

```

12.3.1 ContractRequestHeader

ContractRequestHeader is the header element for ContractRequest. It has the following attributes:

Attribute	Description
contractID (required)	Contract ID in the source buyer system for this request.
type	Identifies whether the contract is value-based or quantity-based. Possible values are "value" or "quantity".
createDate	The date and time the contract was created or published.
agreementDate	The date and time the contract was created. This is different from the contract's effective date and expiry date.
effectiveDate (required)	Date the contract is available for ordering or releases.
expirationDate	Date the contract is no longer available.
xml:lang (required)	The language or locale in which the ContractRequest content is written.
operation	<p>The operational mode of the ContractRequest. Possible values:</p> <ul style="list-style-type: none"> • new—Identifies a new contract transaction. • update—Identifies an update to an existing transaction. The DocumentInfo element can be used to indicate the contract in the external system. • delete—Cancels an existing contract. The delete request should be an exact duplicate of the original request.

ContractRequestHeader has the following elements:

Element	Description
LegalEntity (required)	A legal entity in the external system. It has an IdReference element.
OrganizationID (required)	Provides credentials for the organization ID.

Element	Description
OrganizationalUnit	Identifies the Purchase Unit or Purchase group in the external system. It has an <code>IdReference</code> element.
PaymentTerm	Defines a payment term in an invoice or order. Payment term can be the net term (without discount) or discount term (with discount).
QuoteRequestReference	Reference to a quote request originated in the external system.
MaxAmount	The maximum amount for the contract.
MinAmount	The minimum amount for the contract.
MaxReleaseAmount	The contractual maximum quantity per release of a contract.
MinReleaseAmount	The contractual minimum quantity per release of a contract.
Contact	Supplies additional Address or Location information for the requesting company.
Comments	Any additional comments about the contract request.
DocumentInfo	Contract ID managed in the external system. Included if the operation is "update".
ParentContractInfo	Parent contract ID from the external system if the current contract is part of a hierarchy.
FollowUpDocument	Contains information on how to follow up on a <code>ContractRequest</code> . See FollowUpDocument [page 272] .
TermsOfDelivery	Optional shipping terms (incoTerms) as defined by the International Chamber of Commerce.
Extrinsic	Additional information about the contract request header.

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:

Attribute	Description
<code>type</code>	Indicates the document type. Possible values are <code>Contract</code> , <code>Scheduling Agreement</code> , or any custom document type.

Attribute	Description
category	<p>Indicates the document category.</p> <p>For an Outline Agreement: Enter value or quantity.</p> <p>For a Scheduling Agreement: Enter LP or LPA.</p> <p>For a custom document category: Enter any configured value.</p>

The following examples show FollowUpDocument:

```
<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:

Attribute	Description
operation	<p>Operation to be performed. Possible values:</p> <ul style="list-style-type: none"> 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	<p>Specifies the type of item. Possible values:</p> <ul style="list-style-type: none"> composite—Identifies an item group. item—Identifies an independent line item. lean—Indicates that no child item is expected for the line.
serviceLineType	<p>Represents the type of the service line. Possible values:</p> <ul style="list-style-type: none"> standard blanket contingency openquantity information

ContractItemIn has the following elements:

Element	Description
MaxAmount	The maximum amount for an item.
MinAmount	The minimum amount for an item.
MaxReleaseAmount	The contractual maximum quantity for an item per release (order).

Element	Description
MinReleaseAmount	The contractual minimum quantity for an item per release (order).
MaxQuantity	The maximum quantity for an item.
MinQuantity	The minimum quantity for an item.
MaxReleaseQuantity	The contractual maximum quantity for an item per release (order).
MinReleaseQuantity	The contractual minimum quantity for an item per release (order).
TermsOfDelivery	Optional shipping terms (incoTerms) as defined by the International Chamber of Commerce.
ItemIn (required)	An item from the source buyer system.
ReferenceDocumentInfo	Optional reference document info for this line item. For example, the Requisition or RFQ in the external system. See ReferenceDocumentInfo [page 130] .
Alternative	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.

The following example shows a `ContractItemIn` element:

```
<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>
```

i 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 \[page 201\]](#).

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:

```
<Request deploymentMode="production">
  <ContractStatusUpdateRequest>
    <Status xml:lang="en-US" code="200" text="OK">Succeeded</Status>
    <ContractStatus type="created">
      <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:

Attribute	Description
code (required)	HTTP or cXML-specific status code.
text (required)	Textual version of the status code.
xml:lang	The language or locale in which the ContractStatusUpdateRequest content is written..

12.4.2 ContractStatus

`ContractStatus` contains item-level status updates for a contract. It has the following attribute:

Attribute	Description
<code>type</code> (required)	Type of the contract status, for example, "created".

`ContractStatus` has the following elements:

Element	Description
<code>ContractIDInfo</code> (required)	The contract ID information created/updated in the source buyer system.
<code>ContractItemStatus</code>	Represents a line item in a contract status update request.
<code>Comments</code>	Optional field for communicating arbitrary comments or description of an item.

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 \[page 277\]](#)

[StatusUpdateRequest \[page 277\]](#)

[ConfirmationRequest \[page 286\]](#)

[OrderStatusRequest \[page 299\]](#)

[ShipNoticeRequest \[page 302\]](#)

[ReceiptRequest \[page 324\]](#)

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 \[page 182\]](#)), 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:

```
<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 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="0c300508b7863dcclb_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:

```
<DocumentReference
  payloadID="0c300508b7863dcc1b_14999"/>
```

`DocumentReference` contains no elements, but has the following attribute:

Attribute	Description
<code>payloadID</code> (required)	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. The recommended implementation is: <code>datetime.process id.random number@hostname</code> Taken directly from the <code>cXML</code> element of the <code>OrderRequest</code> or <code>InvoiceDetailRequest</code> document.

`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:

Attribute	Description
<code>code</code> (required)	HTTP or <code>cXML</code> -specific status code.
<code>text</code> (required)	Textual version of the status code.
<code>xml:lang</code>	The language in which the text attribute and element content are written.

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

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. For example:

```
<StatusUpdateRequest>
  <DocumentReference payloadID="0c300508b7863dcclb_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>
    </Total>
    <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

Attribute	Description
<code>orderID</code> (required)	Identifies the referenced order. It is copied from the <code>ConfirmationRequest</code> or the <code>OrderRequest</code> .
<code>transactionTimeStamp</code> (required)	Specifies the time when the payment transaction was submitted.
<code>type</code> (required)	Specifies the type of PCard transaction. Possible values: <ul style="list-style-type: none"> <code>Authorization</code>—Authorizes the PCard. No charge is made. There is one authorization per order. <code>Settlement</code>—Transfers the funds secured by a previous authorization transaction. <code>Sale</code>—Initiates a charge to the PCard. <code>Credit</code>—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.
<code>transactionID</code>	Assigned to the transaction by the payment processing gateway.
<code>authorizationID</code>	The authorization code for the transaction provided by the bank.

13.2.4 SourcingStatus

The `SourcingStatus` element provides update information for a RFQ sourcing transaction, `PunchOutSetupRequest` document with `operation="source"`.

```
<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.

```
<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:

Attribute	Description
<code>type</code> (required)	Refers to the action taken by the buying organization on the invoice. Possible values: <ul style="list-style-type: none"><code>processing</code>—The invoice was received by the buying organization and is being processed.<code>reconciled</code>—The invoice successfully reconciled. The amounts in the invoice have not yet been paid.<code>rejected</code>—The invoice failed reconciliation. The buying organization is rejecting the invoice. The <code>Comments</code> element should contain free text explaining why the invoice was rejected, and the actions the supplier should take. The supplier can then resubmit a corrected invoice (a new invoice document with a new invoice number).<code>paying</code>—The invoice has been approved for payment and is in the payment process.<code>paid</code>—The invoice amounts have been paid by the buying organization.

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:

Attribute	Description
invoiceID (required)	A supplier-generated identifier for the Invoice. This value is the invoiceID attribute that was in the InvoiceDetailRequestHeader of the invoice.
invoiceDate	Date and time the invoice was created.

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:

Attribute	Description
type (required)	<p>Describes the type of document status. The possible values depend on the network hub and the type of document being updated.</p> <p>When updating a service sheet (<code>ServiceEntryRequest</code>), possible values are:</p> <ul style="list-style-type: none">• <code>approved</code>—The buying organization has approved the service sheet.• <code>canceled</code>—The buying organization has received the service sheet and has canceled it..• <code>processing</code>—The buying organization has received the service sheet and is processing it.• <code>rejected</code>—The buying organization has rejected the service sheet. The <code>Comments</code> 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 <code>ServiceEntryRequest</code> document with a new <code>serviceEntryID</code>). <p>When updating an order confirmation (<code>ConfirmationRequest</code>), the only possible value is <code>ConfirmationStatusUpdate</code>.</p> <p>When buyers update a ship notice (<code>ShipNoticeRequest</code>), they can use the value <code>AcceptedWithChanges</code> to indicate that the ship notice is accepted with proposed changes.</p>

Here is an example of a `DocumentStatus` for a service sheet:

```
<Request>
```

```

    <StatusUpdateRequest>
      <DocumentReference payloadID="ss123456"></DocumentReference>
      <Status code="200" text="OK"></Status>
      <DocumentStatus type="approved">
        <DocumentInfo documentID="SES-1-A"
          documentType="ServiceEntryRequest"
          documentDate="2016-01-18T21:03:20-07:00 ">
        </DocumentInfo>
        <Comments>This service sheet has been approved.</Comments>
      </DocumentStatus>
    </StatusUpdateRequest>
  </Request>

```

Here is an example of a DocumentStatus for an order confirmation:

```

<Request>
  <StatusUpdateRequest>
    <DocumentReference payloadID="oc123456">
    </DocumentReference>
    <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.

```

<Request>
  <StatusUpdateRequest>
    <DocumentReference payloadID="ServiceOrderPayloadID12345">
    </DocumentReference>
    <Status code="200" text="OK"></Status>
    <DocumentStatus type="AcceptedWithChanges">
      <DocumentInfo documentID="SES-HC-t1" documentType="ShipNoticeDocument"
        documentDate="2018-08-12T21:03:20-07:00">
      </DocumentInfo>
      <Comments>proposed ship notice changes</Comments>
    </DocumentStatus>
  </StatusUpdateRequest>
</Request>

```

13.2.6.1 DocumentInfo

Identifies an earlier document known to the system. It has the following attributes:

Attribute	Description
documentID (required)	The ID of a document known to the system.
documentType (required)	The document type. For a <code>StatusUpdateRequest</code> for a service sheet, type is <code>ServiceEntryRequest</code> .
documentDate	The date when the referenced document was created.

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:

Attribute	Description
type (required)	Specifies the item status. Possible values: <ul style="list-style-type: none"><code>rejected</code>—The item was rejected.<code>accepted</code>—The item was accepted.
code	Optional code for the item status from the backend system.
parentLineNumber	The line number of the corresponding parent line item to identify this item's hierarchical parent item in a response message.

`ItemStatus` has the following elements:

Element	Description
ReferenceDocumentInfo (required)	Contains information about a referenced document. See ReferenceDocumentInfo [page 130] .
Comments	Optional field for communicating arbitrary comments about the item status.

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:

Attribute	Description
<code>documentStatus</code> (required)	Indicates document status and could be one of the following values: <ul style="list-style-type: none"><code>deliverySuccessful</code>—The document was successfully delivered to the customer (but no processing confirmation has been issued yet).<code>deliveryDelayed</code>—The document is experiencing delays while trying to reach the customer.<code>deliveryFailed</code>—The document couldn't be sent to the customer due to a failure between the gateway and the customer.<code>deliveryReady</code>—When sending to the buyer, the document has been queued and is ready for pick-up.<code>customerConfirmed</code>—The customer has confirmed that the document has been processed successfully.<code>customerReceived</code>—The customer has confirmed that the document has been received successfully.<code>customerFailed</code>—The customer has received the document and is reporting a failure in the content.

`IntegrationStatus` has the following element:

Element	Description
<code>IntegrationMessage</code>	Indicates the type/result of the message received by external parties. It has two required attributes: <ul style="list-style-type: none"><code>isSuccessful</code> - Indicates whether the message is positive or negative.<code>type</code> - Indicates the message type, for example, 997/824/MDN.

Here is an example of a `StatusUpdateRequest` with `IntegrationStatus` information:

```
<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.

i 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".

```
<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 isoStateCode="CA-BC">BC</State>
        <PostalCode>B3C 2G4</PostalCode>
        <Country isoCountryCode="CA">Canada</Country>
      </PostalAddress>
      <Phone>
        <TelephoneNumber>
          <CountryCode isoCountryCode="CA">1</CountryCode>
```

```

        <AreaOrCityCode>201</AreaOrCityCode>
        <Number>9211132</Number>
    </TelephoneNumber>
</Phone>
</Contact>
    <Comments xml:lang="en-CA">Look's great</Comments>
</ConfirmationHeader>
<!-- The orderID and orderDate attributes are not required in the
    OrderReference element. -->
<OrderReference orderID="D01234">
    <DocumentReference payloadID="32232995@hub.acme.com" />
</OrderReference>
</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. Only use ItemIn elements for substitutions. 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 \[page 299\]](#)

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:

Attribute	Description
orderID	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.
orderDate	Specifies the date and time the OrderRequest was created. If present, it must be copied directly from the referenced OrderRequest OrderRequestHeader element.

Related Information

[DocumentReference \[page 306\]](#)

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:

Attribute	Description
confirmID	<p>A supplier-specified optional identifier for the document assigned by the supplier. The attribute is user-visible and secondary to the document's payloadID.</p> <p>This value does not vary as a particular confirmation is updated. That is, documents with operation="update" describing the status of the same items in the same order share a confirmID with the original ConfirmationRequest with operation="new".</p> <p>When the confirmID does not appear in an operation="new" ConfirmationRequest, it must not appear in a corresponding operation="update" document. The DocumentReference element contained in the update's ConfirmationHeader and the payloadID attribute of the original or previous update link the two documents.</p>
operation	<p>Specifies whether the confirmation is new, or an update to a previous confirmation. Possible values:</p> <ul style="list-style-type: none">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.

Attribute	Description
type (required)	<p>Specifies the type of confirmation. Possible values:</p> <ul style="list-style-type: none"> • accept—Accepts the entire order as described in the referenced purchase order. A document of this type can contain <code>ConfirmationItem</code> elements. They must contain only <code>ConfirmationStatus</code> 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 <code>OrderRequest</code> document. <p>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.</p> <p>This confirmation must contain <code>ConfirmationItem</code> elements and <code>ConfirmationStatus</code> elements must have types "allDetail", "reject", or "unknown". Do not include "accept" or "detail" <code>ConfirmationStatus</code> types because they could conflict.</p> • 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. <p>Do not include the variations described in an earlier <code>ConfirmationRequest</code> in later <code>ConfirmationRequest</code> documents that restore information provided in the purchase order. For example, the <code>Tax</code> element might appear in the <code>ConfirmationStatus</code> of one <code>ConfirmationRequest</code> but not in an update to that confirmation. This signifies that the purchase order contained the correct charge.</p> <p>This document type must contain <code>ConfirmationItem</code> elements and <code>ConfirmationStatus</code> elements can have any type except "allDetail".</p> • 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. <p>This document type must contain <code>ConfirmationItem</code> elements and <code>ConfirmationStatus</code> 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.

Attribute	Description
incoTerms	<p>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:</p> <ul style="list-style-type: none"> • cfr—Cost and freight. • cif—Cost, insurance, and freight. • cip—Carriage and insurance paid to. • cpt—Carriage paid to. • daf—Delivered at frontier. • ddp—Delivered duty paid. • ddu—Delivered duty unpaid. • deq—Delivered ex quay (duty paid). • des—Delivered ex ship. • exw—Ex works. • fas—Free alongside ship. • fca—Free carrier. • fob—Free on board vessel.
version	The version number for this confirmation. It should start with 1 and should be incremented by 1 for each subsequent version (2,3,4...).

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":

```
<ConfirmationRequest>
  <!-- Without the confirmID, it remains possible to update the original
confirmation.
  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 type="except" noticeDate="2000-10-13T18:39:09-08:00"
confirmID="C999-234" operation="update"
```

```

        invoiceID="I1102-10-13">
<DocumentReference payloadID="1233444-2001@premier.workchairs.com" />
<Total>
  <Money currency="USD">190.60</Money>
</Total>
<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>B3C 2G4</PostalCode>
    <Country isoCountryCode="CA">Canada</Country>
  </PostalAddress>
  <Phone>
    <TelephoneNumber>
      <CountryCode isoCountryCode="CA">1</CountryCode>
      <AreaOrCityCode>201</AreaOrCityCode>
      <Number>9211132</Number>
    </TelephoneNumber>
  </Phone>
</Contact>
  <Comments xml:lang="en-CA">Look's great, but for the price.</Comments>
</ConfirmationHeader>
  <!-- The orderID and orderDate attributes are not required in the
OrderReference
element. -->
  <OrderReference orderID="D01234">
    <DocumentReference payloadID="32232995@hub.acme.com" />
  </OrderReference>
  <ConfirmationItem lineNumber="1" quantity="10">
    <UnitOfMeasure>EA</UnitOfMeasure>
    <ConfirmationStatus quantity="10" type="detail" shipmentDate="2000-10-14"
deliveryDate="2000-10-19">
      <UnitOfMeasure>EA</UnitOfMeasure>
      <UnitPrice>
        <Money currency="USD">1.64</Money>
      </UnitPrice>
      <Comments xml:lang="en-CA">Very sorry. There's been a slight
(30 cents) price increase for that colour and it will be one day late.
      </Comments>
    </ConfirmationStatus>
  </ConfirmationItem>
</ConfirmationRequest>

```

13.3.2.1 DocumentReference

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 \[page 113\]](#).

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:

Attribute	Description
<code>technicalSupport</code>	Technical support
<code>customerService</code>	Customer service
<code>sales</code>	Sales
<code>shipFrom</code>	Starting point for shipments related to this order
<code>shipTo</code>	Copies the <code>ShipTo</code> element from the <code>OrderRequest</code> document
<code>payTo</code>	Where payment for this order should be sent
<code>billTo</code>	Copies the <code>BillTo</code> element from the <code>OrderRequest</code> document
<code>supplierCorporate</code>	Supplier at corporate

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 \[page 321\]](#) 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:

Attribute	Description
<code>identifier</code> (required)	<p>The unique identifier of the <code>IdReference</code> within the domain.</p> <p>If domain is <code>supplierReference</code>, <code>identifier</code> can be one of the following values:</p> <ul style="list-style-type: none">• Internal Supplier Number—This is the most common scenario. It represents the document number created by the internal supplier ERP system.• Contract Number—The contract number can be used to identify that a specific outbound document is related to a specific contract.• Internal criteria—Sometimes the supplier can enter a customized value in the field Supplier Reference Number. For example, it can be the name of the person in charge of the follow-up of the transaction.
<code>domain</code> (required)	<p>The domain of the <code>IdReference</code>. Possible values are: <code>accountID</code>, <code>bankRoutingID</code>, <code>accountPayableID</code>, <code>accountReceivableID</code>, <code>bankAccountID</code>, <code>ibanID</code>, <code>abaRoutingNumber</code>, <code>bankNationalID</code>, <code>isoBicID</code>, <code>swiftID</code>, <code>bankBranchID</code>, <code>federalTaxID</code>, <code>stateTaxID</code>, <code>provincialTaxID</code>, <code>vatID</code>, <code>gstID</code>, and <code>taxExemptionID</code>. <code>supplierTaxID</code> is deprecated and will be treated as <code>federalTaxID</code>. Other possible values could be <code>1099ID</code>, <code>courtRegisterID</code>, <code>supplierReference</code>, <code>governmentNumber</code>, <code>documentName</code>, and so on.</p>

IdReference has the following elements:

Element	Description
Creator	The creator of this IdReference.
Description	Textual description of the IdReference, for human readability.

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:

Attribute	Description
quantity (required)	Specifies how many items were ordered. Expressed in units given in the <code>UnitOfMeasure</code> element. Matches the quantity value for the line item's <code>ItemOut</code> element in the corresponding <code>OrderReference</code> element.
lineNumber (required)	Position, counting from 1, of the item in an order. Matches the corresponding line item, <code>ItemOut</code> , in the document referenced by the <code>OrderReference</code> element.
parentLineNumber	The line number of the corresponding parent line item. This attribute is applicable only for a line item with <code>itemType="item"</code> .
itemType	Specifies the type of item. Possible values: <ul style="list-style-type: none">• <code>composite</code>—Identifies an item group.• <code>item</code>—Identifies an independent line item.• <code>lean</code>—Indicates that no child item is expected for the line.
compositeItemType	Specifies whether a parent item uses group-level pricing. Possible values are <code>"groupLevel"</code> or <code>"itemLevel"</code> .

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 \[page 321\]](#).

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 \[page 113\]](#).

The following example shows a `Modification` element:

```
<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>
      <Modifications>
        <Modification>
          <OriginalPrice>
            <Money currency = "USD">45.00</Money>
          </OriginalPrice>
          <AdditionalDeduction>
            <DeductionAmount>
              <Money currency = "USD">5.00</Money>
            </DeductionAmount>
          </AdditionalDeduction>
        </Modification>
      </Modifications>
    </UnitPrice>
  </ConfirmationStatus>
</ConfirmationItem>
```

```

        </AdditionalDeduction>
        <ModificationDetail
            name = "Allowance"
            startDate = "2012-08-03T10:15:00-08:00"
            endDate = "2013-11-30T10:15:00-08:00">
            <Description xml:lang = "en-US">Contract Allowance
            <Description>
        </ModificationDetail>
    </Modification>
</Modifications>
</UnitPrice>
<Tax>
    <Money currency = "USD">7.0</Money>
    <Description xml:lang = "en">Tax</Description>
    <TaxDetail category = "Other">
        <TaxAmount>
            <Money currency = "USD">5.0</Money>
        </TaxAmount>
    </TaxDetail>
    <TaxDetail category = "QST">
        <TaxAmount>
            <Money currency = "USD">2.0</Money>
        </TaxAmount>
    </TaxDetail>
</Tax>
</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:

Attribute	Description
quantity (required)	Specifies how many items have this status. Expressed in the units specified in the <code>UnitOfMeasure</code> element.

Attribute	Description
type (required)	<p>Specifies the status of this portion of the order. Possible values:</p> <ul style="list-style-type: none"> • accept—Accept this portion as described in the referenced <code>ItemOut</code> element. • allDetail—Accept this portion of the line item as detailed in the contents of this <code>ConfirmationStatus</code> 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 <code>OrderRequest</code> document. This type is provided for compatibility with current EDI and order entry tools, which commonly send the buyer a snapshot of an order in the supplier's systems. Due to the reconciliation issues caused by confirmations of this type, it is recommended that you use this type as a "bridge" strategy suitable only for the short term. Allowed only in documents whose <code>ConfirmationHeader</code> type is "allDetail". • detail—Accept this portion with the changes detailed in the <code>ConfirmationStatus</code> element. At least one of the <code>UnitPrice</code>, <code>Shipping</code>, <code>Tax</code>, or <code>ItemIn</code> elements, or the <code>deliveryDate</code> attribute must be present. This is a substitution if there is an <code>ItemIn</code> element, a price change if there is a <code>UnitPrice</code> element, or a delayed shipment if there is a <code>deliveryDate</code> 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 (<code>ConfirmationHeader</code>) 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 <code>ConfirmationHeader</code> 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 <code>ConfirmationStatus</code> 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 <code>requestedDeliveryDate</code> attribute, if any, in the corresponding <code>OrderRequest</code> document. Otherwise, use the <code>ConfirmationStatus</code> element to include this information if its type is "accept", "allDetail", or "detail".

`ConfirmationStatus` has the following elements:

Element	Description
UnitOfMeasure (required)	Describes how the product is packaged or shipped. It must conform with UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfortrade/codes_index.html .

Element	Description
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 322] .
ScheduleLineReference	Defines all references related to a schedule line in the confirmation. See ScheduleLineReference [page 298] .
ComponentConsumption-Details	Contains detailed information about consumption of components in the manufacturing of final product. See ComponentConsumptionDetails [page 465] .
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	<p>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.</p> <p>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.</p>

13.3.3.3.1 ScheduleLineReference

Defines all references related to a schedule line in the confirmation.

ScheduleLineReference has the following attributes:

Attribute	Description
quantity (required)	Quantity from the ScheduleLine element of the OrderRequest document that the current document is referring to.
requestedDeliveryDate (required)	Requested delivery date from the ScheduleLine element of the OrderRequest document that the current document is referring to.
lineNumber	Line number identifier from the ScheduleLine element of the OrderRequest document that the current document is referring to.

ScheduleLineReference has the following element:

Element	Description
Extrinsic	Contains any additional information related to this ScheduleLineReference.

The following example shows ScheduleLineReference:

```
<ConfirmationRequest>
  <ConfirmationHeader noticeDate="2018-06-25T10:44:43-07:00"
    type="detail" operation="new">
  </ConfirmationHeader>
  <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>
</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:

Element	Description
<code>OrderReference OrderIDInfo</code>	The reference to the purchase order. You can specify either the <code>OrderReference</code> or <code>OrderIDInfo</code> information.
<code>Contact</code>	The contact information of the buyer. This is a mandatory field.
<code>Comments</code>	This element stores the comments from the buyer. This is an optional field
<code>Extrinsic</code>	Any extrinsic sent by the buyer. This is an optional field.

The `OrderStatusRequestHeader` element has the following attributes:

Attribute Name	Description
<code>orderStatusRequestID</code> (required)	The system ID of the buyer sending the <code>OrderStatusRequest</code> . This is an internal unique number for the buyer.
<code>orderStatusRequestDate</code> (required)	The date and time when the <code>OrderStatusRequest</code> was created by the buyer.

The following example shows an `OrderStatusRequestHeader` element:

```
<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@cvbuyer.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 isoStateCode="US-CA">CA</State>
      <PostalCode>95035</PostalCode>
      <Country isoCountryCode="US">United States</Country>
      <Extrinsicname="POBox"></Extrinsic>
      <Extrinsicname="houseNumber"></Extrinsic>
      <Extrinsicname="building"></Extrinsic>
    </PostalAddress>
    <Email name="default">ldollar@workchairs.com</Email>
    <Phone name="work">
      <TelephoneNumber>
        <CountryCode isoCountryCode="US">1</CountryCode>
        <AreaOrCityCode>650</AreaOrCityCode>
        <Number>9990000</Number>
      </TelephoneNumber>
    </Phone>
  </Contact>
  <Contact role="from" addressID="0030105956">
    <Name xml:lang="en">Lisa Dollar</Name>
    <PostalAddressname="default">
      <DeliverTo>Lisa Dollar</DeliverTo>
      <Street>100 Castro Street</Street>
```

```

    <City>Mountain View</City>
    <State isoStateCode="US-CA">CA</State>
    <PostalCode>95035</PostalCode>
    <Country isoCountryCode="US">United States</Country>
  </PostalAddress>
  <Email name="default">ldollar@workchairs.com</Email>
  <Phone name="work">
    <TelephoneNumber>
      <CountryCode isoCountryCode="US">1</CountryCode>
      <AreaOrCityCode>650</AreaOrCityCode>
      <Number>9990000</Number>
    </TelephoneNumber>
  </Phone>
</Contact>
<Comments>Is there any news about our order?</Comments>
</OrderStatusRequestHeader>

```

13.4.2 OrderStatusRequestItem

The `OrderStatusRequestItem` element stores information regarding a specific line item. It has the following attributes:

Attribute	Description
<code>rescheduleRequest</code>	Information derived from Materials Requirements Planning (MRP) to suggest possible changes to the delivery date. Possible values are: <ul style="list-style-type: none"> <code>in</code>—MRP proposal to reschedule the delivery date earlier than the current delivery date. <code>out</code>—MRP proposal to reschedule the delivery date later than the current delivery date. <code>cancel</code>—MRP proposal to cancel the PO line item.
<code>rescheduleDate</code>	MRP proposed rescheduled delivery date.

`OrderStatusRequestItem` has the following elements:

Element	Description
<code>ItemReference</code>	Defines all references related to a line item. See ItemReference [page 302] .
<code>Comments</code>	Contains any additional comments associated with this line item.
<code>Priority</code>	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.

The following example shows an `OrderStatusRequestItem` element:

```

<OrderStatusRequestItem rescheduleRequest="in"
  rescheduleDate="2017-09-12T18:39:09-08:00">
  <ItemReference lineNumber="1">
    <ItemID>
      <SupplierPartID>AX4518</SupplierPartID>
    </ItemID>
  </ItemReference>

```

```

<Comments>
  Is there any news about our order?
</Comments>
<Priority level="2">
  <Description type="" xml:lang="EN">
    <ShortName>Black</ShortName>
  </Description>
</Priority>
</OrderStatusRequestItem>

```

13.4.2.1 ItemReference

The `ItemReference` element has the following elements::

Element	Description
<code>ItemID</code>	The part ID of the line item in the <code>OrderStatusRequest</code> .
<code>IDReference</code>	The unique reference to the part number for the line item in the <code>OrderStatusRequest</code> .
<code>Classification</code>	The recommended commodity classification code for the line item.
<code>Description</code>	Description of the line item.

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.

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:

```
<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">
    <Contact role="shipFrom">
      <Name xml:lang="en-CA">Workchairs, Vancouver</Name>
      <PostalAddress>
        <Street>432 Lake Drive</Street>
        <City>Vancouver</City>
        <State isoStateCode="CA-BC">BC</State>
        <PostalCode>B3C 2G4</PostalCode>
        <Country isoCountryCode="CA">Canada</Country>
      </PostalAddress>
      <Phone>
        <TelephoneNumber>
          <CountryCode isoCountryCode="CA">1</CountryCode>
          <AreaOrCityCode>201</AreaOrCityCode>
          <Number>9211132</Number>
        </TelephoneNumber>
      </Phone>
    </Contact>
    <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:

Attribute	Description
<code>shipmentID</code> (required)	<p>A supplier-specified identifier for the document. The attribute is user-visible and secondary to the document's <code>payloadID</code>.</p> <p>This value does not vary as a particular ship notice is deleted. That is, "delete" documents describing the same shipment share a <code>shipmentID</code> with the original "new" <code>ShipNoticeRequest</code>.</p>

Attribute	Description
operation	<p>This optional attribute specifies whether the <code>ShipNoticeRequest</code> document is new or an update to a previous ship notice.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • <code>new</code>—Default value. No previous ship notice has been sent. • <code>update</code>—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 <code>shipmentID</code> must match a previous request's <code>shipmentID</code>. • <code>delete</code>—Removes the changes described in the previous new or updated <code>ShipNoticeRequest</code> from the state of the shipment. Only use when the supplier discards a planned shipment or incorrectly sends a <code>ShipNoticeRequest</code> about an order that will not take place. The <code>shipmentID</code> must match a previous request's <code>shipmentID</code>. <p>If the operation is not "new", explicitly or by default, you must also include in the <code>ShipNoticeRequest</code> a <code>DocumentReference</code> element in the <code>ShipNoticeHeader</code> element. See DocumentReference [page 306] for more information on this element. This effectively sequences multiple versions of a ship notice.</p>
noticeDate (required)	Specifies the date and time the <code>ShipNoticeRequest</code> document was created.
shipmentDate	The date and time the shipment left the supplier. You must specify this attribute in all <code>ShipNoticeRequest</code> documents except when the <code>operation</code> is "delete".
deliveryDate	Specifies the date and time this shipment is expected to arrive. While this value can default to the <code>requestedDeliveryDate</code> of a single order, that attribute is optional in an <code>OrderRequest</code> document, and the <code>ShipNoticeRequest</code> can refer to multiple <code>OrderRequest</code> documents. You must include this attribute in all <code>ShipNoticeRequest</code> documents except when the <code>operation</code> is "delete".
shipmentType	<p>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.</p> <p>When you specify "actual", you must enter the actual shipping date. If you specify "planned", you must enter the estimated shipping date. For example:</p> <pre><ShipNoticeRequest> <ShipNoticeHeader shipmentType="planned" deliveryDate="2012-09-28T12:00:00+05:30" shipmentDate="2012-09-27T12:00:00+05:30" noticeDate="2012-09-27T21:30:29+05:30" operation="new" shipmentID="ID00099"></pre>
fulfillmentType	The type of fulfillment for which this shipment notice is created. Possible values are "partial" if all the items are not being shipped and "complete" if the whole order is being shipped.

Attribute	Description
requestedDeliveryDate	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: <div data-bbox="555 443 1358 629" data-label="Text"> <pre><ShipNoticeHeader shipmentType="planned" shipmentID="S89823-123" operation="new" noticeDate="2001-10-14" shipmentDate="2001-10-14T08:30:19-08:00" deliveryDate="2001-10-18T09:00:00-08:00" requestedDeliveryDate="2001-10-18T09:00:00-08:00" ></pre> </div>
reason	The reason for the ship notice. The only possible value is "return", 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.

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 \[page 44\]](#).

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 \[page 321\]](#).

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 \[page 309\]](#).

13.5.1.8 TermsOfTransport

Specifies shipping terms regarding the transportation of the goods.

The following example shows a `TermsOfTransport` element:

```
<TermsOfTransport>
  <SealID>1231</SealID>
  <SealingPartyCode>6645</SealingPartyCode>
  <EquipmentIdentificationCode>34535</EquipmentIdentificationCode>
```

```
<TransportTerms value="Other">Contract Terms</TransportTerms>
<Dimension quantity="0.4" type="grossWeight">
  <UnitOfMeasure>MTR</UnitOfMeasure>
</Dimension>
<Dimension quantity="0.4" type="grossVolume">
  <UnitOfMeasure>MTR</UnitOfMeasure>
</Dimension>
</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 \[page 127\]](#).

Dimension

Specifies a single dimension for the packaging of the item. See [Dimension \[page 179\]](#).

Extrinsic

Any extrinsic for the `TermsOfTransport` element.

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 \[page 127\]](#).

13.5.1.10 Packaging

For more information, see [Packaging \[page 176\]](#).

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:

```
<ShipNoticeHeader>
  <Contact role="shipTo">
    <Name xml:lang="en">Acme</Name>
    <PostalAddress>
      <Street>123 Anystreet</Street>
      <City>Birmingham</City>
      <State isoStateCode="US-AL">AL</State>
      <PostalCode>350052</PostalCode>
      <Country isoCountryCode="US">United States</Country>
    </PostalAddress>
  </Contact>
  <Comments type="ReasonForShipment" xml:lang="en-US">Low
availability at warehouse</Comments>
  <Comments type="TransitDirection" xml:lang="en-US">East</Comments>
```

```

<Comments xml:lang="en-US">Comments to the buyer</Comments>
<TermsOfDelivery>
  <TermsOfDeliveryCode value="DeliveryCondition">
  </TermsOfDeliveryCode>
</ShippingPaymentMethod value="Prepaid-BySeller">
</ShippingPaymentMethod>
<TransportTerms value="Other">Contract Terms</TransportTerms>
<Comments type="TermsOfDelivery" xml:lang="en-US">Delivery at the
doorstep</Comments>
<Comments type="Transport" xml:lang="en-US">As per the contract
</Comments>
</TermsOfDelivery>
<Extrinsic name="invoiceNumber">INV1561</Extrinsic>
<IdReference identifier="US12345" domain="governmentNumber">
</IdReference>
<IdReference identifier="Partial Shipment" domain="documentName">
</IdReference>
<IdReference identifier="ASN001" domain="supplierReference">
</IdReference>
</ShipNoticeHeader>

```

13.5.1.13 ReferenceDocumentInfo

Contains additional document reference information. See [ReferenceDocumentInfo \[page 130\]](#).

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:

Attribute	Description
<code>startDate</code>	Specifies the date and time this shipment started this part of the route. Required for all <code>ShipControl</code> elements after the first. This attribute must not appear in the first <code>ShipControl</code> element because it would duplicate the <code>ShipNoticeHeader</code> 's <code>shipmentDate</code> attribute.

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:

Value	Description
<i>company name</i>	The legal name for this company. In some cases, this can also be provided in a <code>Contact</code> element with role " <code>carrierCorporate</code> ". Using a <code>Contact</code> element should be reserved for cases in which additional detail about the carrier must be conveyed.
SCAC	Standard Carrier Alpha Code. www.nmfta.org/pages/scac
IATA	International Air Transport Association. www.iata.org
AAR	Association of American Railroads. www.aar.org
UIC	International Union of Railways. www.uic.org
EAN	European Article Numbering. upc-ean-information.com
DUNS	Dun and Bradstreet's Data Universal Numbering System. www.dnb.com

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:

Attribute	Description
<code>domain</code>	Specifies more precisely what kind of identifier this is. Likely values include <code>trackingNumber</code> and <code>billOfLading</code> .
<code>trackingNumberDate</code>	The date when the carrier creates the tracking number for this shipment. Required if you have specified a carrier.
<code>trackingURL</code>	Carrier URL that can be used to track the shipment in conjunction with the tracking number.

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>
```

```
<CarrierIdentifier domain="companyName">DHL</CarrierIdentifier>
<ShipmentIdentifier trackingURL="http://www.dhl.com/cgi-bin/tracking.pl?
AWB=1234
&TID=CP_ENG&FIRST_DB=US">62396</ShipmentIdentifier>
</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:

Attribute	Description
rangeBegin (required)	Specifies the earliest number that appears on the separate elements in this shipment.
rangeEnd (required)	Specifies the highest number that appears on the separate elements in this shipment. Must be greater than or equal to rangeBegin.

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:

Attribute	Description
method (required)	<p>Qualifier identifying the transportation type code. Possible values are:</p> <ul style="list-style-type: none">• <code>ship</code>—Transportation by boat (ocean).• <code>rail</code>—Transportation by rail.• <code>motor</code>—Transportation by land motor craft (common carrier).• <code>air</code>—Transportation by flight.• <code>mail</code>—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.• <code>multimodal</code>—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.)• <code>fixedTransport</code>—Applies to installations for continuous transport such as pipelines, ropeways and electric power lines.• <code>inlandWater</code>—Used only in such cases where the application of waterborne transport is reported separately than maritime transport.• <code>unknown</code>—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.

Attribute	Description
means	<p>Particular vessel, vehicle or other device used for transport of goods. The value of means depends on the value of method.</p> <p>When the value of method is "ship", the possible values of means are:</p> <ul style="list-style-type: none"> • 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. <p>When the value of method is "rail", the possible values of means are:</p> <ul style="list-style-type: none"> • 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. <p>When the value of method is "motor", the possible values of means are:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>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".</p> <p>When the value of method is "fixedTransport", the possible values of means are:</p> <ul style="list-style-type: none"> • unknown—Fixed transport installation of unknown type.

Attribute	Description
	<ul style="list-style-type: none"> pipeline—A line of one or more pipes for continuous transport of liquid or gas commodity. powerline—A line of one or more cables or wires for continuous transport of electricity. <p>When the value of <code>method</code> is "inlandWater", the possible values of <code>means</code> are:</p> <ul style="list-style-type: none"> unknownVessel—Vessel of unknown type. motorFreighter—Motorized vessel designed for carrying general cargo. motorTanker—Motorized vessel designed for carrying liquid cargo. containerVessel—Vessel designed for carrying containers. gasTanker—Vessel with tanks designed for carrying gas. tug—Vessel designed to push or pull another vessel. barge—Lighter designed for carrying general cargo. pushTow—Vessel designed for pushing/towing, facilitating the movement of one or more cargo barges. fishingBoat—Vessel designed for fishing. bunkerShip—Vessel designed for carrying and delivering bunkers. <p>When the value of <code>method</code> is either "mail" or "unknown", there are no specific values of <code>means</code> defined.</p>
startDate	Specifies the date and time this shipment started this part of the trip. Required in all <code>Route</code> elements after the first.
endDate	Specifies the date and time this shipment ended this part of the trip. Must come after <code>startDate</code> . If any <code>Route</code> elements follow, the <code>startDate</code> of that element must not precede this value.

13.5.2.5 TransportInformation

See [ShipTo/BillTo \[page 115\]](#).

13.5.2.6 Contact

The most common `Contact` roles in this element are:

Value	Description
carrierCorporate	Details the contact information the supplier has about the carrier organization.
shipFrom	A <code>Contact</code> element with role "shipFrom" must appear in all <code>ShipControl</code> elements after the first. This role must not appear in the first <code>ShipControl</code> element because it would duplicate that role in the overall <code>ShipNoticeHeader</code> element.

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:

Attribute	Description
<code>orderId</code>	Specifies the buyer system <code>orderId</code> for the ship notice, that is, the PO number. When used, it must be copied directly from the referenced <code>OrderRequest</code> document's <code>OrderRequestHeader</code> element.

Attribute	Description
orderDate	Specifies the date and time the <code>OrderRequest</code> was created. The date format is yyyy-mm-dd per international ISO standard 8601.

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:

Attribute	Description
<code>quantity</code> (required)	Specifies how many items were shipped. Expressed in units given in the <code>UnitOfMeasure</code> element.
<code>lineNumber</code> (required)	Position, counting from 1, of the item in an order. Matches the corresponding line item, <code>ItemOut</code> , in the document referenced by the <code>OrderReference</code> element.
<code>parentLineNumber</code>	The line number of the corresponding parent line item. This attribute is applicable only for a line item with <code>itemType="item"</code> .
<code>shipNoticeLineNumber</code>	Ship notice line number related to this item. Used when there are multiple ship notice line items for a single purchase order line items.
<code>itemType</code>	Specifies the type of item. Possible values: <ul style="list-style-type: none">• <code>composite</code>—Identifies an item group.• <code>item</code>—Identifies an independent line item.• <code>lean</code>—Indicates that no child item is expected for the line.
<code>compositeItemType</code>	Specifies whether a parent item uses group-level pricing. Possible values are <code>"groupLevel"</code> or <code>"itemLevel"</code> .

`ShipNoticeItem` has the following elements:

Element	Description
<code>ItemID</code>	Provides unique identification of an item. See ItemID [page 91] .
<code>ShipNoticeItemDetail</code>	Contains detailed information about an item. See ShipNoticeItemDetail [page 320] .
<code>UnitOfMeasure</code>	Describes how the product is packaged or shipped. See UnitOfMeasure [page 44] .
<code>Packaging</code>	Each line item could be packaged into multiple boxes. Hence the <code>Packaging</code> element at the line item level could correspond with multiple packages belonging to that line item. See Packaging [page 176] .
<code>Hazard</code>	Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment. See Hazard [page 321] .

Element	Description
Batch SupplierBatchID	Identifies a batch of goods. See SupplierBatchID or Batch [page 322] .
AssetInfo	Provides asset tag numbers or serial numbers for individual items in a shipment of goods. See AssetInfo [page 323] .
TermsOfDelivery	Specifies terms of delivery at the line-item level. See TermsOfDelivery [page 127] .
OrderedQuantity	Specifies the number of items/products for a given line item in a purchase order. See OrderedQuantity [page 180] .
ShipNoticeItemIndustry	Contains a grouping of industry-specific fields. See ShipNoticeItemIndustry [page 323] .
ComponentConsumption-Details	Contains detailed information about consumption of components in the manufacturing of final product. See ComponentConsumptionDetails [page 465] .
ReferenceDocumentInfo	Contains additional document reference information. See ReferenceDocumentInfo [page 130] .
Comments	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.
Extrinsic	Contains any additional information for this ship notice line item.

The following example shows a ShipNoticeItem element:

```
<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">
```

```

        documentID="QN171226_01"
        documentType="QualityNotificationDocument"/>
    </ReferenceDocumentInfo>
    <!-- Quality certificate CERT123 attachment -->
    <Comments type="CERT123">
        <Attachment>
            <URL>cid: part1.DO63.982348912738@speedy.corp.alfa.com</URL>
        </Attachment>
    </Comments>
</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

Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfortrade/codes_index.html.

PriceBasisQuantity

Defines the quantity on which `UnitPrice` is based. See [PriceBasisQuantity \[page 346\]](#).

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 \[page 179\]](#).

ItemDetailIndustry

Industry-specific item detail information. See [ItemDetailIndustry \[page 139\]](#).

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:

Value	Description
UNDG	United Nations Dangerous Goods
IMDG	International Marine Organization Dangerous Goods
NAHG	North American Hazardous Goods

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 \[page 181\]](#).

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:

Attribute	Description
<code>isReferencedAsset</code>	Indicates whether the asset info is for a referenced asset associated with the item in the document.
<code>tagNumber</code>	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.
<code>serialNumber</code>	Specifies the serial number of the item.
<code>location</code>	Specifies the location of the item.
<code>equipmentId</code>	Equipment ID of the unit.

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:

Element	Description
<code>BestBeforeDate</code>	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 <code>date</code> attribute.
<code>ExpiryDate</code>	Specifies a date after which the goods become un-sellable/unusable. This element has a required <code>date</code> attribute.
<code>FreeGoodsQuantity</code>	Specifies the quantity that will be delivered without any cost to the buyer. See Free-GoodsQuantity [page 180].

Element	Description
PromotionDealID	Specifies an ID assigned by a supplier related to a promotional activity. Promotions affect the forward planning/ordering process (and the related pricing).
PromotionVariantID	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).

13.5.3.8 ReferenceDocumentInfo

Contains additional document reference information. See [ReferenceDocumentInfo \[page 130\]](#).

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:

Element	Description
ReceiptRequestHeader (required)	Contains header information for this receipt. See ReceiptRequestHeader [page 325] .
ReceiptOrder (required)	Defines information related to a purchase order or master agreement. See ReceiptOrder [page 326] .
Total (required)	Summary total amount of all receipt line item amounts.

The following example shows a `ReceiptRequest`:

```
<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>
```

```

</OrderReference>
</ReceiptOrderInfo>
<ReceiptItem quantity="10" receiptLineNumber="1" type="received">
<ReceiptItemReference lineNumber="1">
  <ItemID>
    <SupplierPartID>BX886376-002</SupplierPartID>
    <BuyerPartID>X886376-002</BuyerPartID>
  </ItemID>
  <Description xml:lang="en">PROCSR-CPU-GPU,OTH,0003.10
    GHZ,LGA1150,I</Description>
  <ShipNoticeReference shipNoticeID="SMSNG1001">
    <DocumentReference payloadID="CCSN.0904.PO.52"/>
  </ShipNoticeReference>
  <ShipNoticeLineItemReference shipNoticeLineNumber="2"/>
</ReceiptItemReference>
<UnitRate>
  <Money currency=""/>
  <UnitOfMeasure>EA</UnitOfMeasure>
</UnitRate>
<ReceivedAmount>
  <Money currency=""/>
</ReceivedAmount>
<Batch>
  <BuyerBatchID>4B93933</BuyerBatchID>
  <SupplierBatchID>SCM100</SupplierBatchID>
</Batch>
</ReceiptItem>
</ReceiptOrder>
<Total>
  <Money currency=""/>
</Total>
</ReceiptRequest>
</Request>

```

13.6.1 ReceiptRequestHeader

ReceiptRequestHeader contains header information for this receipt. It has the following attributes:

Attribute	Description
receiptID (required)	A buyer-generated unique identifier for this receipt.
receiptDate (required)	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.
operation	The operation described by this receipt document. Possible values are "new" (the default) and "delete", which cancels an existing receipt specified by the DocumentReference element. The "delete" operation is supported only for component receipts.

ReceiptRequestHeader has the following elements:

Element	Description
DocumentReference	Reference to an earlier ReceiptRequest. If the attribute ReceiptRequestHeader@operation is "delete", the DocumentReference element is required and it must reference the original ReceiptRequest document during the same receipt process.
ShipNoticeIDInfo	Contains the Delivery Note of the buyer's goods receipt, which defaults to the supplier's ship notice ID.
Comments	Contains comments associated with this object.
Extrinsic	Contains any additional information related to this object.

The following example shows a ReceiptRequestHeader that includes ShipNoticeIDInfo:

```
<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:

```
<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:

Attribute	Description
closeForReceiving	Set to "yes" to indicate whether the underlying order or master agreement should be closed for receiving on approval of this receipt.

`ReceiptOrder` has the following elements:

Element	Description
<code>ReceiptOrderInfo</code> (required)	Contains the reference information of the purchase order or master agreement. See ReceiptOrderInfo [page 327] .
<code>ReceiptItem</code> (required)	Defines a receipt line item using information from the purchase order or master agreement. See ReceiptItem [page 327] .

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`.

Element	Description
<code>OrderReference</code>	A reference to the purchase order containing the items or services being received.
<code>MasterAgreementReference</code>	A reference to the master agreement containing the items or services being received.
<code>OrderIDInfo</code>	The buyer ID of the corresponding purchase order.
<code>MasterAgreementIDInfo</code>	The buyer ID of the corresponding master agreement.

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:

Attribute	Description
<code>receiptLineNumber</code> (required)	A buyer-defined ID for the current line item. It must be unique across all receipt line items of the same <code>ReceiptRequest</code> document.

Attribute	Description
quantity (required)	<p>The quantity received for the current receipt line.</p> <p>Negative values in the <code>quantity</code> 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.</p> <pre><ReceiptItem receiptLineNumber="1" quantity="-5" type="received"></pre>
type	<p>To indicate if the buyer has received or returned the items from the supplier. This attribute can have the following values:</p> <ul style="list-style-type: none"> received: Indicates the goods have been received by the buyer. For example: <pre><ReceiptItem receiptLineNumber="1" quantity="20" type="received"></pre> returned: Indicates the goods have been returned by the buyer. For example: <pre><ReceiptItem receiptLineNumber="1" quantity="10" type="returned"></pre>
parentReceiptLineNumber	Line number of the parent line item in the receipt request.
itemType	<p>Specifies the type of item. Possible values:</p> <ul style="list-style-type: none"> 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".
completedIndicator	Set to "yes" to indicate that a component ship notice item is considered closed and no more component receipts are expected for it.

`ReceiptItem` has the following elements:

Element	Description
ReceiptItemReference (required)	Indicates the line number of a referenced line item. See ReceiptItemReference [page 330] .
UnitRate (required)	The amount to be paid per unit of specified measure.

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:

```
<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="ASND0C_002">
    <DocumentReference payloadID="Payload_ASND0C_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:

Attribute	Description
lineNumber (required)	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.

ReceiptItemReference has the following elements:

Element	Description
ItemID	The supplier part number of the current line item, copied from the OrderRequest document.
Description	The line item description, copied from the OrderRequest document.
ManufacturerPartID	The manufacturer part number.
ManufacturerName	The name of the manufacturer.
ShipNoticeReference	Reference to the ShipNoticeRequest document sent from the supplier when this item was shipped.
ShipNoticeIDInfo	ID of the ShipNoticeRequest known to the buyer system. This ID is used when ShipNoticeReference is omitted.
ShipNoticeLine- ItemReference	Reference to the line item in a prior ShipNoticeRequest document.
ReferenceDocumentInfo	Contains additional document reference information. See ReferenceDocumentInfo [page 130].

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 \[page 331\]](#)

[InvoiceDetailRequest \[page 334\]](#)

[Response \[page 371\]](#)

[Invoice Status Update \[page 372\]](#)

[Example Invoices \[page 373\]](#)

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 \[page 286\]](#)

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:

Invoice Category	Description
Individual Invoice	Applies against a single purchase order.
Summary Invoice	Applies against multiple purchase orders.

14.1.4.2 Invoice Level

cXML supports both header and detailed invoices:

Invoice Level	Description
Header Invoice	<p>Applies against the entirety of one or more purchase orders, without describing their line items.</p> <p>Specify <code>isHeaderInvoice="yes"</code> and use <code>InvoiceDetailHeaderOrder</code> elements, which do not contain line-item information.</p>
Detailed Invoice	<p>(Line-item level invoice) Applies against specific line items from one or more purchase orders.</p> <p>Leave out <code>isHeaderInvoice</code> and use <code>InvoiceDetailOrder</code> elements, which contain line-item information.</p>

14.1.4.3 Invoice Purpose

Use the `InvoiceDetailRequestHeader` attributes to specify the purpose of the invoice.

Invoice Purpose	Description
Standard Invoice	<p>Request for payment after providing products or services.</p> <p>Specify <code>purpose="standard"</code> and <code>operation="new"</code>.</p>
Credit Memo	<p>Specifies credit to a buying organization.</p> <p>Specify <code>purpose="creditMemo"</code> and <code>operation="new"</code>. Must be a header invoice. Amounts must be negative.</p>
Line-Item Credit Memo	<p>Specifies credit to a buying organization.</p> <p>Specify <code>purpose="lineLevelCreditMemo"</code> and <code>operation="new"</code>. Must not be a header invoice. Amounts must be negative.</p>
Debit Memo	<p>Specifies debit to a buying organization.</p> <p>Specify <code>purpose="debitMemo"</code> and <code>operation="new"</code>. Must be a header invoice. Amounts must be positive.</p>
Information Only	<p>Provides a record of charges, similar to a receipt. No action is expected.</p> <p>Specify <code>isInformationOnly="yes"</code> and <code>operation="new"</code>.</p>
Cancel Invoice	<p>Cancels a previously sent invoice.</p> <p>Specify <code>operation="delete"</code>.</p>

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:

Attribute	Description
invoiceID (required)	A supplier-generated identifier for the Invoice. Identical to the Invoice Number that appears at the top of a physical Invoice.

Attribute	Description
<code>isInformationOnly</code>	Indicates whether the buying organization needs to take action. Possible values: <ul style="list-style-type: none"> <code>yes</code>—Invoice is for the buying organization's information only (no action needs to be taken by the buying organization). Not specified—(default) Invoice is functional. The buying organization needs to take action upon receiving this document (submit payment or accept credit).
<code>purpose</code>	Purpose of the invoice. Possible values: <ul style="list-style-type: none"> <code>standard</code>—(default) A standard billing statement from the supplier to the buying organization. <code>creditMemo</code>—A credit memo for issuing credit to the buying organization. <code>isHeaderInvoice</code> must be yes. Also, the element <code>InvoiceDetailSummary/DueAmount</code> must be a negative amount. <code>debitMemo</code>—A debit memo for billing a balance owed by the buying organization. <code>isHeaderInvoice</code> must be yes. Also, the element <code>InvoiceDetailSummary/DueAmount</code> must be a positive amount. <code>lineLevelCreditMemo</code>—A line-item credit memo for issuing credit to the buying organization. <code>isHeaderInvoice</code> must be false (not specified). Also, the element <code>InvoiceDetailSummary/DueAmount</code> must be a negative amount. <code>lineLevelDebitMemo</code>—A line-item debit memo billing a balance owed by the buyer to the supplier. <code>isHeaderInvoice</code> must be false (not specified). Also, the element <code>InvoiceDetailSummary/DueAmount</code> must be a positive amount.
<code>operation</code>	How this document is acting on the invoice. Possible values: <ul style="list-style-type: none"> <code>new</code>—(default) Creates a new invoice. <code>delete</code>—Cancels an existing invoice. The <code>payloadID</code> of the existing invoice must be specified in a <code>DocumentReference</code>.
<code>invoiceDate</code> (required)	Date and time Invoice was created (should be earlier than the cXML timestamp).
<code>invoiceOrigin</code>	Indicates the originator of the invoice for categorization. Possible values: <ul style="list-style-type: none"> <code>supplier</code> — Invoice originated by supplier. <code>buyer</code> — Invoice originated by buying organization. Not specified — Invoice origin is unknown.
<code>isERS</code>	Whether the invoice is an Evaluated Receipt Settlement (ERS) invoice. The only possible value is "yes". If not specified, the invoice is a regular invoice.

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:

Attribute	Description
<code>isHeaderInvoice</code>	Category of the invoice. Possible values: <ul style="list-style-type: none">• <code>yes</code>—Header invoice. Invoice uses <code>InvoiceDetailHeaderOrder</code>, which contains header level invoice information without item details.• Not specified—Detail invoice. Invoice uses <code>InvoiceDetailOrder</code>, which contains item details.
<code>isVatRecoverable</code>	<code>yes</code> —The entire invoice is VAT (Value Added Tax)-recoverable.
<code>priceBasedLineLevelCreditMemo</code>	Set to <code>yes</code> 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.

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:

Attribute	Description
<code>isTaxInLine</code>	<code>yes</code> —Tax (<code>Tax</code>) is provided at invoice line level. If header tax is specified, it will be ignored.
<code>isSpecialHandlingInLine</code>	<code>yes</code> —Special handling (<code>InvoiceDetailLineSpecialHandling</code>) is provided at invoice line level.
<code>isShippingInLine</code>	<code>yes</code> —Shipping (<code>InvoiceDetailLineShipping</code>) is provided at invoice line level.
<code>isDiscountInLine</code>	<code>yes</code> —Discount (<code>InvoiceDetailDiscount</code>) is provided at invoice line level.
<code>isAccountingInLine</code>	<code>yes</code> —Accounting distribution (<code>Distribution</code>) is provided at invoice line level. If <code>isHeaderInvoice</code> is true, this indicator must not be specified, because <code>Distribution</code> is available only at item level.
<code>isPriceAdjustmentInLine</code>	<code>yes</code> —A line-item credit memo or debit memo has a price adjustment.

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`.

i Note

`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:

Attribute	Description
<code>identifier</code> (required)	The unique identifier of the <code>IdReference</code> within the domain.
<code>domain</code> (required)	<p>The domain of the <code>IdReference</code>. Possible values:</p> <ul style="list-style-type: none">• <code>abaRoutingNumber</code>• <code>accountID</code>• <code>accountName</code>• <code>accountPayableID</code>• <code>accountReceivableID</code>• <code>accountType</code>• <code>bankRoutingID</code>• <code>branchName</code>• <code>contactPerson</code>• <code>departmentName</code>• <code>federalTaxID</code>• <code>gstID</code>• <code>ibanID</code>• <code>provincialTaxID</code>• <code>reference</code>• <code>stateTaxID</code>• <code>supplierTaxID</code>• <code>swiftID</code>• <code>taxExemptionID</code>• <code>vatID</code> <p>Values can be application-specific, such as <code>1099ID</code> or <code>courtRegisterID</code>.</p>

IdReference has the following elements:

Element	Description
Creator	The creator of the IdReference (for example, the name of the bank, shipper, or other organization).
Description	Textual description of the IdReference for human readability.

Related Information

[PaymentPartner/IdReference \[page 220\]](#)

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:

Attribute	Description
payloadID (required)	The payloadID attribute of another cXML document.

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:

Attribute	Description
invoiceID (required)	The ID of an invoice known to the supplier system.
invoiceDate	The invoice date.

14.2.1.6 PaymentProposalIDInfo

Defines the ID of a `PaymentProposalRequest` known to the supplier and buyer system. It has the following attribute:

Attribute	Description
<code>paymentProposalID</code> (required)	The ID of a <code>PaymentProposalRequest</code> known to the buyer and supplier system.

14.2.1.7 InvoiceDetailShipping

The shipping details of the invoice.

`InvoiceDetailShipping` has the following attribute:

Attribute	Description
<code>shippingDate</code>	The date and time this shipment leaves the supplier.

Contact

The ship from and ship to addresses. Both ship from and ship to must be specified. See [Contact \[page 118\]](#).

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:

Attribute	Description
<code>domain</code> (required)	Domain for this value. Possible values: <ul style="list-style-type: none"><code>companyName</code>—The legal name for this company. In some cases, this could also be provided in a <code>Contact</code> element with role “<code>carrierCorporate</code>”. That option should be reserved for cases in which additional detail about the carrier appears in this element.SCAC—Standard Carrier Alpha Code. www.nmfta.org/pages/scacIATA—International Air Transport Association. www.iata.orgAAR—Association of American Railroads. www.aar.orgUIC—International Union of Railways. www.uic.orgEAN—European Article Numbering. upc-ean-information.comDUNS—D&B’s Data Universal Numbering System. www.dnb.com

ShipmentIdentifier

The tracking number of this shipment. See [ShipmentIdentifier \[page 311\]](#).

DocumentReference

Identifies an earlier `ShipNoticeRequest`.

For more information, see [DocumentReference \[page 338\]](#).

14.2.1.8 ShipNoticeIDInfo

Specifies additional reference IDs for shipment related IDs. See [ShipNoticeIDInfo \[page 355\]](#).

14.2.1.9 InvoiceDetailPaymentTerm (deprecated)

`InvoiceDetailPaymentTerm` is deprecated in cXML 1.2.011, in favor of [PaymentTerm \[page 340\]](#).

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:

Attribute	Description
payInNumberOfDays	The number of days after invoice date to pay in full.

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:

Attribute	Description
startDate	The starting date of the service.
endDate	The ending date of the service.

14.2.1.12 Comments

Any comments for the invoice.

14.2.1.13 IdReference

Defines an ID reference. See [IdReference \[page 293\]](#).

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:

Attribute	Description
<code>agreementID</code>	The ID number of a master agreement known to the buying organization's system.
<code>agreementDate</code>	The date and time the master agreement request was created.

Attribute	Description
agreementType	Indicates whether the referenced agreement is a scheduling agreement release.

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:

Attribute	Description
agreementID (required)	The ID number of a master agreement known to the buying organization's system.
agreementDate	The date and time the master agreement request was created.
agreementType	Indicates whether the referenced agreement is a scheduling agreement release.

MasterAgreementIDInfo has the following element:

Element	Description
IdReference	Specifies additional IDs for the master agreement.

OrderIDInfo

Identifies a purchase order known to the buying organization.

OrderIDInfo has the following attributes:

Attribute	Description
orderId (required)	The ID of a purchase order (purchase order number) known to the buying organization.
orderDate	The date and time the purchase order was created.

SupplierOrderInfo

Defines supplier sales order information related to a purchase order.

SupplierOrderInfo has the following attribute:

Attribute	Description
orderID (required)	Supplier sales order ID of the purchase order.
orderDate	The date and time of the sales order.

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:

Attribute	Description
invoiceLineNumber (required)	Supplier defined ID for the current invoice line. Should be unique across all invoice lines within an invoice.
quantity (required)	The quantity being invoiced for the line item.
referenceDate	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.
inspectionDate	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.
parentInvoiceLineNumber	Specifies the line number of the corresponding parent line item. This attribute is applicable only for a line item with itemType="item".
itemType	Specifies the type of item. Possible values: <ul style="list-style-type: none">• 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".
reason	Specifies the reason for a line-item credit memo. The only possible value for reason is "return", which means the credit memo is for a return item.

Attribute	Description
isAdHoc	Set to "yes" to indicate that the item does not exist in the reference document or contract master agreement.

InvoiceDetailItem has the following elements:

Element	Description
UnitOfMeasure (required)	The line item's unit of measure. See UnitOfMeasure [page 44] .
UnitPrice (required)	The unit price.
PriceBasisQuantity	The quantity-based pricing for a line item. See PriceBasisQuantity [page 346] .
InvoiceDetailItemReference (required)	Defines all references related to an invoice line item. See InvoiceDetailItemReference [page 347] .
ReceiptLineItemReference	Reference to the receipt line related to this line item. See ReceiptLineItemReference [page 348] .
ShipNoticeLineItemReference	Reference to the ship notice line related to this line item. See ShipNoticeLineItemReference [page 348] .
ServiceEntryItemReference	Reference to the service sheet line related to this line item. See ServiceEntryItemReference [page 349] .
ServiceEntryItemIDInfo	References the related ServiceEntryRequest for the invoice. See ServiceEntryItemIDInfo [page 349] .
SubtotalAmount	The invoice subtotal of the current line item: UnitPrice times quantity.
Tax	The tax for the line item. See Tax [page 350] .
InvoiceDetailLineSpecialHandling	Contains the special handling information for the line item. See InvoiceDetailLineSpecialHandling [page 355] .
InvoiceDetailLineShipping	Contains the shipping information for the line item. See InvoiceDetailLineShipping [page 355] .
ShipNoticeIDInfo	Specifies additional reference IDs for shipment related IDs. See ShipNoticeIDInfo [page 355] .
GrossAmount	The SubtotalAmount plus taxes, shipping, and special handling charges for the line item.
InvoiceDetailDiscount	The discount for the line item. See InvoiceDetailDiscount [page 356] .

Element	Description
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. See InvoiceItemModifications [page 356] .
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.
TotalAmountWithoutTax	Summarizes the total invoice amount without tax. See TotalAmountWithoutTax [page 370] .
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).
Packaging	Details about the packaging of the line item. See Packaging [page 176] .
InvoiceDetailItemIndustry	Specifies the categories for various industries. See InvoiceDetailItemIndustry [page 356] .
Comments	Textual comments for the line item.
Extrinsic	Additional information related to the line item. You must ensure that you do not duplicate anything in or InvoiceDetailOrder.

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:

Attribute	Description
quantity (required)	The price unit quantity for the unit price. This is a mandatory field.
conversionFactor (required)	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.

PriceBasisQuantity has the following elements:

Element	Description
UnitOfMeasure	The unit of measure specified for quoted unit price. This element must exist in the PriceBasisQuantity element.
Description	This field can store any information for the PriceBasisQuantity element. It can be used to store the unit conversion values provided by the supplier. This is an optional element.

14.2.2.2 InvoiceDetailItemReference

Defines all references related to an invoice line item.

InvoiceDetailItemReference has the following attributes:

Attribute	Description
lineNumber (required)	The purchase order line number of current line item, copied from the OrderRequest.
serialNumber (deprecated)	The product serial number for the current line item. This attribute was deprecated in cXML 1.2.009. Use SerialNumber elements, instead.

InvoiceDetailItemReference has the following elements:

Element	Description
ItemID	The supplier part number of current line item, from the OrderRequest. See ItemID [page 91] .
Description	The line item description, from the OrderRequest. This is a mandatory field.
Classification	Commodity classification of the service. This is a mandatory field and can appear in any order. This element has the domain attribute.
ManufacturerPartID	The manufacturer part number.
ManufacturerName	The name of the manufacturer.
Country	The country of origin of the product listed in the line item.

Element	Description
SerialNumber	<p>A serial number that uniquely identifies an accountable item that is being invoiced.</p> <p>You can include multiple SerialNumber elements; the number of SerialNumber elements should match the invoice item quantity.</p> <p>Use SerialNumber elements instead of the InvoiceDetailItemReference@serialNumber attribute, which was deprecated in cXML 1.2.009.</p>
SupplierBatchID	See SupplierBatchID or Batch [page 322] .
InvoiceDetailItem-ReferenceIndustry	Item-detail information specific to the retail industry.
InvoiceDetailItem-ReferenceRetail	<p>Specifies the details for the retail industry.</p> <p>Contains the following elements:</p> <ul style="list-style-type: none"> • 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.

14.2.2.2.3 ReceiptLineItemReference

Reference to the receipt line related to this line item. It has the following attribute:

Attribute	Description
receiptLineNumber (required)	Specifies the receipt line number of the current line item, copied from ReceiptRequest.

14.2.2.2.4 ShipNoticeLineItemReference

Reference to the ship notice line related to this line item. It has the following attribute:

Attribute	Description
shipNoticeLineNumber (required)	Specifies the ship notice line number of the current line item, copied from ShipNoticeRequest.

14.2.2.2.5 ServiceEntryItemReference

Reference to the service sheet line related to this line item.

ServiceEntryItemReference has the following attributes:

Attribute	Description
serviceLineNumber (required)	Refers to the line number in the related ServiceEntryRequest for the item.
serviceEntryID	The ID for the related ServiceEntryRequest. If present, it must be copied from the ServiceEntryRequestHeader.
serviceEntryDate	The date and time when the supplier created the service sheet. If present, it must be copied from the ServiceEntryRequestHeader.

ServiceEntryItemReference has the following element:

Element	Description				
DocumentReference	The DocumentReference element identifies an earlier ServiceEntryRequest document. DocumentReference has the following attribute: <table><tr><th>Attribute</th><th>Description</th></tr><tr><td>payloadID (required)</td><td>The value of the payloadID attribute for the earlier ServiceEntryRequest.</td></tr></table>	Attribute	Description	payloadID (required)	The value of the payloadID attribute for the earlier ServiceEntryRequest.
Attribute	Description				
payloadID (required)	The value of the payloadID attribute for the earlier ServiceEntryRequest.				

14.2.2.2.6 ServiceEntryItemIDInfo

References the related ServiceEntryRequest for the invoice.

ServiceEntryItemIDInfo has the following attributes:

Attribute	Description
serviceLineNumber (required)	Refers to the line number in the related ServiceEntryRequest for the item.
serviceEntryID (required)	The ID for the related ServiceEntryRequest.
serviceEntryDate	The date and time when the supplier created the service sheet.

ServiceEntryItemIDInfo has the following element:

Element	Description						
IdReference	References a unique identifier for the service sheet. It has the following attributes:						
<table><tr><th>Attribute</th><th>Description</th></tr><tr><td>identifier (required)</td><td>The unique identifier for the service sheet.</td></tr><tr><td>domain (required)</td><td>The domain or context in which the identifier has meaning.</td></tr></table>		Attribute	Description	identifier (required)	The unique identifier for the service sheet.	domain (required)	The domain or context in which the identifier has meaning.
Attribute	Description						
identifier (required)	The unique identifier for the service sheet.						
domain (required)	The domain or context in which the identifier has meaning.						

14.2.2.2.7 Tax

The tax for the line item. Ignored if `isTaxInLine` is false (not specified). `Tax` has the following elements:

Element	Description
Money (required)	The amount owed for tax.
TaxAdjustmentAmount	The adjustment amount for the total tax for the document or in other words the adjustment amount corresponding to tax represented by this <code>Tax</code> element and is optional (this is supposedly the sum of the amounts in <code>TaxAdjustmentAmount</code> elements under the <code>TaxDetail</code> children of this <code>Tax</code> element). Currently, this element is ONLY supported for the <code>PaymentProposalRequest</code> document. It is used instead of the <code>TaxAdjustment</code> element (now deprecated). See PaymentProposalRequest Examples [page 239] .
Description (required)	Textual description of the tax.
TaxDetail	Detailed information about the tax. See TaxDetail [page 351] .
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.
Extrinsic	Additional information related to <code>Tax</code> . This information should not duplicate any information in <code>Tax</code> .

14.2.2.2.7.1 TaxDetail

Detailed information about the tax. `TaxDetail` has the following attributes:

Attribute	Description
<code>purpose</code>	The purpose of the tax. For example, "tax" or "custom duty".
<code>category</code> (required)	<p>The category of the tax. For example, "sales", "usage", "vat", "gst" or "withholdingTax".</p> <p>If the category is "withholdingTax", you can additionally specify the "withholdingTaxType" extrinsic.</p> <p>Possible values:</p> <ul style="list-style-type: none">• ISR• IVA
<code>percentageRate</code>	The tax rate percentage. Do not include a percent symbol (%).
<code>isVatRecoverable</code>	Set to "true" if the tax amount is recoverable.
<code>taxPointDate</code>	The date on which VAT becomes due.
<code>paymentDate</code>	The date on which payment must be made (used only for transactions in France).
<code>isTriangularTransaction</code>	Set to "true" to indicate that the transaction occurred between three parties in three different countries, but the movement of goods did not follow the invoicing route. Add a <code>Contract</code> element with <code>role="subsequentBuyer"</code> to identify the subsequent buying organization in triangular transactions.
<code>exemptDetail</code>	<p>When the tax rate is zero percentage, regulations may require that suppliers specify if the tax is required, or if the goods or services are exempt from taxes.</p> <p>Possible values:</p> <ul style="list-style-type: none">• <code>zeroRated</code>—This indicates the goods and services are taxable, but the tax rate is zero percent.• <code>exempt</code>—This indicates the goods and services are tax exempt.
<code>isWithholdingTax</code>	Set to yes if the tax is a withholding tax.
<code>taxRateType</code>	Specifies the tax rate type (a string) that corresponds to a specific tax type. For example, in Germany the tax rate of 19% for value-added tax (VAT) 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	Description
basePercentageRate	<p>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.</p> $\text{TaxAmount} = \text{TaxableAmount} * \text{percentageRate} * \text{basePercentageRate}$ <p>Used only in Quote messages.</p>
isIncludedInPrice	Set to "yes" (true) if the TaxAmount is included in the price. The default is "no" (false). Used only in Quote messages.

TaxDetail has the following elements:

Element	Description
TaxableAmount	The amount that is taxable.
TaxAmount (required)	The amount of tax.
TaxLocation	The locale in which the tax applies.
TaxAdjustmentAmount	<p>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 239].</p>
Description	Textual description of the tax.
TriangularTransaction- LawReference	Reference to the relevant EU law covering the VAT for triangular transactions. For example, "VAT - EC Article 28 Simplification Invoice".

Element	Description
TaxRegime	<p>Specifies the tax classification related to the type of supplier activities and commodities in invoices. Suppliers pay taxes based on the tax regime.</p> <p>This is an optional element.</p> <p>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.</p> <p>For example:</p> <pre> <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> </pre>
TaxExemption	<p>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.</p> <p>For example:</p> <pre> <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> </pre>
Extrinsic	<p>Additional information related to TaxDetail. This information should not duplicate any information in TaxDetail.</p>

The following example shows a QuoteMessage that uses TaxDetail:

```

<Message>
  <QuoteMessage>
    <QuoteMessageHeader
      currency="USD" quoteDate="2016-09-20T15:31:10+05:30"
      quoteID="100000000000000000000000003563" type="accept"
      xml:lang="en_US">
      <OrganizationID>
        <Credential domain="NetworkID">
          <Identity>AN02000005132</Identity>
        </Credential>

```

```

</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>
    <Description xml:lang="en_US"/>
  </Shipping>
  <Tax>
    <Money currency="USD">500</Money>
    <Description xml:lang="en_US"/>
    <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>

```

14.2.2.2.8 InvoiceDetailLineSpecialHandling

Contains the special handling information for the line item. Ignored if `isSpecialHandlingInLine` is false (not specified). It has the following elements:

Element	Description
Description	Contains an optional description of the charge.
Money (required)	Monetary amount of the special handling charge.
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.

14.2.2.2.9 InvoiceDetailLineShipping

Contains the shipping information for the line item. Ignored if `isShippingInLine` is false (not specified). It has the following elements:

Element	Description
InvoiceDetailShipping (required)	The shipping details. See InvoiceDetailShipping [page 339] .
Money (required)	Monetary amount of the shipping charge.
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.

14.2.2.2.10 ShipNoticeIDInfo

Specifies additional reference IDs for shipment related IDs (for example, `DispatchAdviceID`, `ReceivingAdviceID`, `DeliveryNotelD`, `ProofOfDeliveryID`, `IdReference`). This element has the following attributes:

Attribute	Description
shipNoticeID (required)	Specifies the unique ID for the shipping document that identifies the physical conveyance/transport of goods.
shipNoticeDate	Specifies the date and time of the ship notice.

ShipNoticeIDInfo has the following element:

Element	Description
IdReference	Specifies shipment-related document identifiers. For example, DispatchAdviceID, ReceivingAdviceID, DeliveryNoteID, or ProofOfDeliveryID.

14.2.2.2.11 InvoiceDetailDiscount

The discount for the line item. Ignored if `isDiscountInLine` is false (not specified). It has the following attribute:

Attribute	Description
percentageRate	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%.

InvoiceDetailDiscount has the following elements:

Element	Description
Money (required)	Monetary amount of the discount.
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.

14.2.2.2.12 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 \[page 113\]](#).

14.2.2.2.13 InvoiceDetailItemIndustry

Specifies the categories for various industries.

InvoiceDetailItemIndustry has the following elements:

Element	Description				
InvoiceDetailItemRetail	<p>Specifies the information about the retail industry. This element has the following elements:</p> <ul style="list-style-type: none"> • 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 346] element. • InformationalPrice Price excluding allowances or charges, and taxes. The price is for information purposes only. This element has the Money and PriceBasisQuantity [page 346] element. • InformationalPriceExclTax Price excluding taxes. The price is for information purposes only. This element has the Money and PriceBasisQuantity [page 346] element. • UnitNetPriceCorrection The new price to correct the unit net price. This element has the Money and PriceBasisQuantity [page 346] 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: <table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td>domain (required)</td><td> <p>Specifies the type of the Indicator. Possible values:</p> <ul style="list-style-type: none"> ◦ 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. </td></tr> </table>	Attribute	Description	domain (required)	<p>Specifies the type of the Indicator. Possible values:</p> <ul style="list-style-type: none"> ◦ 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.
Attribute	Description				
domain (required)	<p>Specifies the type of the Indicator. Possible values:</p> <ul style="list-style-type: none"> ◦ 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. 				

Element	Description						
	<table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td></td><td> <ul style="list-style-type: none"> ◦ <code>CommissionIndicator</code>—Indicator to specify the actual position/line item has a provision. </td></tr> <tr> <td><code>value</code> (required)</td><td>Specifies the value of the indicator.</td></tr> </table>	Attribute	Description		<ul style="list-style-type: none"> ◦ <code>CommissionIndicator</code>—Indicator to specify the actual position/line item has a provision. 	<code>value</code> (required)	Specifies the value of the indicator.
Attribute	Description						
	<ul style="list-style-type: none"> ◦ <code>CommissionIndicator</code>—Indicator to specify the actual position/line item has a provision. 						
<code>value</code> (required)	Specifies the value of the indicator.						
	<ul style="list-style-type: none"> • <code>PromotionDealID</code> An ID assigned by the supplier for a special promotional activity. See PromotionalDealID [page 171]. • <code>PromotionVariantID</code> An ID for the item used as a promotional variant number. See PromotionalVariantID [page 171]. 						

14.2.2.3 InvoiceDetailServiceItem

`InvoiceDetailServiceItem` specifies a service being invoiced. It has the following attributes:

Attribute	Description
<code>invoiceLineNumber</code> (required)	Supplier defined ID for the current invoice line. Should be unique across all invoice lines within an invoice.
<code>quantity</code>	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 <code>UnitOfMeasure</code> is "HUR"
<code>referenceDate</code>	The reference date for the service item. This can indicate the date at which the service line item is being invoiced.
<code>inspectionDate</code>	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.
<code>parentInvoiceLine- Number</code>	To specify the line number of the corresponding parent line item. This field is applicable only for a line item with <code>itemType="item"</code> .
<code>itemType</code>	Specifies the type of item. Possible values: <ul style="list-style-type: none"> • <code>composite</code>—Identifies an item group. • <code>item</code>—Identifies an independent line item. • <code>lean</code>—Indicates that no child item is expected for the line.
<code>isAdHoc</code>	Set to "yes" to indicate that the item does not exist in the reference document or contract master agreement.

InvoiceDetailServiceItemReference

InvoiceDetailServiceItemReference defines all references related to a service line item in this invoice. It has the following attribute:

Attribute	Description
lineNumber	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.

InvoiceDetailServiceItemReference has the following elements:

Element	Description
Classification	Commodity classification of the service.
ItemID	The Supplier's part number for the service.
Description	Description of the service.

ServiceEntryItemReference

ServiceEntryItemReference explicitly references the related ServiceEntryRequest for the invoice. It has the following attributes:

Attribute	Description
serviceLineNumber (required)	Refers to the line number in the related ServiceEntryRequest for the item.
serviceEntryID	The ID for the related ServiceEntryRequest. If present, it must be copied from the ServiceEntryRequestHeader.
serviceEntryDate	The date and time when the supplier created the service sheet. If present, it must be copied from the ServiceEntryRequestHeader.

ServiceEntryItemReference has the following element:

Element	Description				
DocumentReference (required)	Identifies an earlier ServiceEntryRequest document. DocumentReference has the following attribute: <table><tr><th>Attribute</th><th>Description</th></tr><tr><td>payloadID (required)</td><td>The value of the payloadID attribute for the earlier ServiceEntryRequest.</td></tr></table>	Attribute	Description	payloadID (required)	The value of the payloadID attribute for the earlier ServiceEntryRequest.
Attribute	Description				
payloadID (required)	The value of the payloadID attribute for the earlier ServiceEntryRequest.				

ServiceEntryItemIDInfo

References the related `ServiceEntryRequest` for the invoice. `ServiceEntryItemIDInfo` has the following attributes:

Attribute	Description
<code>serviceLineNumber</code> (required)	Refers to the line number in the related <code>ServiceEntryRequest</code> for the item.
<code>serviceEntryID</code> (required)	The ID for the related <code>ServiceEntryRequest</code> .
<code>serviceEntryDate</code>	The date and time when the supplier created the service sheet.

`ServiceEntryItemIDInfo` has the following element:

Element	Description						
<code>IdReference</code>	References a unique identifier for the service sheet. It has the following attributes: <table><tr><th>Attribute</th><th>Description</th></tr><tr><td><code>identifier</code> (required)</td><td>The unique identifier for the service sheet.</td></tr><tr><td><code>domain</code> (required)</td><td>The domain or context in which the identifier has meaning.</td></tr></table>	Attribute	Description	<code>identifier</code> (required)	The unique identifier for the service sheet.	<code>domain</code> (required)	The domain or context in which the identifier has meaning.
Attribute	Description						
<code>identifier</code> (required)	The unique identifier for the service sheet.						
<code>domain</code> (required)	The domain or context in which the identifier has meaning.						

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 \[page 341\]](#).

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 \[page 143\]](#).

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 \[page 350\]](#).

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 \[page 356\]](#).

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 \[page 113\]](#).

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:

Element	Description
Contractor	The contractor whose work is being invoiced.
JobDescription	A text description of the job being performed.
Supervisor	Specifies contact information for the person who supervises the contractor.

Element	Description				
WorkLocation	The address of the place where the work is performed.				
InvoiceTimeCardDetail	Invoice details about a temporary labor service. The pay code for this invoice line item is in the UnitRate of the containing InvoiceDetailServiceItem.				
TimeCardReference	Provides a clear reference to a prior TimeCard cXML document. TimeCardReference has the following attribute: <table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td>timeCardID</td><td>Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]</td></tr> </table>	Attribute	Description	timeCardID	Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]
Attribute	Description				
timeCardID	Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]				
TimeCardIDInfo	Defines the unique ID of the timecard known to the buyer and supplier systems. TimeCardIDInfo has the following attribute: <table> <tr> <th>Attribute</th><th>Description</th></tr> <tr> <td>timeCardID (required)</td><td>Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]</td></tr> </table>	Attribute	Description	timeCardID (required)	Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]
Attribute	Description				
timeCardID (required)	Unique ID for the timecard as sent on the TimeCard document during TimeCardInfoRequest or TimeCardRequest. See TimeCard Transaction [page 257]				

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:

```
<Extrinsic name="serviceType">Temporary</Extrinsic>.
```

For structured attributes such as service location, use a structured element, for example:

```
<Extrinsic name="serviceLocation">
  <Contact role="serviceLocation">
    <Name>XYZ Inc</Name>
    <PostalAddress>
      <Street>123 Easy St</Street>
      <City>Sunnyvale</City>
      <State isoStateCode="US-CA">CA</State>
      <PostalCode>94089</PostalCode>
      <Country isoCountryCode="US">United States</Country>
    </PostalAddress>
  </Contact>
</Extrinsic>
```

```

        </PostalAddress>
    </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:

```

<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderReference orderID="po123">
      <DocumentReference payloadID="po123-2014-10-13"></DocumentReference>
    </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:

```
<InvoiceDetailOrder>
  <InvoiceDetailOrderInfo>
    <OrderReference orderID="po123">
      <DocumentReference payloadID="po123-2014-10-13"></DocumentReference>
    </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>
```

```

        </Charge>
      </Distribution>
      <ShipNoticeLineItemReference shipNoticeLineNumber="2"/>
    </InvoiceDetailItem>
    ...
  </InvoiceDetailOrder>

```

InvoiceDetailShipNoticeInfo has the following elements:

ShipNoticeReference

Reference to the ship notice being invoiced.

ShipNoticeIDInfo

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 \[page 342\]](#)

14.2.3.2 InvoiceDetailOrderSummary

Defines header level summary info of an order in an invoice line.

InvoiceDetailOrderSummary has the following attribute:

Attribute	Description
invoiceLineNumber (required)	Supplier defined ID for the current invoice line. It should be unique across all invoice lines of the same <code>InvoiceDetailRequest</code> .

Attribute	Description
<code>inspectionDate</code>	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.

SubtotalAmount

The invoice subtotal of the this order.

Period

The period over which the services were rendered. See [Period \[page 341\]](#).

Tax

The tax for this order. Ignored if `isTaxInLine` is false (not specified). See [Tax \[page 350\]](#).

InvoiceDetailLineSpecialHandling

`InvoiceDetailLineSpecialHandling` contains the special handling information for this order. Ignored if `isSpecialHandlingInLine` is false (not specified). See [InvoiceDetailLineSpecialHandling \[page 355\]](#).

InvoiceDetailLineShipping

`InvoiceDetailLineShipping` contains the shipping information for this invoice line. Ignored if `isShippingInLine` is false (not specified). See [InvoiceDetailLineShipping \[page 355\]](#).

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 \[page 356\]](#).

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 \[page 350\]](#).

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 \[page 113\]](#).

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:

Element	Description
Money (required)	Monetary amount of the special handling charge.
Description	Contains an optional description of the charge.
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.

14.2.4.4 ShippingAmount

`ShippingAmount` is the total shipping charge. It has the following elements:

Element	Description
Money (required)	Monetary amount of the shipping charge.
Distribution	Represents the breakdown of one overall amount into sub-amounts. It is the the combination of a <code>Charge</code> against an <code>Accounting</code> element.

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 \[page 356\]](#).

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 \[page 113\]](#).

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 \[page 113\]](#).

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:

Element	Description
<code>AdditionalAmounts</code>	Specifies the summary amount for all the retail industry-specific fields.

`AdditionalAmounts` has the following elements:

Element	Description
<code>TotalRetailAmount</code>	Specifies the total retail value of all items. The element has the <code>Money</code> element.
<code>InformationalAmount</code>	Specifies the information price, excluding allowances or charges, and taxes. This price is only for informational purposes. The element has the <code>Money</code> element.
<code>GrossProgressPaymentAmount</code>	Specifies the gross monetary amount paid (or to be paid) at intervals. The element has the <code>Money</code> element.
<code>TotalReturnableItemsDepositAmount</code>	Specifies the deposit amount charged for returnable items. For example, boxes, containers, pallets, etc. The element has the <code>Money</code> element.
<code>GoodsAndServicesAmount</code>	Specifies the total amount paid for goods and services excluding deposits for returnable goods. The element has the <code>Money</code> element.
<code>ExactAmount</code>	Specifies the exact amount derived from 'sum' information. The element has the <code>Money</code> element.

14.3 Response

Immediately after receiving an invoice, the receiving system should respond with a generic cXML Response document, for example:

```
<?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 \[page 34\]](#)

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:

InvoiceStatus type	Description
processing	The invoice was received by the buying organization and is being processed.
canceled	The invoice was received by the buying organization and was canceled.
reconciled	The invoice reconciled. The amounts in the invoice have not yet been paid.
rejected	The invoice failed to reconcile. The buying organization is rejecting the invoice. The <code>Comments</code> 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).
paying	The invoice is in the payment process or has been partially paid.
paid	The invoice amounts have been paid by the buying organization.

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">
```

```

<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 \[page 277\]](#)

14.5 Example Invoices

The following examples illustrate several types of invoices.

- [Standard Header Invoice \[page 374\]](#)
- [Standard Detail Invoice \[page 376\]](#)
- [Service Invoice \[page 380\]](#)
- [Marketplace Invoice \[page 383\]](#)

14.5.1 Standard Header Invoice

This example shows a header invoice against a single purchase order.

```
<?xml version="1.0" encoding="UTF-8"?> <!DOCTYPE cXML SYSTEM "http://
xml.cXML.org/schemas/cXML/1.2.020/InvoiceDetail.dtd">
<cXML timestamp="2009-03-10T16:23:01-07:00" payloadID="Mar102009_0447pm">
  <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>
    <InvoiceDetailRequest>
      <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" />
      </InvoiceDetailRequestHeader>
      <InvoicePartner>
        <Contact role="billTo">
          <Name xml:lang="en-US">Buyer Headquarters</Name>
          <PostalAddress>
            <Street>111 Main Street</Street>
            <City>Anytown</City>
            <State isoStateCode="US-CA">CA</State>
            <PostalCode>94089</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </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 isoStateCode="US-CA">CA</State>
            <PostalCode>94087</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>
        </Contact>
        <IdReference identifier="123456789" domain="bankRoutingID" />
        <IdReference identifier="3456" domain="accountID" />
      </InvoicePartner>
      <Comments xml:lang="en-US">This is an invoice for D0789</Comments>
    </InvoiceDetailRequestHeader>
    <InvoiceDetailHeaderOrder>
      <InvoiceDetailOrderInfo>
        <OrderReference>
```

```

        <DocumentReference payloadID="99576652.982.090.136" />
    </OrderReference>
</InvoiceDetailOrderInfo>
<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>
        <InvoiceDetailShipping>
            <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 isoStateCode="US-CA">CA</State>
                    <PostalCode>95032</PostalCode>
                    <Country isoCountryCode="US">United States
                </Country>
                </PostalAddress>
                <Email name="default">shipper@supplierorg.com
                </Email>
                <Phone name="work">
                    <TelephoneNumber>
                        <CountryCode isoCountryCode="US">1
                    </CountryCode>
                    <AreaOrCityCode>888</AreaOrCityCode>
                    <Number>1234567</Number>
                </TelephoneNumber>
                </Phone>
            </Contact>
            <Contact role="shipTo" addressID="1000487">
                <Name xml:lang="en">Main Receiving</Name>
                <PostalAddress name="default">
                    <DeliverTo>Jason Lynch</DeliverTo>
                    <Street>77 Nowhere Street</Street>
                    <City>Industrial Town</City>
                    <State isoStateCode="US-CA">CA</State>
                    <PostalCode>95035</PostalCode>
                    <Country isoCountryCode="US">United States
                </Country>
                </PostalAddress>
                <Email name="default">jlynch@buyerorg.com</Email>
                <Phone name="work">
                    <TelephoneNumber>
                        <CountryCode isoCountryCode="US">1
                    </CountryCode>
                    <AreaOrCityCode>999</AreaOrCityCode>
                    <Number>3582000</Number>
                </TelephoneNumber>
                </Phone>
            </Contact>
        </InvoiceDetailShipping>
        <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>

```

```

        <Money currency="USD">5229.00</Money>
    </NetAmount>
    <Comments>This a Standard Header Level Invoice</Comments>
</InvoiceDetailOrderSummary>
</InvoiceDetailHeaderOrder>
<InvoiceDetailSummary>
    <SubtotalAmount>
        <Money currency="USD">5000.00</Money>
    </SubtotalAmount>
    <Tax>
        <Money currency="USD">500.00</Money>
        <Description xml:lang="en-US">State Tax</Description>
    </Tax>
    <SpecialHandlingAmount>
        <Money currency="USD">110.00</Money>
        <Description xml:lang="en">Invoice Surcharge</Description>
    </SpecialHandlingAmount>
    <ShippingAmount>
        <Money currency="USD">200.00</Money>
    </ShippingAmount>
    <GrossAmount>
        <Money currency="USD">5810.00</Money>
    </GrossAmount>
    <InvoiceDetailDiscount percentageRate="10">
        <Money currency="USD">581.00</Money>
    </InvoiceDetailDiscount>
    <NetAmount>
        <Money currency="USD">5229.00</Money>
    </NetAmount>
    <DepositAmount>
        <Money currency="USD">1000.00</Money>
    </DepositAmount>
    <DueAmount>
        <Money currency="USD">4229.00</Money>
    </DueAmount>
</InvoiceDetailSummary>
</InvoiceDetailRequest>
</Request>
</cXML>

```

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.

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cXML.org/schemas/cXML/1.2.014/
InvoiceDetail.dtd">
<cXML payloadID="Oct102001_1204pm" timestamp="2001-04-20T23:59:45-07:00">
    <Header>
        From, To, and Sender credentials
    </Header>
    <Request>
        <InvoiceDetailRequest>
            <InvoiceDetailRequestHeader invoiceID="Oct102001_1204pm"
                purpose="standard" operation="new"
                invoiceDate="2001-04-20T23:59:20-07:00">
            </InvoiceDetailHeaderIndicator/>
            <InvoiceDetailLineIndicator isTaxInLine="yes" isShippingInLine="yes"
                isAccountingInLine="yes"/>
            <InvoicePartner>

```

```

        Sell To contact information
    </InvoicePartner>
    <InvoicePartner>
        Remit To contact information
    </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>
    <PaymentTerm payInNumberOfDays="50">
        <Discount>-9</Discount>
    </PaymentTerm>
</InvoiceDetailRequestHeader>
<InvoiceDetailOrder>
    <InvoiceDetailOrderInfo>
        <OrderReference>
            <DocumentReference payloadID="99576652.982.090.136"/>
        </OrderReference>
        <MasterAgreementReference>
            <DocumentReference payloadID="99576652.980.000.423"/>
        </MasterAgreementReference>
        <SupplierOrderInfo orderID="D01234"></SupplierOrderInfo>
    </InvoiceDetailOrderInfo>
    <InvoiceDetailItem invoiceLineNumber="1" quantity="1">
        <UnitOfMeasure>EA</UnitOfMeasure>
        <UnitPrice><Money currency="USD">15.40</Money></UnitPrice>
        <InvoiceDetailItemReference lineNumber="1">
            <ItemID>
                <SupplierPartID>TEX08134</SupplierPartID>
            </ItemID>
            <Description xml:lang="en">
                Texas Instruments Superview Calculator -
                12-Digit Print/Display
            </Description>
            <SerialNumber>45993823469876</SerialNumber>
        </InvoiceDetailItemReference>
        <SubtotalAmount>
            <Money currency="USD">15.40</Money>
        </SubtotalAmount>
        <Tax>
            <Money currency="USD">1.54</Money>
            <Description xml:lang="en">total item tax</Description>
            <TaxDetail purpose="tax" category="sales"
                percentageRate="8">
                <TaxableAmount>
                    <Money currency="USD">15.40</Money>
                </TaxableAmount>
                <TaxAmount>
                    <Money currency="USD">1.23</Money>
                </TaxAmount>
                <TaxLocation xml:lang="en">CA</TaxLocation>
            </TaxDetail>
            <TaxDetail purpose="tax" category="sales"
                percentageRate="2">
                <TaxableAmount>
                    <Money currency="USD">15.40</Money>
                </TaxableAmount>
                <TaxAmount>
                    <Money currency="USD">0.31</Money>
                </TaxAmount>
            </TaxDetail>
        </Tax>
    </InvoiceDetailItem>
</InvoiceDetailOrder>

```

```

        <TaxLocation xml:lang="en">US</TaxLocation>
    </TaxDetail>
</Tax>
<InvoiceDetailLineShipping>
    <InvoiceDetailShipping>
        Ship From and Ship To contact information
    </InvoiceDetailShipping>
    <Money currency="USD">2.00</Money>
</InvoiceDetailLineShipping>
<GrossAmount>
    <Money currency="USD">18.94</Money>
</GrossAmount>
<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>
<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>
    <InvoiceDetailItemReference lineNumber="2">
        <ItemID>
            <SupplierPartID>PENCIL123</SupplierPartID>
        </ItemID>
        <Description xml:lang="en">
            One dozen wood #2 pencils with eraser
        </Description>
    </InvoiceDetailItemReference>
    <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>
            <TaxAmount>
                <Money currency="USD">4.95</Money>
            </TaxAmount>
            <TaxLocation xml:lang="en">CA</TaxLocation>
        </TaxDetail>
    <TaxDetail purpose="tax" category="sales"

```

```

        percentageRate="2">
        <TaxLocation xml:lang="en">US</TaxLocation>
        <TaxableAmount>
        <Money currency="USD">4.95</Money>
        </TaxableAmount>
        <TaxAmount>
        <Money currency="USD">0.10</Money>
        </TaxAmount>
        </TaxDetail>
    </Tax>
    <InvoiceDetailLineShipping>
    <InvoiceDetailShipping>
        Ship From and Ship To contact information
    </InvoiceDetailShipping>
    <Money currency="USD">1.00</Money>
    </InvoiceDetailLineShipping>
    <GrossAmount>
    <Money currency="USD">6.45</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>
    <TaxDetail purpose="tax" category="sales" percentageRate="2">
    <TaxableAmount>
    <Money currency="USD">20.35</Money>
    </TaxableAmount>
    <TaxAmount>
    <Money currency="USD">0.41</Money>
    </TaxAmount>
    <TaxLocation xml:lang="en">US</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 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>
            Postal address, email address, phone,
            and fax information
          </Contact>
        </InvoicePartner>
        <InvoicePartner>
          <Contact role="remitTo" addressID="Billing">
            <Name xml:lang="en">Lisa King</Name>
            Postal address, email address, phone,
            and fax information
          </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>
    <TaxLocation xml:lang="en">CA</TaxLocation>
  </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>
  <Distribution>
    <Accounting name="Buyer assigned accounting code 1">
      <AccountingSegment id="ABC123456789">
        <Name xml:lang="en">Facilities</Name>
        <Description xml:lang="en">Facilities</Description>
      </AccountingSegment>
    </Accounting>
    <Charge>
      <Money currency="USD">3000</Money>
    </Charge>
  </Distribution>
  <Extrinsic name="serviceLocation">
    <Contact role="serviceLocation">
      <Name xml:lang="en">Umbrella Corporation : NEW YORK</Name>
      <PostalAddress>
        <Street>2345 S. SAN PEDRO</Street>
        <City>New York</City>
        <State isoStateCode="US-NY">NY</State>
        <PostalCode>10002</PostalCode>
        <Country isoCountryCode="US">USA</Country>
      </PostalAddress>
    </Contact>
  </Extrinsic>

```

```

        </PostalAddress>
    </Contact>
</Extrinsic>
</InvoiceDetailServiceItem>
<!-- timecard invoice service line item -->
<InvoiceDetailServiceItem invoiceLineNumber="3" quantity="12">
    <InvoiceDetailServiceItemReference lineNumber = "1">
        <Classification domain = "UNSPC">80111604</Classification>
        <Description xml:lang = "en">Assistant AA101</Description>
    </InvoiceDetailServiceItemReference>
    <SubtotalAmount>
        <Money currency = "USD">1200</Money>
    </SubtotalAmount>
    <Period startDate = "2001-04-01T12:00:00-00:00"
        endDate = "2001-04-30T12:00:00-00:00"/>
    <UnitRate>
        <Money currency = "USD">100.00</Money>
        <UnitOfMeasure>HUR</UnitOfMeasure>
        <TermReference termName="payCode" term="regular"/>
    </UnitRate>
    <GrossAmount>
        <Money currency = "USD">1200</Money>
    </GrossAmount>
    <NetAmount>
        <Money currency = "USD">1200</Money>
    </NetAmount>
    <InvoiceLaborDetail>
        <Contractor>
            <ContractorIdentifier domain="ContractorId">
                Contr1234
            </ContractorIdentifier>
            <Contact>
                <Name>John Doe</Name>
            </Contact>
        </Contractor>
        <JobDescription>
            Assistant left-handed broom closet monitor.
        </JobDescription>
        <Supervisor>
            <Contact>
                <Name>Jill Hill</Name>
            </Contact>
        </Supervisor>
    </InvoiceTimeCardDetail>
    <TimeCardIDInfo timeCardID="TC123">
    </InvoiceTimeCardDetail>
</InvoiceLaborDetail>
</InvoiceDetailServiceItem>
</InvoiceDetailOrder>
<InvoiceDetailOrder>
    <InvoiceDetailOrderInfo>
        <MasterAgreementIDInfo agreementID="MA-1235"/>
    </InvoiceDetailOrderInfo>
    <!-- milestone invoicing -->
    <InvoiceDetailServiceItem invoiceLineNumber="4">
        <InvoiceDetailServiceItemReference lineNumber="1">
            <Classification domain="UNSPC">78102694</Classification>
            <Description xml:lang="en">
                Market Research preliminary analysis
            </Description>
        </InvoiceDetailServiceItemReference>
        <SubtotalAmount>
            <Money currency="USD">5000</Money>
        </SubtotalAmount>
    </InvoiceDetailServiceItem>
</InvoiceDetailOrder>
<InvoiceDetailSummary>
    <SubtotalAmount>

```

```

    <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>
      <TaxLocation xml:lang="en">CA</TaxLocation>
    </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 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>
</cXML>

```

```

    <!-- Marketplace Member Organization -->
    <Credential domain="AribaNetworkUserId">
      <Identity>admin@acme.com</Identity>
    </Credential>
  </To>
  <Sender>
    <!-- Supplier -->
    <Credential domain="AribaNetworkUserId">
      <Identity>chef@supplierorg.com</Identity>
      <SharedSecret>abracadabra</SharedSecret>
    </Credential>
    <UserAgent>Our Nifty Invoice Generator V1.0</UserAgent>
  </Sender>
</Header>
<Request>
  <InvoiceDetailRequest>

```

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">
    ...
    <InvoiceDetailItem invoiceLineNumber="1" quantity="1"
      reason="return" >
      ...
    </InvoiceDetailItem>
    ...
  </InvoiceDetailRequestHeader>
</InvoiceDetailRequest>

```

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>

```

```

        <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>
            <AccountingSegment id="6460">
                <Name xml:lang="en">Account</Name>
                <Description xml:lang="en"></Description>
            </AccountingSegment>
        </Accounting>
        <Charge>
            <Money currency="USD">15.00</Money>
        </Charge>
    </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>
            <AccountingSegment id="6460">
                <Name xml:lang="en">Account</Name>
                <Description xml:lang="en"></Description>
            </AccountingSegment>
        </Accounting>
        <Charge>
            <Money currency="USD">5.00</Money>
        </Charge>
    </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>
            <AccountingSegment id="6460">
                <Name xml:lang="en">Account</Name>
                <Description xml:lang="en"></Description>
            </AccountingSegment>
        </Accounting>
        <Charge>
            <Money currency="USD">10.00</Money>
        </Charge>
    </Distribution>
</InvoiceDetailDiscount>

```

```

...
</InvoiceDetailItem>
<InvoiceDetailSummary>
  <SubtotalAmount>
    <Money alternateCurrency="" alternateAmount=""
      currency="USD">50.00</Money>
  </SubtotalAmount>
  <Tax>
    <Money alternateCurrency="" alternateAmount=""
      currency="USD">0.00</Money>
    <Description xml:lang="en">TotalTax</Description>
    <TaxDetail percentageRate="0.00" category="sales" purpose="" >
      <TaxableAmount>
        <Money alternateCurrency="" alternateAmount=""
          currency="USD">62.00</Money>
      </TaxableAmount>
      <TaxAmount>
        <Money alternateCurrency="" alternateAmount=""
          currency="USD">0.00</Money>
      </TaxAmount>
      <Description xml:lang="en">Sales tax level</Description>
    </TaxDetail>
    <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">1111.00</Money>
      </Charge>
    </Distribution>
  </Tax>
  <SpecialHandlingAmount>
    <Money alternateCurrency="" alternateAmount="" currency="USD">6.00</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">6.00</Money>
      </Charge>
    </Distribution>
  </SpecialHandlingAmount>
  <ShippingAmount>
    <Money alternateCurrency="" alternateAmount="" currency="USD">7.00</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>
    </Distribution>
  </ShippingAmount>

```

```

        </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 \[page 388\]](#)

[ServiceEntryRequest \[page 388\]](#)

[Service Sheet Status Updates \[page 401\]](#)

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/>
```

```

    <ShipNoticeIDInfo/>
    <PaymentTerm/>
    <Period/>
    <Comments/>
    <Extrinsic/>
  </ServiceEntryRequestHeader>
  <ServiceEntryOrder>
    <ServiceEntryOrderInfo/>
    <ServiceEntryItem>
      <ItemReference/>
      (<MasterAgreementReference/> | <MasterAgreementIDInfo/>)
      (<UnitRate/> | <UnitPrice/> | <UnitOfMeasure/> | <PriceBasisQuantity/>)
      <Period/>
      <SubtotalAmount/>
      <Tax/>
      <GrossAmount/>
      <ServiceEntryDetailLineSpecialHandling/>
      <ServiceEntryDetailLineShipping/>
      <ShipNoticeIDInfo/>
      <ServiceEntryDetailDiscount/>
      <ServiceEntryItemModifications/>
      <TotalCharges/>
      <TotalAllowances/>
      <TotalAmountWithoutTax/>
      <NetAmount/>
      <Distribution/>
      <Comments/>
      <Extrinsic/>
    </ServiceEntryItem>
  </ServiceEntryOrder>
  <ServiceEntrySummary>
    <SubtotalAmount/>
    <Tax/>
    <SpecialHandlingAmount/>
    <ShippingAmount/>
    <GrossAmount/>
    <ServiceEntryDetailDiscount/>
    <ServiceEntryHeaderModifications/>
    <ServiceEntrySummaryLineItemModifications/>
    <TotalCharges/>
    <TotalAllowances/>
    <TotalAmountWithoutTax/>
    <NetAmount/>
    <DepositAmount/>
    <DueAmount/>
  </ServiceEntrySummary>
</ServiceEntryRequest>

```

15.2.1 ServiceEntryRequestHeader

The `ServiceEntryRequestHeader` element describes header-level information for the service sheet and has the following attributes:

Attribute	Description
<code>serviceEntryDate</code> (required)	The date when the supplier created the service sheet, which should be earlier than the document's timestamp.
<code>serviceEntryID</code> (required)	A supplier-generated identification number for the service sheet.

Attribute	Description
supplierReferenceNumber	A reference to the supplier associated with the service sheet, which is implied.
operation	Specifies how the <code>ServiceEntryRequest</code> behaves. Possible values: <ul style="list-style-type: none"> new—The <code>ServiceEntryRequest</code> creates a new service sheet. The default value is <code>operation="new"</code>. delete—The <code>ServiceEntryRequest</code> cancels an existing service sheet, which must be specified by referencing its <code>payloadID</code> in the <code>DocumentReference</code> element.
isFinal	Set to "yes" to indicate that this item is closed, and no more deliveries are expected for it

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:

Value	Description
fieldEngineer	The buying organization or marketplace entity that supervises the service.
fieldContractor	The supplier entity that provides the service.
requester	The buying organization or marketplace entity that ordered or approves the service.

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:

Attribute	Description
<code>payloadID</code> (required)	The value of the <code>payloadID</code> attribute for the earlier <code>ServiceEntryRequest</code> .

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.

`Period` has the following attributes:

Attribute	Description
<code>startDate</code> (required)	The start date for the service.
<code>endDate</code> (required)	The end date for the service.

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 \[page 22\]](#).

`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>
  See the attached file for equipment specifications.
</Comments>
```

15.2.1.10 IdReference

Defines an ID reference. See [IdReference \[page 293\]](#).

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:

Attribute	Description
<code>orderId</code>	The ID from the buying organization or marketplace's purchase order. If present, it must be copied from the <code>OrderRequestHeader</code> .
<code>orderDate</code>	The date and time the purchase order was created. If present, it must be copied from the <code>OrderRequestHeader</code> .

OrderIDInfo Element

The `OrderIDInfo` element references a purchase order known to the buyer's system. It includes the following attributes:

Attribute	Description
<code>orderID</code> (required)	The ID of a purchase order known to the buyer's system.
<code>orderDate</code>	The date and time the purchase order was created.

15.2.2.2 ServiceEntryItem

The `ServiceEntryItem` element describes individual line items in a `ServiceEntryRequest`. It has the following attributes:

Attribute	Description
<code>serviceLineNumber</code> (required)	The supplier-defined ID for the current service line, which should be unique for every <code>ServiceEntryItem</code> in a <code>ServiceEntryRequest</code> .
<code>quantity</code> (required)	The quantity serviced for the current service line.
<code>type</code>	Specifies the type for the <code>ServiceEntryItem</code> . Possible values: <ul style="list-style-type: none">• <code>material</code>—Material goods delivered as part of a service order.• <code>service</code>—Services delivered as part of a service order.
<code>referenceDate</code>	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.
<code>inspectionDate</code>	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.
<code>isAdHoc</code>	Indicates the item does not exist in the reference document or contract master agreement.

`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:

Attribute	Description
<code>lineNumber</code> (required)	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.

`ItemReference` can contain the following elements:

Element	Description
<code>ItemID</code>	The part number for the service line.
<code>IdReference</code>	A unique ID for the part number.
<code>Classification</code>	The classification code for the service line.
<code>Description</code>	A text description of the service line.

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:

Attribute	Description
<code>agreementID</code>	The ID of a master agreement known to the buyer's system.
<code>agreementDate</code>	The date and time when the master agreement was created.
<code>agreementType</code>	The type of the master agreement being referenced, for example, "scheduling_agreement".

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:

Attribute	Description
<code>agreementID</code> (required)	The ID of a master agreement known to the buyer's system.
<code>agreementDate</code>	The date and time when the master agreement was created.
<code>agreementType</code>	The type of the master agreement being referenced, for example, "scheduling_agreement".

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:

Element	Description
<code>Money</code>	The money amount of the rate. See Money [page 45]
<code>UnitOfMeasure</code>	Describes the unit in which the service is provided. See UnitOfMeasure [page 44] .
<code>PriceBasisQuantity</code>	The quantity on which the price is based. See PriceBasisQuantity [page 346] .
<code>TermReference</code>	<code>TermReference</code> is a generic base element that identifies the definition of the <code>UnitRate</code> in question. See UnitRate [page 142] .

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 \[page 346\]](#).

Period

The `Period` element specifies the time period over which the supplier rendered the services.

`Period` has the following attributes:

Attribute	Description
<code>startDate</code> (required)	The start date for the service.
<code>endDate</code> (required)	The end date for the service.

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 \[page 45\]](#).

Tax

The tax info for this line item. It is ignored if `isTaxInLine` is false. See [Tax \[page 350\]](#).

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 \[page 355\]](#).

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 \[page 145\]](#).

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 \[page 350\]](#).

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 \[page 282\]](#)

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 \[page 403\]](#)

[Type Definitions \[page 407\]](#)

[Subscription Management Definitions \[page 412\]](#)

[Catalog Upload Transaction \[page 421\]](#)

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:

```
<Supplier>
  <Name/>
  <SupplierID/>
  <SupplierLocation>
    <Address/>
    <OrderMethods>
      <OrderMethod>
        <OrderTarget/>
        <OrderProtocol/>
      </OrderMethod>
    </OrderMethods>
    <Contact/>
  </SupplierLocation>
</Supplier>
```

```
</SupplierLocation>
</Supplier>
```

Supplier has the following attributes:

Attribute	Description
corporateURL	URL for supplier's website.
storeFrontURL	URL for website for shopping or browsing.

The following example shows an outline of the Supplier element:

```
<Supplier>
  <Name xml:lang="en-US">Workchairs </Name>
  <SupplierID domain="oracle107">29</SupplierID>
  <SupplierID domain="DUNS">76554545</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>
      <URL>http://www.workchairs.com/Support.htm</URL>
    </Address>
    <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:

```
<Index loadmode="Incremental">
  <SupplierID> ... </SupplierID>
  ...
  <IndexItem>
    <IndexItemAdd>
      <ItemID>
        ...
      </ItemID>
      <ItemDetail>
        ...
      </ItemDetail>
      <IndexItemDetail>
        <SearchGroupData>
          ...
        </SearchGroupData>
        ...
      </IndexItemDetail>
    </IndexItemAdd>
  </IndexItem>
  <IndexItem>
    <IndexItemDelete>
      <ItemID>
        ...
      </ItemID>
    </IndexItemDelete>
  </IndexItem>
  <IndexItem>
    <IndexItemPunchout>
      <ItemID>
        ...
      </ItemID>
      <PunchOutDetail>
        <SearchGroupData>
          ...
        </SearchGroupData>
        ...
      </PunchOutDetail>
    </IndexItemPunchout>
  </IndexItem>
  ...
</Index>
```

```

        </PunchOutDetail>
      </IndexItemPunchout>
    </IndexItem>
  </Index>

```

Index has the following attribute:

Attribute	Description
loadmode	<p>The mode in which the target application should load the Index. Possible values:</p> <ul style="list-style-type: none"> Full—Completely replaces a previously loaded index. 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.

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 puchout 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 \[page 91\]](#).

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 \[page 91\]](#).

The optional `LeadTime` element describes the number of days needed for the buyer to receive the product. For example:

```
<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:

Attribute	Description
<code>punchoutLevel</code>	<p>Specifies how the procurement application should present the <code>PunchOut</code> item to users. This attribute can have the value <code>store</code>, <code>aisle</code>, <code>shelf</code>, or <code>product</code>.</p> <p>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.</p>

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:

Attribute	Description
<code>name</code> (required)	The canonical name used to reference the type provider when fully qualifying the name of a type (for example, in a <code>SearchGroupData</code> element reference).

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:

Attribute	Description
name (required)	Canonical name of the type.
extends	Name of the type that is being extended.

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.

Attribute	Description
name (required)	Specifies the canonical name of this attribute.

Attribute	Description
<code>type</code> (required)	Specifies the data type of this attribute. Possible values: <ul style="list-style-type: none"> <code>integer</code>—A whole number, with no fraction. <code>string</code>—A group of characters with words that can be individually indexed for free text searching. <code>literal</code>—A group of characters with words that cannot be individually indexed for free text searching. <code>double</code>—A floating point number. <code>date</code>—A date of the form yyyy-mm-dd; for example, 2002-01-25 <code>boolean</code>—A Boolean value; yes, no, 1, 0, true, false, t, or f.
<code>shortTag</code>	Alias for this attribute.
<code>mappedFrom</code>	Specifies the name of another object in the system that implicitly defines this attribute.
<code>isRequired</code>	Indicates whether this attribute requires a (non-empty) value.
<code>isRequiredForOrdering</code>	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.
<code>isRefinable</code>	Indicates whether this attribute is refinable in search queries.
<code>isSearchable</code>	Indicates whether this attribute is searchable in search queries.
<code>isCollection</code>	Indicates whether this attribute allows repeating values.
<code>isCaseSensitive</code>	Indicates whether this attribute preserves letter case. This property applies only to attributes of type <code>string</code> or <code>literal</code> . It has no effect on numeric, boolean, or date attributes, nor does it apply to attributes of complex type.
<code>isInKey</code>	Indicates whether this attribute is part of the unique key for the type.
<code>isInFreeTextSearch</code>	Indicates whether this attribute should be indexed to be a candidate in a free-text (All) query.
<code>isHidden</code>	Indicates whether this attribute is displayed to users.
<code>isSortable</code>	Indicates whether this attribute can be sorted.
<code>isReadOnly</code>	Indicates whether values assigned to this attribute are frozen and cannot be changed by the receiving application.
<code>unit</code>	Specifies the unit of this attribute, if applicable. For example, if the <code>TypeAttribute</code> is of a <code>PrimitiveType</code> with a scalar type of <code>"integer"</code> , this unit might be <code>"IN"</code> to indicate inches.

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:

```
<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:

```
<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:

Attribute	Description
name (required)	The name for a TypeAttribute.
type (required)	The scalar type. Possible values are "integer", "string", "literal", "double", "date", and "boolean".
min	The minimum length for a TypeAttribute of scalarType "string" or "literal".
max	The maximum length for a TypeAttribute of scalarType "string" or "literal".
maxPrecision	The maximum precision for a TypeAttribute of scalarType "double".
maxScale	The maximum scale for a TypeAttribute of scalarType "double".

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 \[page 412\]](#)
- [Supplier Profile Information \[page 415\]](#)
- [Catalog Subscriptions \[page 418\]](#)

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.

```
<Request>
  <SupplierListRequest/>
</Request>
```

16.3.1.2 SupplierListResponse

SupplierListResponse lists the suppliers with whom the buyer has established trading relationships.

```
<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.

```
<Request>
  <SupplierDataRequest>
    <SupplierID domain="DUNS">123456789</SupplierID>
  </SupplierDataRequest>
</Request>
```

16.3.1.4 SupplierDataResponse

SupplierDataResponse contains data about a supplier.

```
<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 isoStateCode="US-CA">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>
                <CountryCode
                    isoCountryCode="US">1</CountryCode>
                <AreaOrCityCode>800</AreaOrCityCode>
                <Number>5551212</Number>
            </TelephoneNumber>
        </Phone>
        <Fax name="Order">
            <TelephoneNumber>
                <CountryCode
                    isoCountryCode="US">1</CountryCode>
                <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>
</Response>

```

For information about the `Supplier` element, see [Supplier \[page 403\]](#).

16.3.1.5 SupplierChangeMessage

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 isoStateCode="US-CA">CA</State>
            <PostalCode>95000</PostalCode>
            <Country isoCountryCode="US">USA</Country>
          </PostalAddress>
        </Address>
        <Email>bobw@workchairs.com</Email>
        <Phone name="Office">

```

```

        <TelephoneNumber>
            <CountryCode
                isoCountryCode="US">1</CountryCode>
            <AreaOrCityCode>800</AreaOrCityCode>
            <Number>5551212</Number>
        </TelephoneNumber>
    </Phone>
    <Fax name="Order">
        <TelephoneNumber>
            <CountryCode
                isoCountryCode="US">1</CountryCode>
            <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>
</SupplierChangeMessage>
</Message>

```

Related Information

[Get Pending/Data Download Transaction \[page 428\]](#)

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.

```

<Request>
    <OrganizationDataRequest>
        <OrganizationID>

```

```

    <Credential domain="NetworkID">
      <Identity>AN010222222222</Identity>
    </Credential>
    <Credential domain="DUNS">
      <Identity>123456789</Identity>
    </Credential>
  </OrganizationID>
</OrganizationDataRequest>
</Request>

```

16.3.2.2 OrganizationDataResponse

OrganizationDataResponse returns profile information for suppliers with whom the buyer has established trading relationships.

```

<Response>
  <Status code="200" text="OK"/>
  <OrganizationDataResponse>
    <Organization>
      <Name xml:lang="en-US">Workchairs</Name>
      <Credential domain="NetworkID">
        <Identity>AN010222222222</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 isoStateCode="US-CA">CA</State>
          <PostalCode>95000</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
        <Email>bobw@workchairs.com</Email>
        <Phone>
          <TelephoneNumber>
            <CountryCode isoCountryCode="US">1</CountryCode>
            <AreaOrCityCode>800</AreaOrCityCode>
            <Number>555-1212</Number>
          </TelephoneNumber>
        </Phone>
        <Fax>
          <TelephoneNumber>
            <CountryCode isoCountryCode="US">1</CountryCode>
            <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 isoStateCode="US-CA">CA</State>
            <PostalCode>90488</PostalCode>
            <Country isoCountryCode="US">United States</Country>
          </PostalAddress>

```

```

        <Email>support@workchairs.com</Email>
    </Contact>
    <PersonRole name="buyerAccount"/>
    <PersonRole name="supplierMasterAccount"/>
</Person>
</Organization>
<Extrinsic name="OrderRoutingMethod">email</Extrinsic>
</OrganizationDataResponse>
</Response>

```

16.3.2.3 OrganizationChangeMessage

OrganizationChangeMessage returns updated profile information for suppliers with whom the buyer has established trading relationships.

```

<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 isoStateCode="US-IL">IL</State>
          <PostalCode>60143</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
        <Email>nramani@ariba.com</Email>
        <Phone name="">
          <TelephoneNumber>
            <CountryCode isoCountryCode="US">1</CountryCode>
            <AreaOrCityCode></AreaOrCityCode>
            <Number>555-555-5555</Number>
          </TelephoneNumber>
        </Phone>
        <Fax name="">
          <TelephoneNumber>
            <CountryCode isoCountryCode="US">1</CountryCode>
            <AreaOrCityCode></AreaOrCityCode>
            <Number>666-666-6666</Number>
          </TelephoneNumber>
        </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:

```
<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:

Element	Description
<code>InternalID</code> (required)	A unique ID internal to the intermediary. Contains an optional domain attribute.
<code>Name</code> (required)	The name of the subscription.
<code>ChangeTime</code> (required)	The date and time when any aspect of the subscription last changed.
<code>SupplierID</code> (required)	The ID of the supplier.
<code>Format</code>	The format of the catalog.
<code>Description</code>	A description of the catalog.

16.3.3.2 SubscriptionListRequest

This element requests the buyer's current list of catalog subscriptions.

```
<Request>
  <SubscriptionListRequest/>
</Request>
```

16.3.3.3 SubscriptionListResponse

This element lists the buyer's current list of catalog subscriptions.

```
<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.

`<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.

```
<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.

```
<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 -->
        ABCDBBDBBDBDB
        .
        .
        .
      </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 \[page 428\]](#)

```
<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.

```
<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:

```
<!-- begin MIME header -->
--kdfkajfdksadjfklasdjfkljdfdsfdkf
Content-type: text/xml; charset=UTF-8
Content-ID: <part1.PC028.975529413484@saturn.workchairs.com>
<!-- end MIME header -->
<?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">
        <!-- ID of network hub -->
        <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>
        <!-- ID of MIME attachment -->
        <URL>cid:part2.PC028.975529413154@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>
<!-- begin MIME attachment header -->
--kdfkajfdksadjfklasdjfkljdfdsfdkf
Content-type: text/plain; charset=US-ASCII
Content-Disposition: attachment; filename=PremiereCatalog.cif
Content-ID: <part2.PC028.975529413154@saturn.workchairs.com>
<!-- end MIME attachment header -->
```

```

Content-length: 364
CIF I V3.0
LOADMODE: F
CODEFORMAT: UNSPSC
CURRENCY: USD
SUPPLIERID_DOMAIN: DUNS
ITEMCOUNT: 3
TIMESTAMP: 2001-01-15 15:25:04
DATA
942888710,34A11,C11,"Eames Chair, Black Leather",11116767,400.00,EA,3,"Fast
MFG",,,400.00
942888710,56A12,C12,"Eames Ottoman, Black Leather",11116767,100.00,EA,3,"Fast
MFG",,,100.00
942888710,78A13,C13,"Folding Chair, Grey Stackable",11116767,25.95,EA,3,"Fast
MFG",,,25.95
ENDOFDATA
<!-- MIME trailer -->
--kdflkajfdksadjfklasdjfkljdfdsfdkf--

```

CatalogUploadRequest has the following attribute:

Attribute	Description
operation (required)	Specifies the type of upload to perform. Possible values: <ul style="list-style-type: none"> 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:

Attribute	Description
xml:lang (required)	Specifies the language used for the catalog name. Language codes are defined in 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. 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:

Attribute	Description
<code>xml:lang</code> (required)	Specifies a language used for the catalog name. For more information, see the description of <code>xml:lang</code> for <code>CatalogName</code> , above.
<code>type</code> (required)	The qualifier of the description.

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 \[page 425\]](#).

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:

Attribute	Description
<code>enabled</code> (required)	Specifies whether to automatically publish the catalog. Possible values: <ul style="list-style-type: none"><code>true</code>—Publishes the catalog. It must be an update to a previously published catalog.<code>false</code>—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 \[page 426\]](#).

`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 \[page 47\]](#).

`URLPost` has the following attribute:

Attribute	Description
<code>enabled</code> (required)	Specifies whether the network sends catalog-status notifications through <code>StatusUpdateRequest</code> . Possible values: <ul style="list-style-type: none"><code>true</code>—Enables this feature.<code>false</code>—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.

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.

i 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 \[page 121\]](#)

16.4.2 Response

After you send a `CatalogUploadRequest`, the network hub replies with a standard cXML Response document:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML 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 \[page 34\]](#)

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 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--1234567899555556789@10.10.83.39">
      </DocumentReference>
      <Status text="Success" code="200">
        Validated
      </Status>
    </StatusUpdateRequest>
  </Request>
</cXML>
```

The possible status codes are:

Status Code	Meaning
200 Success	The catalog-upload request succeeded.
463 Bad Catalog Format	The zip file is invalid.
470 Catalog Has Errors	The message is the status of the catalog. (HasErrors)

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 \[page 428\]](#)

[GetPendingRequest \[page 428\]](#)

[GetPendingResponse \[page 429\]](#)

[DataRequest \[page 432\]](#)

[DataResponse \[page 432\]](#)

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.

Attribute	Description
<code>lastReceivedTimestamp</code>	The timestamp of the most recent document received.
<code>maxMessages</code>	Maximum number of documents in a single response that the requester can handle.

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 `maxMessages` attribute. The queuing system discards all pending documents of the specified message types with timestamps earlier than the specified timestamp.

```
<?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 `Response` document in the same HTTP connection. If the `Response` contains no `GetPendingResponse` document, no documents are waiting. If it contains a `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 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"/>
  </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 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>AN01000000001</Identity>
          </Credential>
        </From>
        <To>
          <Credential domain="NetworkId">
            <Identity>AN13000000259</Identity>
          </Credential>
        </To>
        <Sender>
          <Credential domain="NetworkId">
            <Identity>AN01000000001</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>
```

Related Information

[SupplierChangeMessage \[page 414\]](#)

[SubscriptionChangeMessage \[page 420\]](#)

17.3.2.2 Documents Referenced through DataAvailableMessage

`GetPendingReponse` 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 version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML timestamp="2005-01-12T16:00:18-08:00"
payloadID="1105574420906--451266344000288275@10.10.13.125">
  <Response>
    <Status code="200" text="OK"/>
    <GetPendingResponse>
      <cXML timestamp="2005-01-12T16:00:18-08:00"
        payloadID="1105574420141-977399960268715709@10.10.13.125">
        <Header>
          <From>
            <Credential domain="NetworkId">
              <Identity>AN01000000001</Identity>
            </Credential>
          </From>
          <To>
            <Credential domain="NetworkId">
              <Identity>AN13000000259</Identity>
            </Credential>
          </To>
          <Sender>
            <Credential domain="NetworkId">
              <Identity>AN01000000001</Identity>
              <UserAgent>ANCXMLDispatcher</UserAgent>
            </Credential>
          </Sender>
        </Header>
        <Message>
          <DataAvailableMessage>
            <InternalID domain="PendingMessages">3738</InternalID>
          </DataAvailableMessage>
        </Message>
      </cXML>
    </GetPendingResponse>
  </Response>
</cXML>
```

```

        </Message>
      </cXML>
    </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 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.

```

Content-Type: multipart/mixed; boundary="====_Part_0_10550230.1105574425445"
-----_Part_0_10550230.1105574425445

```

```

Content-Type: text/xml; charset=UTF-8
Content-ID: <1105574425572.1197583259@cetus.hub.com>
<?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="1105574425428-5167970095322563427@10.10.13.103">
  <Response>
    <Status code="200" text="OK"/>
    <DataResponse>
      <Attachment>
        <URL>cid:1105574422695.1816707419@cetus.hub.com</URL>
      </Attachment>
    </DataResponse>
  </Response>
</cXML>
-----=_Part_0_10550230.1105574425445
Content-Type: text/xml; charset=UTF-8
Content-ID: <1105574422695.1816707419@cetus.hub.com>
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE cXML SYSTEM "http://xml.cxml.org/schemas/cXML/1.2.014/cXML.dtd">
<cXML payloadID="1105573919487--7116204576911739136@10.10.13.125"
      timestamp="2005-01-12T15:51:59-08:00">
  <Header>
    <From>
      <Credential domain="NetworkId">
        <Identity>AN12000000259</Identity>
      </Credential>
    </From>
    <To>
      <Credential domain="NetworkId">
        <Identity>AN13000000259</Identity>
      </Credential>
    </To>
    <Sender>
      <Credential domain="NetworkId">
        <Identity>AN01000000001</Identity>
      </Credential>
      <UserAgent>Network Hub 2.0</UserAgent>
    </Sender>
  </Header>
  <Request deploymentMode="production">
    <StatusUpdateRequest>
      <DocumentReference payloadID="D0123@hydra.buyer.com"/>
      <Status code="200" message="OK"/>
    </StatusUpdateRequest>
  </Request>
</cXML>
-----=_Part_0_10550230.1105574425445--

```

For more information on MIME attachments, see [Attachments \[page 22\]](#).

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 \[page 434\]](#)

[ProviderSetupRequest Document \[page 435\]](#)

[ProviderSetupResponse Document \[page 438\]](#)

[ProviderDoneMessage Document \[page 440\]](#)

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.

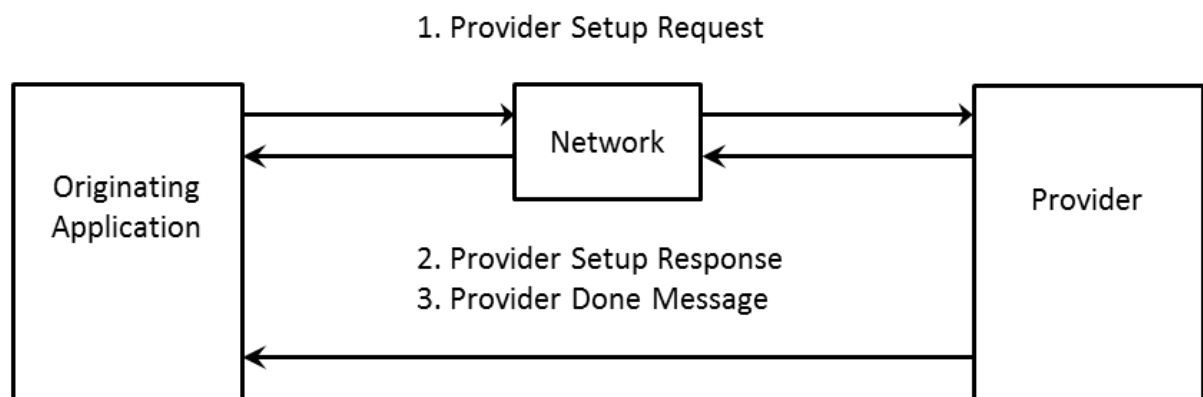


Figure 16: Provider PunchOut Transaction Message Flow

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 \[page 30\]](#) 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>
    <Extrinsic name="QueryString">req=R532&login=gtou</Extrinsic>
  </ProviderSetupRequest>
</Request>
```

The following table provides guidelines for the structure of the request section of the Provider PunchOut message.

Element	Instances	Parent Elements	Child Elements	Attributes
ProviderSetupRequest	1	Request	OriginatorCookie , BrowserFormPost, SelectedService, Extrinsic	None
OriginatorCookie	1	ProviderSetupRequest, ProviderDoneMessage	None	None
BrowserFormPost	0 or 1	ProviderSetupRequest	URL	None
URL	0 or 1	BrowserFormPost, Followup	None	None
SelectedService	1	ProviderSetupRequest	None	None
Extrinsic	Any	ProviderSetupRequest	Varies	name

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`.

i 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.

```
<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>
    <To>
```

```

        <Credential domain="NetworkId">
            <Identity>AN01000000003</Identity>
        </Credential>
    </To>
    <Sender>
        <Credential domain="NetworkId">
            <Identity>AN01000001709</Identity>
            <SharedSecret>abracadabra</SharedSecret>
        </Credential>
        <UserAgent>www.triton.com</UserAgent>
    </Sender>
</Header>
<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>
        <Extrinsic name="QueryString">req=R532&login=gtou</Extrinsic>
    </ProviderSetupRequest>
</Request>
</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.

```

<cXML payloadID="456789@marketplace.com"
  xml:lang="en-US" timestamp="2000-03-12T18:40:15-08:00">
  <Response>
    <Status code="200" text="OK"/>
    <ProviderSetupResponse>
      <StartPage>
        <URL>http://sun@marketplace.com/enter?23423SDFSDF23</URL>
      </StartPage>
    </ProviderSetupResponse>
  </Response>
</cXML>

```

The following table provides guidelines for the structure of the `ProviderSetupResponse` document of the Provider PunchOut transaction.

Element	Instances	Parent Elements	Child Elements	Attributes
Response	1	cXML	Status, ProviderSetupResponse	None
Status	1	Response	None	code, text
ProviderSetupReponse	1	Response	StartPage	None

Element	Instances	Parent Elements	Child Elements	Attributes
StartPage	1	ProviderSetupReponse	URL	None
URL	1	StartPage	None	None

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:

Attribute	Description
<code>code</code> (required)	The status code of the request. This follows the HTTP status code model. For example, 200 represents a successful request.
<code>text</code> (required)	The text of the status message. This text aids user readability in logs, and it consists of canonical strings in English.
<code>xml:lang</code>	Specifies a language used for the provider request. See Locale Specified by xml:lang [page 27] .

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 \[page 34\]](#) 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.

```
<cXML payloadID="456789@marketplace.com"
  xml:lang="en-US" timestamp="2000-03-12T18:40:15-08:00">
  <Response>
    <Status code="200" text="OK"/>
    <ProviderSetupResponse>
      <StartPage>
        <URL>http://sun@marketplace.com/enter?23423SDFSDF23</URL>
      </StartPage>
    </ProviderSetupResponse>
  </Response>
</cXML>
```

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.

```
<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 \[page 30\]](#) 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.

```
<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.

Element	Instances	Parent Elements	Child Elements	Attributes
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.

```
<cXML timestamp="2000-07-11T15:13:28-07:00"
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 \[page 444\]](#)
- [ComponentConsumptionRequest \[page 461\]](#)
- [ProductReplenishmentMessage \[page 467\]](#)
- [QualityNotificationRequest \[page 477\]](#)
- [QualityInspectionRequest \[page 501\]](#)
- [QualityInspectionResultRequest \[page 511\]](#)
- [QualityInspectionDecisionRequest \[page 517\]](#)
- [ApprovalRequest \[page 521\]](#)
- [SalesOrderRequest \[page 528\]](#)

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:

```
<ProductActivityMessage>
  <ProductActivityHeader/>
  <ProductActivityDetails>
    <ItemID/> | <ResourceID/>
    <Description/>
    <Classification/>
    <SerialNumberInfo/>
    <ForecastDetails/>
    <LeadTime/>
    <PlannedAcceptanceDays/>
    <ManufacturerPartID/>
    <ReferenceDocumentInfo/>
    <Characteristic/>
    <Batch/>
    <Contact/>
    <UnitPrice/>
    <Inventory/>
    <ConsignmentInventory/>
    <TimeSeries/>
    <PlanningTimeSeries/>
```

```

        <InventoryTimeSeries/>
        <ConsignmentMovement/>
        <SalesReport/>
        <UnitOfMeasure/>
        <Extrinsic/>
    </ProductActivityDetails>
    <Extrinsic/>
</ProductActivityMessage>

```

i Note

`ProductActivityDetails` can include the `Inventory` element instead of the `ConsignmentInventory` element.

`ProductActivityMessage` has the following attribute:

Attribute	Description
<code>subcontractingIndicator</code>	Indicates whether the data in the message is related to subcontracting (yes or no).

`ProductActivityMessage` has the following elements:

Element	Description
<code>ProductActivityHeader</code> (required)	Contains the product activity message header. See ProductActivityHeader [page 448] .
<code>ProductActivityDetails</code> (required)	Represents a single component inventory, the product forecast details, or a consignment movement for that product. See ProductActivityDetails [page 449] .
<code>Extrinsic</code>	Contains any additional information for this <code>ProductActivityMessage</code> element.

Here is an example of `ProductActivityMessage` used for a supplier-managed inventory process:

```

<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>
  <Contact role="BuyerPlannerCode">
    <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>
      <IdReference identifier="1" domain="">
    </TimeSeriesDetails>
  </InventoryTimeSeries>
</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>
    <IdReference identifier="1" domain="">
  </TimeSeriesDetails>
</InventoryTimeSeries>
</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>
    <IdReference identifier="1" domain="">
  </TimeSeriesDetails>
</InventoryTimeSeries>
</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>
    <IdReference identifier="1" domain="">
  </TimeSeriesDetails>
</InventoryTimeSeries>
</PlanningTimeSeries>

```

```

    </ProductActivityDetails>
  </ProductActivityMessage>
</Request>

```

Here is an example of ProductActivityMessage used for capacity planning:

```

<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>
          <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>
        <IdReference domain="" identifier="">
          <Creator xml:lang="EN">Creator</Creator>
          <Description type="Description" xml:lang="EN"/>
        </IdReference>
      </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 isoStateCode="US-CA">CA</State>
          <PostalCode>94304</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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>
        <Extrinsic name=""/>
      </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>

```

```

        </TimeSeriesQuantity>
      </TimeSeriesDetails>
    </PlanningTimeSeries>
  </ProductActivityDetails>
</ProductActivityMessage>
</Request>

```

19.1.1 ProductActivityHeader

ProductActivityHeader is the header element for the ProductActivityMessage. It has the following attributes:

Attribute	Description
messageID (required)	An identifier for this particular product activity message.
creationDate	The date and time this product activity message was created.
processType	<p>Identifies the business process supported by the message. Possible values:</p> <ul style="list-style-type: none"> • SMI—Supplier-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • OEM—OEM-owned inventory scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries, InventoryTimeSeries). • VMI—Vendor-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • 3PL—Third-party logistics inventory scenarios (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • ManufacturingVisibility—Contract manufacturers sharing inventory visibility (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • Forecast—Forecast collaboration (TimeSeries, PlanningTimeSeries). • Consignment—Consignment material movements (ConsignmentInventory, ConsignmentMovement). • Sales—Sales report visibility (SalesReport). • POC—Purchase order collaboration scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries). • Capacity—Capacity planning scenarios (PlanningTimeSeries). • Other—Other collaboration scenarios.

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:

Attribute	Description
<code>status</code>	Indicates whether the material used in the planning process is "active", "inactive", or "deleted".

`ProductActivityDetails` has the following elements:

Element	Description
<code>ItemID ResourceID</code> (required)	<ul style="list-style-type: none"><code>ItemID</code>—A unique identification of a component item in the supplier back-end system or buyer backend system. See ItemID [page 91].<code>ResourceID</code>—A unique identification of a production facility leveraged during production, such as a piece of equipment or a production line. See ResourceID [page 450].
<code>Description</code>	Description of the component.
<code>Classification</code>	Groups items into similar categories. See Classification [page 451] .
<code>SerialNumberInfo</code>	Represents the required serial number information for a line item. For Component Inventory, the <code>SerialNumberInfo@type</code> must be "list" or "range". See SerialNumberInfo [page 174] .
<code>ForecastDetails</code>	Defines the start and end dates for the accumulation of the forecast for a part. See ForecastDetails [page 452] .
<code>LeadTime</code>	Lead time in days.
<code>PlannedAcceptanceDays</code>	Number of days the buyer schedules for the inspection of goods after receiving them.
<code>ManufacturerPartID</code>	ID that the item's manufacturer uses to identify the item.
<code>ReferenceDocumentInfo</code>	Contains details of a referenced document. See ReferenceDocumentInfo [page 130] .
<code>Characteristic</code>	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.
<code>Batch</code>	Batch information of goods or material. The information includes ID and characteristics. See Batch [page 181] .
<code>Contact</code>	The location from and to the product activity that is taking place. See Contact [page 452] .

Element	Description
UnitPrice	Price per unit of the item.
Inventory	Inventory that is in the possession of the buyer, and is owned and managed by the buyer. See Inventory [page 452] .
ConsignmentInventory	Inventory that is in the possession of the buyer, but is owned by the supplier. See ConsignmentInventory [page 455] .
TimeSeries	Represents a time series in the forecast data. See TimeSeries [page 455] .
PlanningTimeSeries	Contains planning information from buyers ERP system to provide visibility of critical business information to suppliers and other partners. See PlanningTimeSeries [page 456] .
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. See InventoryTimeSeries [page 457] .
ConsignmentMovement	Describes the consignment movement information for this product. See ConsignmentMovement [page 459] .
SalesReport	Contains information about a sales report at the item level. See SalesReport [page 460] .
UnitOfMeasure	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.
Extrinsic	Contains any additional information for this <code>ProductActivityDetails</code> element.

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:

Element	Description
SupplierResourceID (required)	Uniquely identifies a plant, piece equipment or other production facilities leveraged by the supplier during production.
ResourceType	Identifies the resource category the <code>ResourceID</code> belongs to.
InputItemID	Uniquely identifies materials consumed by a resource during production process. See InputItemID [page 451] .

Element	Description
OutputItemID	Uniquely identifies materials produced by a resource during production process. See OutputItemID [page 451] .
IdReference	Defines an ID reference. The identifier/domain pair should be unique within each trading partner relationship (a buying organization and a supplier).

19.1.2.1.1 InputItemID

Uniquely identifies materials consumed by a resource during the production process.

InputItemID has the following element:

Element	Description
ItemID	Provides unique identification of an item.

19.1.2.1.2 OutputItemID

Uniquely identifies materials produced by a resource during the production process.

OutputItemID has the following element:

Element	Description
ItemID	Provides unique identification of an item.

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

- ExternalProgramCode
- PartCategory
- PartType

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:

Attribute	Description
<code>cumulativeStartDate</code>	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.
<code>cumulativeEndDate</code>	The end date till which the cumulative values for forecast and commit will be calculated.

19.1.2.4 Contact

The location from and to the product activity that is taking place. See [Contact \[page 118\]](#).

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`:

```
<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:

Element	Description
SubcontractingStock-InTransferQuantity	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.
UnrestrictedUseQuantity	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.
BlockedQuantity	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.
QualityInspectionQuantity	The quantity of inventory that is under quality inspection. This element has a quantity attribute and a UnitOfMeasure element.
PromotionQuantity	The quantity of inventory that is reserved for promotions. This element has a quantity attribute and a UnitOfMeasure element.
StockInTransferQuantity	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.
IncrementQuantity	The quantity used to increment (add to) stock. This element has a quantity attribute and a UnitOfMeasure element.
RequiredMinimumQuantity	Minimum stock level at which the stock must be maintained. This element has a quantity attribute and a UnitOfMeasure element.
RequiredMaximumQuantity	Maximum stock level at which the stock must be maintained. This element has a quantity attribute and a UnitOfMeasure element.
StockOnHandQuantity	The calculated value of different Stock types dependent on the customer, location, and material. This element has a quantity attribute and a UnitOfMeasure element.
WorkInProcessQuantity	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.
IntransitQuantity	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.

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 <code>quantity</code> attribute and a <code>UnitOfMeasure</code> 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 <code>minimum</code> and <code>maximum</code> attributes and a <code>UnitOfMeasure</code> 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 <code>minimum</code> and <code>maximum</code> attributes. The system issues replenishment proposals when the days of supply falls above or below the threshold.

Here is an example of Inventory:

```
<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:

Element	Description
Period (required)	Defines a start date and end date for the forecast period.
ForecastQuantity (required)	Forecast quantity.
UnitPrice	Price per unit of the forecast quantity.
Extrinsic	Contains any additional information related to this object.

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:

Attribute	Description
type (required)	A string value to identify the type time series. Possible values are: <ul style="list-style-type: none">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:

Element	Description
TimeSeriesDetails (required)	Contains product replenishment information regarding the quantity of a product for a specific time period. See TimeSeriesDetails [page 476] .

The following example shows PlanningTimeSeries elements:

```
<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>
    <IdReference identifier="1" domain=""
    </TimeSeriesDetails>
  </InventoryTimeSeries>
</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>
    <IdReference identifier="1" domain="">
  </TimeSeriesDetails>
</InventoryTimeSeries>
```

```

</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>
    <IdReference identifier="1" domain=""/>
  </TimeSeriesDetails>
</InventoryTimeSeries>
</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>
    <IdReference identifier="1" domain=""/>
  </TimeSeriesDetails>
</InventoryTimeSeries>
</PlanningTimeSeries>

<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>

```

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:

Attribute	Description
type (required)	<p>Type of inventory. Possible values:</p> <ul style="list-style-type: none"> targetStock—Quantity required to meet the demand, based on customer service levels. projectedStock—Calculated stock quantity that reflects the demand and supply stock balance. safetyStock—Quantity of stock required to mitigate risk of stockouts. minimumStock—Required minimum quantity of stock supplier must maintain in a given time period. maxixumStock—Required maximum quantity of stock supplier must maintain in a given time period.

InventoryTimeSeries has the following element:

Element	Description
TimeSeriesDetails (required)	Contains product replenishment information regarding the quantity of a product for a specific time period. See TimeSeriesDetails [page 476] .

The following example shows InventoryTimeSeries used with ProductActivityDetails:

```
<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</UnitOfMeasure>
      </ForecastQuantity>
    </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</UnitOfMeasure>
      </TimeSeriesQuantity>
      <IdReference identifier="1" domain="">
    </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</UnitOfMeasure>
      </TimeSeriesQuantity>
      <IdReference identifier="1" domain="">
    </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</UnitOfMeasure>
        </TimeSeriesQuantity>
        < IdReference identifier="1" domain=""/>
      </TimeSeriesDetails>
    </InventoryTimeSeries>
    <InventoryTimeSeries type="minimumStock">
      <TimeSeriesDetails>
        <Period endDate="2019-10-07T00:00:00-07:00"
          startDate="2019-10-07T00:00:00-07:00"/>
        <TimeSeriesQuantity quantity="50">
          <UnitOfMeasure>EA</UnitOfMeasure>
        </TimeSeriesQuantity>
      </TimeSeriesDetails>
      <TimeSeriesDetails>
        <Period endDate="2019-10-14T00:00:00-07:00"
          startDate="2019-10-14T00:00:00-07:00"/>
        <TimeSeriesQuantity quantity="100">
          <UnitOfMeasure>EA</UnitOfMeasure>
        </TimeSeriesQuantity>
      </TimeSeriesDetails>
    </InventoryTimeSeries>
    <InventoryTimeSeries type="maximumStock">
      <TimeSeriesDetails>
        <Period endDate="2019-10-07T00:00:00-07:00"
          startDate="2019-10-07T00:00:00-07:00"/>
        <TimeSeriesQuantity quantity="100">
          <UnitOfMeasure>EA</UnitOfMeasure>
        </TimeSeriesQuantity>
      </TimeSeriesDetails>
      <TimeSeriesDetails>
        <Period endDate="2019-10-14T00:00:00-07:00"
          startDate="2019-10-14T00:00:00-07:00"/>
        <TimeSeriesQuantity quantity="150">
          <UnitOfMeasure>EA</UnitOfMeasure>
        </TimeSeriesQuantity>
      </TimeSeriesDetails>
    </InventoryTimeSeries>
  </ProductActivityDetails>

```

19.1.2.10 ConsignmentMovement

The consignment movement information for this product. ConsignmentMovement has the following elements:

Element	Description
ProductMovementItemIDInfo (required)	A reference to the line item in a movement document.
InvoiceItemIDInfo	Line item of an invoice created by the buyer against the movement item.
ReferenceDocumentInfo	Contains details of a referenced document in the consignment procurement process such as a purchase order, scheduling agreement, ship notice, and receipt. See ReferenceDocumentInfo [page 130] .
MovementQuantity (required)	Quantity moved in a consignment movement.

Element	Description
SubtotalAmount (required)	Invoice subtotal of the current item.
UnitPrice	The price on which the charges are applied.
Extrinsic	Contains any additional information for this consignment movement.

The following example shows a `ConsignmentMovement` element:

```
<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>
  </MovementQuantity>
  <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:

Attribute	Description
salesDate	Date of the sale.
lineNumber (required)	Line number of the item in the sales report.

`SalesReport` has the following elements:

Element	Description
Period (required)	Item sales start and end date.
SalesQuantity (required)	The quantity of an item that was sold.
ReturnQuantity	The quantity of an item that was returned.

Element	Description
Total	Sales report total for the line item.
PromotionVariantID	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).
Comments	Comments associated with this sales report line item.

Here is an example of a ProductActivityMessage containing a SalesReport:

```
<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-0" 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:

```
<ComponentConsumptionRequest>
  <ComponentConsumptionHeader/>
  <ComponentConsumptionPortion>
    <OrderReference/>
    <MasterAgreementReference/> | <MasterAgreementIDInfo/>
    <ComponentConsumptionItem/>
    <Extrinsic/>
  </ComponentConsumptionPortion>
```

```
</ComponentConsumptionRequest>
```

`ComponentConsumptionRequest` has the following elements:

Element	Description
<code>ComponentConsumptionHeader</code> (required)	Contains information about this component consumption that is common to all contained portions. See ComponentConsumptionHeader [page 462] .
<code>ComponentConsumptionPortion</code>	Contains details of all component consumptions for a particular order or scheduling agreement. See ComponentConsumptionPortion [page 463] .

19.2.1 ComponentConsumptionHeader

`ComponentConsumptionHeader` contains information about this component consumption that is common to all contained portions. It has the following attributes:

Attribute	Description
<code>consumptionID</code> (required)	An identifier for this particular component consumption document.
<code>operation</code>	The operational mode of component consumption document. Defaults to "new". Update and delete operations are not supported for this document.
<code>referenceDocumentID</code>	The identifier of reference Work Order for which the consumption is reported.
<code>creationDate</code>	The date and time this component consumption document was created.
<code>lastChangeDate</code>	The date and time this component consumption document was last modified.

`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:

Element	Description
OrderReference (required)	Identifies the corresponding purchase order for which component consumption is reported. See OrderReference [page 287] .
MasterAgreementReference MasterAgreementIDInfo	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.
ComponentConsumptionItem	Contains details of all consumption items for a given order reference. See ComponentConsumptionItem [page 463] .
Extrinsic	Contains any additional information for this ComponentConsumptionPortion element.

19.2.2.1 ComponentConsumptionItem

The ComponentConsumptionItem element captures details of all consumption items for a given order reference. It has the following attributes:

Attribute	Description
poLineNumber (required)	Purchase order line number associated with this consumption item.
completedIndicator	Set to "yes" to indicate that consumption reporting is completed for a PO item.
quantity	The quantity of component that is consumed.

ComponentConsumptionItem has the following elements:

Element	Description
ItemID (required)	A unique identification of a component item in supplier backend system or buyer backend system.
UnitOfMeasure	Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfortrade/codes_index.html .
Batch	Batch information for material or goods produced in a single manufacturing run. See Batch [page 181] .
Contact	See Contact [page 118] . In the context of a ComponentConsumptionItem, the roles that are usually included are "BuyerParty", "ProductReceiptParty", "Ship-FromLocation", or "ShipToLocation".

Element	Description
Comments	Optional arbitrary comments or description. See Comments [page 121] .
ComponentConsumption-Details	Captures details of component consumption for a given PO line item. See ComponentConsumptionDetails [page 465] .
ScrapQuantity	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: <ScrapQuantity quantity="20"/>
AssetInfo	Provides asset tag numbers or serial numbers for individual items in a shipment of goods. See AssetInfo [page 323] .
Extrinsic	Contains any additional information related to this object.

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>
    <PropertyValuation>
      <PropertyReference>
        <IdReference identifier = "DILUTION" domain = "ID"/>
      </PropertyReference>
      <ValueGroup>
        <IdReference identifier = "abc" domain = "ID"/>
        <ParentID>2</ParentID>
        <PropertyValue name = "NameSpecification">
          <Characteristic domain = "Name" value = "1+0 - 1+3"/>
        </PropertyValue>
      </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>SUP_PROCESSOR</BuyerPartID>
    </Product>
  </ComponentConsumptionDetails>
</ComponentConsumptionItem>
```

```

</Product>
<UnitOfMeasure>EA</UnitOfMeasure>
<BuyerBatchID>BUY-BATCH-C2</BuyerBatchID>
<SupplierBatchID>SUP-BATCH-C2</SupplierBatchID>
<Dimension quantity="1.0" type="unitNetWeight">
  <UnitOfMeasure>g</UnitOfMeasure>
</Dimension>
</ComponentConsumptionDetails>
<AssetInfo serialNumber="sn1" />
</ComponentConsumptionItem>

```

ComponentConsumptionDetails

Captures details of component consumption for a given PO line item. `ComponentConsumptionDetails` has the following attributes:

Attribute	Description
<code>lineNumber</code>	The position of a component in the current consumption details.
<code>quantity</code> (required)	The quantity of component that is consumed.
<code>type</code>	Type of inventory movement that could cause the suppliers to not consume the material. Possible values: <ul style="list-style-type: none"> <code>blocked</code>—This inventory is not assigned a value and cannot be consumed. <code>qualityRestricted</code>—This inventory is not qualified for unrestricted use and cannot be consumed in production. <code>scrapped</code>—This inventory is out of date or material has been destroyed during logistics operation.
<code>usage</code>	Specifies whether the supplier uses a component listed in the order. Used only when confirming an order. Possible values are <code>yes</code> (or not specified) or <code>no</code> . In other contexts, <code>usage</code> is not used. For example, when reporting component consumption use <code>type</code> instead.

`ComponentConsumptionDetails` has the following elements:

Element	Description
<code>Product</code> (required)	The supplier and buyer part ID of the component that is consumed.
<code>UnitOfMeasure</code> (required)	Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfor-trade/codes_index.html .
<code>BuyerBatchID</code>	The batch ID provided by the buyer for the component that is consumed.
<code>SupplierBatchID</code>	The batch ID provided by the supplier for the component that is consumed. See SupplierBatchID or Batch [page 322] .

Element	Description
ReferenceDocumentInfo	Contains information about a referenced document. See ReferenceDocumentInfo [page 130] .
AssetInfo	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.
Dimension	Specifies item dimensions. See Dimension [page 179] .
Extrinsic	Use the Extrinsic element list to insert additional data about the ComponentConsumptionDetails element.

Here is an example of ComponentConsumptionDetails:

```

<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>
      </ConfirmationStatus>
    </ConfirmationItem>
    <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>
  </ConfirmationRequest>
</Request>

```

```

    <ComponentConsumptionDetails quantity="2" lineNumber="4">
      <Product>
        <SupplierPartID>SUP_PROCESSOR</SupplierPartID>
        <BuyerPartID>BUY_PROCESSOR</BuyerPartID>
      </Product>
      <UnitOfMeasure>EA</UnitOfMeasure>
      <SupplierBatchID>SUP-BATCH-C2</SupplierBatchID>
      <BuyerBatchID>BUY-BATCH-C2</BuyerBatchID>
      <AssetInfo serialNumber="ABC1913"/>
      <AssetInfo serialNumber="ABC1914"/>
    </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:

```

<ProductReplenishmentMessage>
  <ProductReplenishmentHeader/>
  <ProductReplenishmentDetails>
    <ItemID/> | <ResourceID/>
    <Description/>
    <LeadTime/>
    <PlannedAcceptanceDays/>
    <ManufacturerPartID/>
    <ReferenceDocumentInfo/>
    <Characteristic/>
    <Batch/>
    <Contact/>
    <UnitPrice/>
    <Inventory/>
    <ConsignmentInventory/>
    <ReplenishmentTimeSeries/>
    <Comments/>
    <UnitOfMeasure/>
    <Extrinsic/>
  </ProductReplenishmentDetails>
  <Extrinsic/>
</ProductReplenishmentMessage>

```

ProductReplenishmentMessage has the following elements:

Element	Description
ProductReplenishmentHeader (required)	Contains the product replenishment message header. See ProductReplenishmentHeader [page 473] .
ProductReplenishmentDetails (required)	Contains product replenishment information for the product. See ProductReplenishmentDetails [page 474] .
Extrinsic	Contains any additional information for this ProductReplenishmentMessage element.

Here is an example of ProductReplenishmentMessage used for production planning:

```
<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 isoStateCode="US-CA">CA</State>
          <PostalCode>95054</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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>
        <PostalAddress name="default">
          <DeliverTo>Bob Liddell</DeliverTo>
          <Street>5201 Great America Parkway</Street>
          <City>Santa Clara</City>
          <State isoStateCode="US-CA">CA</State>
          <PostalCode>95054</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
        <IdReference identifier="2" domain="buyerLocationID">
          <Description xml:lang="en">XYZ Incorporated</Description>
        </IdReference>
      </Contact>
      <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>
    </ProductReplenishmentDetails>
  </ProductReplenishmentMessage>
</Message>
```

```

    <TimeSeriesDetails>
      <Period startDate="2016-01-03T12:00:00-00:00"
        endDate="2016-02-03T12:00:00-00:00"/>
      <TimeSeriesQuantity quantity="100">
        <UnitOfMeasure>TOK</UnitOfMeasure>
      </TimeSeriesQuantity>
      <IdReference identifier="2" domain="MoDocument"/>
    </TimeSeriesDetails>
  </ReplenishmentTimeSeries>
  <ReplenishmentTimeSeries type="purchaseOrder">
    <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="PoDocument"/>
    </TimeSeriesDetails>
  </ReplenishmentTimeSeries>
  <ReplenishmentTimeSeries type="supplierForecast">
    <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="supplierForecast"/>
    </TimeSeriesDetails>
  </ReplenishmentTimeSeries>
  <ReplenishmentTimeSeries type="shipment">
    <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="ASN 1"/>
    </TimeSeriesDetails>
  </ReplenishmentTimeSeries>
</ProductReplenishmentDetails>
</ProductReplenishmentMessage>
</Message>

```

Here is an example of ProductReplenishmentMessage used for inventory details:

```

<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 isoStateCode="US-CA">CA</State>
          <PostalCode>95054</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </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 isoStateCode="US-CA">CA</State>
    <PostalCode>95054</PostalCode>
    <Country isoCountryCode="US">United States</Country>
  </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 isoStateCode="US-CA">CA</State>
    <PostalCode>95054</PostalCode>
    <Country isoCountryCode="US">United States</Country>
  </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>
  <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>
<ConsignmentInventory>
  <UnrestrictedUseQuantity quantity="50">

```

```

        <UnitOfMeasure>TOK</UnitOfMeasure>
    </UnrestrictedUseQuantity>
    <BlockedQuantity quantity="10">
        <UnitOfMeasure>TOK</UnitOfMeasure>
    </BlockedQuantity>
    <QualityInspectionQuantity quantity="50">
        <UnitOfMeasure>TOK</UnitOfMeasure>
    </QualityInspectionQuantity>
</ConsignmentInventory>
<ReplenishmentTimeSeries type="projectedStock">
    <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="PsDocument"/>
    </TimeSeriesDetails>
    <TimeSeriesDetails>
        <Period startDate="2016-01-03T12:00:00-00:00"
            endDate="2016-01-03T12:00:00-00:00"/>
        <TimeSeriesQuantity quantity="200">
            <UnitOfMeasure>TOK</UnitOfMeasure>
        </TimeSeriesQuantity>
        <IdReference identifier="2" domain="PsDocument"/>
    </TimeSeriesDetails>
</ReplenishmentTimeSeries>
<ReplenishmentTimeSeries type="firmReceipt">
    <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="FrDocument"/>
    </TimeSeriesDetails>
</ReplenishmentTimeSeries>
<ReplenishmentTimeSeries type="plannedReceipt">
    <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="ASN 1"/>
    </TimeSeriesDetails>
</ReplenishmentTimeSeries>
</ProductReplenishmentDetails>
</ProductReplenishmentMessage>
</Message>

```

Here is an example of ProductReplenishmentMessage used for forecast confirmation:

```

<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">

```

```

    <Name xml:lang="EN">Plant-Sunnyvale-5</Name>
    <IdReference domain="buyerLocationID" identifier="0001">
      <Description xml:lang="en"> Lima Plant</Description>
    </IdReference>
    <Extrinsic name=""/>
  </Contact>
  <UnitPrice>
    <Money currency="USD">31.20</Money>
  </UnitPrice>
  <ReplenishmentTimeSeries type="forecastConfirmation">
    <TimeSeriesDetails>
      <Period startDate="2015-11-03T12:00:00-00:00"
        endDate="2015-11-03T12:00:00-00:00"/>
      <TimeSeriesQuantity quantity="20">
        <UnitOfMeasure>EA</UnitOfMeasure>
      </TimeSeriesQuantity>
      <UpsideQuantity quantity="10">
        <UnitOfMeasure>EA</UnitOfMeasure>
      </UpsideQuantity>
    </TimeSeriesDetails>
    <TimeSeriesDetails>
      <Period startDate="2015-11-04T12:00:00-00:00"
        endDate="2015-11-04T12:00:00-00:00"/>
      <TimeSeriesQuantity quantity="40">
        <UnitOfMeasure>EA</UnitOfMeasure>
      </TimeSeriesQuantity>
      <UpsideQuantity quantity="20">
        <UnitOfMeasure>EA</UnitOfMeasure>
      </UpsideQuantity>
    </TimeSeriesDetails>
  </ReplenishmentTimeSeries>
  <Comments>Can supply Forecast given</Comments>
</ProductReplenishmentDetails>
</ProductReplenishmentMessage>
</Message>

```

Here is an example of ProductReplishmentMessage used for capacity planning:

```

<Message deploymentMode="production">
  <ProductReplenishmentMessage>
    <ProductReplenishmentHeader creationDate="2019-03-18T20:17:04-07:00"
      messageID="FC12465192-1552965424130" processType="Capacity"/>
    <ProductReplenishmentDetails>
      <ResourceID>
        <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>
      <IdReference domain="" identifier="">

```

```

    <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>
    </TimeSeriesQuantity>
    <UpsideQuantity quantity="123">
      <UnitOfMeasure>EA</UnitOfMeasure>
    </UpsideQuantity>
  </TimeSeriesDetails>
</ReplenishmentTimeSeries>
<ReplenishmentTimeSeries type="capacityShiftRuns">
  <TimeSeriesDetails>
    <Period endDate="2019-03-18T00:00:00-07:00"
      startDate="2019-03-18T00:00:00-07:00"/>
    <TimeSeriesQuantity quantity="123">
      <UnitOfMeasure>EA</UnitOfMeasure>
    </TimeSeriesQuantity>
  </TimeSeriesDetails>
</ReplenishmentTimeSeries>
</ProductReplenishmentDetails>
</ProductReplenishmentMessage>
</Message>

```

19.3.1 ProductReplenishmentHeader

Contains the product replenishment header. It has the following attributes:

Attribute	Description
messageID (required)	Identifier for this product replenishment message.
creationDate	Date and time this product replenishment message was created.

Attribute	Description
processType	<p>Identifies the business process supported by the message. Possible values:</p> <ul style="list-style-type: none"> • SMI—Supplier-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • OEM—OEM-owned inventory scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries, InventoryTimeSeries). • VMI—Vendor-managed inventory (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • 3PL—Third-party logistics inventory scenarios (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • ManufacturingVisibility—Contract manufacturers sharing inventory visibility (Inventory, ConsignmentInventory, PlanningTimeSeries, InventoryTimeSeries). • Forecast—Forecast collaboration (TimeSeries, PlanningTimeSeries). • Consignment—Consignment material movements (ConsignmentInventory, ConsignmentMovement). • Sales—Sales report visibility (SalesReport). • POC—Purchase order collaboration scenarios (Inventory, ConsignmentInventory, TimeSeries, PlanningTimeSeries). • Capacity—Capacity planning scenarios (PlanningTimeSeries). • Other—Other collaboration scenarios.

19.3.2 ProductReplenishmentDetails

Contains product replenishment information for the product.

ProductReplenishmentDetails has the following elements:

Element	Description
ItemID ResourceID (required)	<ul style="list-style-type: none"> • ItemID—A unique identification of a component item in the supplier back-end system or buyer backend system. See ItemID [page 91]. • ResourceID—A unique identification of a production facility leveraged during production, such as a piece of equipment or a production line. See ResourceID [page 450].
Description	Description of the component.
LeadTime	Lead time in days.

Element	Description
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.
ReferenceDocumentInfo	Contains details of a referenced document. See ReferenceDocumentInfo [page 130] .
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 181] .
Contact	Contact information for the supplier. You can specify more than one Contact element.
UnitPrice	Price per unit of the item.
Inventory	Inventory that is in the possession of the buyer and is owned and managed by the buyer. See Inventory [page 452] .
ConsignmentInventory	Inventory that is in the possession of the buyer, but is owned by the supplier. See ConsignmentInventory [page 455] .
ReplenishmentTimeSeries	Contains the product replenishment quantity of a product for a specific time period. See ReplenishmentTimeSeries [page 476] .
Comments	Comments provided for the part whose quantity is being committed.
UnitOfMeasure	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.
Extrinsic	Contains any additional information for this ProductReplenishmentDetails element.

19.3.2.1 ReplenishmentTimeSeries

The product replenishment quantity of a product for a specific time period. It has the following attribute:

Attribute	Description
type (required)	Type of replenishment order. Possible values: <ul style="list-style-type: none">• <code>manufacturingOrder</code>—An order that initiates the manufacturing process to track the status of manufacturing from Raw Material to Finished Goods status.• <code>purchaseOrder</code>—Subcontracting purchase order from the backend ERP system.• <code>supplierForecast</code>—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.• <code>shipment</code>—Supplier shipment quantity from supplier's location and customer's location to ship the quantities requested.• <code>projectedStock</code>—Stock that is expected to be available in the location at the end of this day.• <code>firmReceipt</code>—Total quantity that the supplier wants to deliver to the customer in period so that the total demand from the customer is covered.• <code>plannedReceipt</code>—Total quantity that the supplier wants to deliver to the customer in a period so that the raw net demands of the buyer are covered. It is a planned quantity that is subject to changes.• <code>forecastConfirmation</code>—Total quantity that the supplier wants to deliver to the customer in the period so that the total demand from the customer is covered.• <code>capacityConfirmation</code>—Quantity of production output of a specific resource that supplier commits to attain.• <code>capacityShiftRuns</code>—Number of shifts a specific production resource can run.
customType	String to include buyer-defined custom types, for example, "BuildQuantity".

`ReplishmentTimeSeries` has one or more `TimeSeriesDetails` elements. See [TimeSeriesDetails \[page 476\]](#).

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:

Element	Description
Period (required)	The start date and end date for the forecast response.

Element	Description
TimeSeriesQuantity TimeSeriesValue TimeSeriesAmount	Enter one of the following elements: <ul style="list-style-type: none"> 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:

```
<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:

```
<QualityNotificationRequest>
  <QualityNotificationRequestHeader>
    <DocumentReference/>
    <QualityInspectionRequestReference/>
    <QNCode/>
    <ShipTo/>
    <BillTo/>
    <Shipping/>
```

```

    <Contact/>
    <QNNotes/>
    <Priority/>
    <RequestedProcessingPeriod/>
    <MalfunctionPeriod/>
    <ReferenceDocumentInfo/>
    <ItemInfo/>
    <Batch/>
    <ComplainQuantity/>
    <ReturnQuantity/>
    <QualityNotificationTask/>
    <QualityNotificationActivity/>
    <AssetInfo/>
    <Extrinsic/>
  </QualityNotificationHeader>
  <QualityNotificationRequestItem>
    <QNCode/>
    <OwnerInfo/>
    <Description/>
    <Period/>
    <AdditionalQNInfo/>
    <QualityNotificationTask/>
    <QualityNotificationActivity/>
    <QualityNotificationCause/>
    <AssetInfo/>
    <Extrinsic/>
  </QualityNotificationRequestItem>
</QualityNotificationRequest>

```

QualityNotificationRequest has the following elements:

Element	Description
QualityNotificationRequestHeader (required)	Contains information about this quality notification request that is common to all contained defect items.
QualityNotificationRequestItem	Contains defect item detail.

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:

Attribute	Description
requestID (required)	The network hub document number for the quality notification.
externalRequestID	ERP document number for the quality notification.
requestDate (required)	Quality notification request date and time.

Attribute	Description
requestVersion	Version number of this document if the current operation is "update".
operation	Operation to be performed. Possible values: <ul style="list-style-type: none"> new—Creates a new quality notification. update—Updates an existing quality notification. The DocumentReference element references the original quality notification.
status	Current status of the document. Possible values: draft, new (default), in-process, completed, postponed, canceled, and closed.
discoveryDate	Date and time when the defect was discovered.
serialNumber	Serial number of the defective goods.
returnDate	Date on which the defective goods were returned.
returnAuthorizationNumber	Return Authorization Number information for a line item.
itemCategory	Set to subcontract if the defect originated with a subcontract supplier.
minimumRequiredTasks	Number of minimum required tasks to close this quality notification. Evaluated only when the status is "closed".
minimumRequiredActivities	Number of minimum required activities to close this quality notification. Evaluated only when the status is "closed".
minimumRequiredCauses	Number of minimum required causes to complete a defect. It is evaluated only when this attribute is not present at the defect level.

QualityNotificationRequestHeader has the following elements:

Element	Description
DocumentReference	Reference to an earlier QualityNotificationRequest. If operation is "update", the DocumentReference is required and it must reference the original QualityNotificationRequest.

Element	Description
QualityInspection-RequestReference	<p>Reference to the quality inspection request.</p> <p>The reference can contain the <code>payloadID</code> or <code>DocumentNumber</code> and <code>DocumentDate</code> 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.</p>
QNCode	<p>Defines the quality notification in one of the following domains:</p> <ul style="list-style-type: none"> • "type" of quality notification without code group • "subject" (category) group and code • "reason" of this quality notification • "revision" of this quality notification (if <code>operation="update"</code>) <p>See QNCode [page 482].</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 <code>buyerParty</code> , <code>sellerParty</code> , <code>senderBusinessSystemID</code> , <code>senderParty</code> , <code>recipientParty</code> or <code>componentSupplier</code> .
QNNotes (required)	Defines comments and attachments for the quality notification. See QNNotes [page 482] .
Priority (required)	Priority for the quality notification.
RequestedProcessingPeriod	The time period during which the processing is required. See RequestedProcessingPeriod [page 483] .
MalfunctionPeriod	The time period during which item presented this defect. See MalfunctionPeriod [page 483] .
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 130] .
ItemInfo (required)	Contains information about the goods.

Element	Description
Batch	Contains batch information for material or goods produced in a single manufacturing run.
ComplainQuantity	Contains the quantity that was complained. See ComplainQuantity [page 483] .
ReturnQuantity	Contains the quantity that was returned.
QualityNotificationTask	Contains task detail information for the quality notification. See QualityNotificationTask [page 484] .
QualityNotificationActivity	Contains activity detail information for the quality notification. See QualityNotificationActivity [page 485] .
AssetInfo	Detailed per-unit asset information for a line item. See AssetInfo [page 323] .
Extrinsic	Contains additional information related to this document.

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:

Attribute	Description
<code>inspectionID</code>	The ID of a quality inspection request document.
<code>inspectionDate</code>	The date and time the quality inspection request document was created.

`QualityInspectionRequestReference` has the following element:

Element	Description
<code>DocumentReference</code>	Provides a reference to a quality inspection request document.

The following example shows a `QualityInspectionRequestReference` element:

```
<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:

Attribute	Description
<code>domain</code> (required)	Domain in which this value has meaning. Recognized domains include: <ul style="list-style-type: none"><code>type</code>—Quality notification type, does not have a code group.<code>subject</code>—Quality notification subject (category).<code>reason</code>—Reason of defect.<code>task</code>—Quality notification task.<code>activity</code>—Quality notification activity.<code>defect</code>—Quality notification defect.<code>defectLocation</code>—Area where a quality notification defect occurs (used in <code>QualityNotificationRequestItem</code> only).<code>cause</code>—Quality notification cause.<code>revision</code>—Quality notification revision.
<code>codeGroup</code>	Name of the code group.
<code>codeGroupDescription</code>	Description of the code group.
<code>code</code> (required)	Quality notification code.
<code>codeDescription</code> (required)	Description of the quality notification code.

19.4.1.3 QNNotes

The `QNNotes` element defines subject code, description, and attachments of a quality notification. It has the following attributes:

Attribute	Description
<code>user</code> (required)	User name or user ID of the person who created the message.
<code>createDate</code> (required)	Timestamp of the message.

`QNNotes` has the following elements:

Element	Description
<code>QNCode</code>	Code identifying the type of message. Its <code>domain</code> is "subject".

Element	Description
Description (required)	Provides a description of the quality notification.
Attachment	Files attached to this message.

19.4.1.4 RequestedProcessingPeriod

The `RequestedProcessingPeriod` element represents the time period for processing this defect. It has the following element:

Element	Description
Period (required)	Start and end time for processing the defect.

19.4.1.5 MalfunctionPeriod

The `MalfunctionPeriod` element specifies the time period during which the item presented this defect. It has the following element:

Element	Description
Period (required)	Defines a start date and end date for this malfunction.

19.4.1.6 ComplainQuantity

The `ComplainQuantity` element specifies the quantity of the item subject to complaints. It has the following attribute:

Attribute	Description
quantity (required)	The quantity of the item subject to complaints.

ComplainQuantity has the following element:

Element	Description
UnitOfMeasure (required)	The unit of measure for the quantity. It must conform with UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfortrade/codes_index.html .

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:

Attribute	Description
taskId (required)	Number of the task.
status	Current state of execution of this task. Possible values: <ul style="list-style-type: none">• new (default)• in-process• complete• close The <code>close</code> status is the final step when a task is considered closed.
completedDate	Date and time when the task was completed.
completedBy	User ID of the person who completed this task.
processorId	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.
processorName	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.
processorType	Type of processor. Possible values: <ul style="list-style-type: none">• customer• supplier• customerUser

`QualityNotificationTask` has the following elements:

Element	Description
QNCode	Codes with domain "task".

Element	Description
OwnerInfo	Contains information about the owner of this task.
Description	Text describing this task.
Period	Planned start and end time for processing this task.
Extrinsic	Contains additional information related to this task.

19.4.1.8 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:

Attribute	Description
activityId (required)	Number of the activity.
isCompleted	Set to <code>yes</code> if the activity was completed.

`QualityNotificationActivity` has the following elements:

Element	Description
QNCode	Group and code defining the type of activity.
OwnerInfo	Contains information about the owner of this activity.
Description	Text describing this activity.
Period	Start and end time for the activity.
Extrinsic	Contains additional information related to this activity.

19.4.2 QualityNotificationRequestItem

The `QualityNotificationRequestItem` element contains defect item detail for a quality notification. It has the following attributes:

Attribute	Description
<code>defectId</code> (required)	Number of the defect.
<code>defectCount</code>	Quantity of defects in this quality notification item.
<code>isCompleted</code>	Set to yes if all activities and tasks were completed.
<code>completedDate</code>	Date and time when quality notification item was completed.
<code>minimumRequiredTasks</code>	Number of minimum required tasks to complete this defect. Evaluated only when the <code>isCompleted</code> is true.
<code>minimumRequiredActivities</code>	Number of minimum required activities to complete this defect. Evaluated only when the <code>isCompleted</code> is true.
<code>minimumRequiredCauses</code>	Number of minimum required tasks to complete this defect. Evaluated only when the <code>isCompleted</code> is true.

`QualityNotificationRequestItem` has the following elements:

Element	Description
<code>QNCode</code>	A code with domain "defect" represents the defect's category/subcategory. A code with domain "defectLocation" represents the area where the defect occurs. Only one defect location code is allowed per item. See QNCode [page 482] .
<code>OwnerInfo</code>	Contains information about the owner of this defect. See OwnerInfo [page 489] .
<code>Description</code>	Text describing this defect.
<code>Period</code>	Planned start and end time for processing this defect.
<code>AdditionalQNInfo</code>	Provides additional information about a quality notification, such as part numbers (customer or supplier), batch information, or other information. See AdditionalQNInfo [page 489] .
<code>QualityNotificationTask</code>	Tasks required to process this item. See QualityNotificationTask [page 484] .
<code>QualityNotificationActivity</code>	Activities required to process this item. See QualityNotificationActivity [page 485] .

Element	Description
QualityNotificationCause (required)	Causes of the defects contained in this item. See QualityNotificationCause [page 490] .
AssetInfo	Detailed per-unit asset information for a line item. See AssetInfo [page 323] .
Extrinsic	Contains additional information related to this defect.

The following is an example of `QualityNotificationRequestItem`:

```
<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">grbuyerercsc</Name>
          <PostalAddress>
            <Street>5201 Great America Parkway</Street>
            <City>Santa Clara</City>
            <State isoStateCode="US-CA">CA</State>
            <PostalCode>95054</PostalCode>
            <Country isoCountryCode="">United States</Country>
          </PostalAddress>
          <Email name="default" preferredLang="en">grsupplierercsc</Email>
          <Phone name="">
            <TelephoneNumber>
              <CountryCode isoCountryCode=""/>
              <AreaOrCityCode/>
              <Number/>
              <Extension/>
            </TelephoneNumber>
          </Phone>
          <Fax name="">
            <TelephoneNumber>
              <CountryCode isoCountryCode=""/>
              <AreaOrCityCode/>
              <Number/>
              <Extension/>
            </TelephoneNumber>
          </Fax>
        </Address>
      </BillTo>
      <Contact addressID="0001" role="buyerParty">
        <Name xml:lang=""/>
      </Contact>
      <QNNNotes user="grsupplierercsc" createDate="2016-12-20T07:26:52-08:00" >
        <Description xml:lang="en-US">
          <ShortName>COMMENT TEST</ShortName>
        </Description>
      </QNNNotes>
      <Priority level="2">
        <Description xml:lang="">Medium</Description>
      </Priority>
      <ReferenceDocumentInfo lineNumber="1">
        <DocumentReference
          payloadID="1482247566850-1032844436076751171@10.163.3.43"/>
      </ReferenceDocumentInfo>
    </QualityNotificationRequestHeader>
  </QualityNotificationRequest>
</Request>
```

```

</ReferenceDocumentInfo>
<ItemInfo quantity="3">
  <ItemID>
    <SupplierPartID>AX4518</SupplierPartID>
    <SupplierPartAuxiliaryID/>
    <BuyerPartID/>
  </ItemID>
  <UnitOfMeasure/>
</ItemInfo>
<Batch>
  <BuyerBatchID/>
  <SupplierBatchID/>
</Batch>
<ComplainQuantity quantity="1">
  <UnitOfMeasure>PK</UnitOfMeasure>
</ComplainQuantity>
<QualityNotificationTask taskId="1" status="new">
  <OwnerInfo owner="grbuyeresc" role="customer" />
  <Description xml:lang="en-US">Return delivery with wrong
    color code.</Description>
</QualityNotificationTask>
<QualityNotificationTask taskId="2" status="new">
  <OwnerInfo owner="grbuyeresc" role="customer" />
  <Description xml:lang="en-US">Substitute delivery with correct
    color code.</Description>
</QualityNotificationTask>
<QualityNotificationActivity activityId="1">
  <OwnerInfo owner="grbuyeresc" 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="grbuyeresc" 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>
      <IdReference domain="buyerLocationID" identifier="65"/>
    </ItemID>
    <Batch>
      <BuyerBatchID>AE-35</BuyerBatchID>
      <SupplierBatchID>YE-35</SupplierBatchID>
    </Batch>
  </AdditionalQNInfo>
  <AdditionalQNInfo lineNumber="2">
    <ItemID>
      <SupplierPartID>XY-542</SupplierPartID>
      <BuyerPartID>4567</BuyerPartID>
      <IdReference domain="buyerLocationID" identifier="23"/>
    </ItemID>
    <Batch>
      <BuyerBatchID>EX-352</BuyerBatchID>
      <SupplierBatchID>XV-56</SupplierBatchID>
    </Batch>
  </AdditionalQNInfo>
  <QualityNotificationCause causeId="1">
    <OwnerInfo owner="grbuyeresc" role="customer" />
    <Description xml:lang="en-US">Wrong lot of barcodes.</Description>
  </QualityNotificationCause>
  <QualityNotificationCause causeId="2">
    <OwnerInfo owner="grbuyeresc" role="customer" />
    <Description xml:lang="en-US">Wrong description product.</Description>
  </QualityNotificationCause>

```

```

        </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:

Attribute	Description
<code>owner</code> (required)	Owner of the element. This attribute should contain the <code>userId</code> .
<code>role</code> (required)	Role of the owner. Possible values are <code>customer</code> or <code>supplier</code> .

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:

Attribute	Description
<code>lineNumber</code> (required)	Represents the <code>AdditionalQNInfo</code> line number.

`AdditionalQNInfo` has the following elements:

Element	Description
<code>ItemID</code>	Represents the supplier part number and customer part number. To provide a plant location description, the <code>domain</code> attribute of the element <code>IdReference</code> should be set to " <code>buyerLocationID</code> ", " <code>supplierLocationID</code> " or " <code>storageLocation</code> " and the <code>identifier</code> to the <code>plantID</code> .
<code>Batch</code>	Captures batch information of the customer and supplier.
<code>Extrinsic</code>	Contains any additional information related to this element.

The following example shows `AdditionalQNInfo` elements:

```

<AdditionalQNInfo lineNumber="1">
  <ItemID>
    <SupplierPartID>FG-547</SupplierPartID>
    <BuyerPartID>1235</BuyerPartID>
  </ItemID>
</AdditionalQNInfo>

```

```

        <IdReference domain="buyerLocationID" identifier="65"/>
    </ItemID>
    <Batch>
        <BuyerBatchID>AE-35</BuyerBatchID>
        <SupplierBatchID>YE-35</SupplierBatchID>
    </Batch>
</AdditionalQNInfo>
<AdditionalQNInfo lineNumber="2">
    <ItemID>
        <SupplierPartID>XY-542</SupplierPartID>
        <BuyerPartID>4567</BuyerPartID>
        <IdReference domain="buyerLocationID" identifier="23"/>
    </ItemID>
    <Batch>
        <BuyerBatchID>EX-352</BuyerBatchID>
        <SupplierBatchID>XV-56</SupplierBatchID>
    </Batch>
</AdditionalQNInfo>

```

19.4.2.3 QualityNotificationCause

The `QualityNotificationCause` element defines the cause of a quality notification. It has the following attribute:

Attribute	Description
causeId (required)	Number of the cause.

`QualityNotificationCause` has the following elements:

Element	Description
QNCode	Group and code defining the type of cause.
OwnerInfo	Contains information about the owner of this cause.
Description	Text describing this cause.
Extrinsic	Contains additional information related to this cause.

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

```
<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="2">
      <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 isoStateCode="US-CA">CA</State>
          <PostalCode>94539</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Contact>
      <Contact role="buyerParty">
        <Name xml:lang="en">Buyer</Name>
        <PostalAddress>
          <Street>1065 La Avenida</Street>
          <City>Mountain View</City>
          <State isoStateCode="US-CA">CA</State>
          <PostalCode>94043</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Contact>
      <QNNNotes 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>
      </QNNNotes>
      <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="P0123"/>
    </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>
    <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="grbuyeresc" 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="grbuyeresc" role="customer"/>
        <Description xml:lang="en-US">Substitute delivery with
            correct color code.</Description>
    </QualityNotificationTask>
    <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="grbuyeresc" role="customer" />
        <Description xml:lang="en-US">Review substituted delivery.</Description>
    </QualityNotificationActivity>
    <AssetInfo serialNumber="1121SN"/>
    <AssetInfo serialNumber="14412SN"/>
    <AssetInfo serialNumber="13312SN"/>
    </QualityNotificationRequestHeader>
    <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="grbuyeresc" 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="grbuyeresc" role="customer" />
        <Description xml:lang="en-US">Wrong lot of barcodes.</Description>
    </QualityNotificationCause>
    <AssetInfo serialNumber="1121SN"/>

```

```

    <AssetInfo serialNumber="14412SN"/>
    <AssetInfo serialNumber="13312SN"/>
  </QualityNotificationRequestItem>
</QualityNotificationRequest>
</Request>

```

Quality Notification for Subcontract Cases with a Copy Purchase Order 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"
  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 isoStateCode="US-CA">CA</State>
        <PostalCode>94539</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Contact>
    <Contact role="buyerParty">
      <Name xml:lang="en">Buyer</Name>
      <PostalAddress>
        <Street>1065 La Avenida</Street>
        <City>Mountain View</City>
        <State isoStateCode="US-CA">CA</State>
        <PostalCode>94043</PostalCode>
        <Country isoCountryCode="US">United States</Country>
      </PostalAddress>
    </Contact>
    <QNNNotes 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>
    </QNNNotes>
    <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>
    </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>
    <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="grbuyeresc" 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="grbuyeresc" role="customer"/>
        <Description xml:lang="en-US">Substitute delivery with
            correct color code.</Description>
    </QualityNotificationTask>
    <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="grbuyeresc" role="customer"/>
        <Description xml:lang="en-US">Review substituted
            delivery.</Description>
    </QualityNotificationActivity>
</QualityNotificationRequestHeader>
<QualityNotificationRequestItem
    defectId="1"
    defectCount="23"
    minimumRequiredTasks="1"
    minimumRequiredActivities="2"
    minimumRequiredCauses="2">
    <QNCode domain="defect" codeGroup="QM-M"
        codeGroupDescription="Defect Types in Mech. Parts Production"
        code="1" codeDescription="Material defects"/>
    <OwnerInfo owner="grbuyeresc" 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="grbuyeresc" role="customer"/>
        <Description xml:lang="en-US">Wrong lot of
            barcodes.</Description>
    </QualityNotificationCause>
</QualityNotificationRequestItem>

```

```

</QualityNotificationRequest>
</Request>

```

Quality Notification for Subcontract Cases 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"
      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 isoStateCode="US-CA">CA</State>
          <PostalCode>94539</PostalCode>
          <State isoStateCode="US-CA">CA</State>
        </PostalAddress>
      </Contact>
      <Contact role="buyerParty">
        <Name xml:lang="en">Buyer</Name>
        <PostalAddress>
          <Street>1065 La Avenida</Street>
          <City>Mountain View</City>
          <State isoStateCode="US-CA">CA</State>
          <PostalCode>94043</PostalCode>
          <State isoStateCode="US-CA">CA</State>
        </PostalAddress>
      </Contact>
      <QNNNotes 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>
      </QNNNotes>
      <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>
    </QualityNotificationRequestHeader>
  </QualityNotificationRequest>
</Request>

```

```

</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>
<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="grbuyeresc" 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="grbuyeresc" role="customer"/>
  <Description xml:lang="en-US">Substitute delivery with
    correct color code.</Description>
</QualityNotificationTask>
  <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="grbuyeresc" role="customer"/>
    <Description xml:lang="en-US">Review substituted
      delivery.</Description>
  </QualityNotificationActivity>
</QualityNotificationRequestHeader>
<QualityNotificationRequestItem
  defectId="1"
  defectCount="23"
  minimumRequiredTasks="3"
  minimumRequiredActivities="2"
  minimumRequiredCauses="2">
  <QNCode domain="defect" codeGroup="QM-M"
    codeGroupDescription="Defect Types in Mech. Parts Production"
    code="1" codeDescription="Material defects"/>
  <OwnerInfo owner="grbuyeresc" 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"/>
    <Description xml:lang="en-US">Wrong lot of
      barcodes.</Description>
  </QualityNotificationCause>
</QualityNotificationRequestItem>

```

```

    </QualityNotificationRequest>
  </Request>

```

19.4.3.2 Quality Notifications Created by Buyers

Quality Notification with a Purchase Order 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"
      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"/>
      <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>
      <QNNNotes 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.D063.982348912738@speedy.corp.alfa.com</URL>
        </Attachment>
      </QNNNotes>
      <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>
    </QualityNotificationRequestHeader>
  </QualityNotificationRequest>
</Request>

```

```

<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>
<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="grsuppliercsc" role="supplier"/>
  <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="grsuppliercsc" role="supplier"/>
  <Description xml:lang="en-US">Substitute delivery with
    correct color code.</Description>
</QualityNotificationTask>
<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="grsuppliercsc" role="supplier"/>
  <Description xml:lang="en-US">Review substituted
    delivery.</Description>
</QualityNotificationActivity>
</QualityNotificationRequestHeader>
<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>
  <QualityNotificationCause 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>
  </QualityNotificationCause>

```

```

    </QualityNotificationRequestItem>
  </QualityNotificationRequest>
</Request>

```

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"
  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"/>
      <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>
      <QNNNotes 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>
      </QNNNotes>
      <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>
    </QualityNotificationRequestHeader>
  </Request>

```

```

</MalfunctionPeriod>
<ReferenceDocumentInfo lineNumber="2">
  <DocumentReference payloadID="ASNSurf123"/>
</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>
<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="grsuppliercsc" role="supplier"/>
  <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="grsuppliercsc" role="supplier"/>
  <Description xml:lang="en-US">Substitute delivery with
    correct color code.</Description>
</QualityNotificationTask>
<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="grsuppliercsc" role="supplier"/>
  <Description xml:lang="en-US">Review substituted delivery.</Description>
</QualityNotificationActivity>
</QualityNotificationRequestHeader>
<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>
  <QualityNotificationCause 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>
  </QualityNotificationCause>
</QualityNotificationRequestItem>

```

```

    </QualityNotificationRequest>
  </Request>

```

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:

```

<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:

Element	Description
<code>QualityInspectionRequestHeader</code> (required)	Contains data that is relevant for the entire quality inspection. This includes data about the partners, locations, reference documents, and item information.
<code>QualityInspectionRequestDetail</code> (required)	Contains details about the quality inspection request.

The following example shows a `QualityInspectionRequest`:

```

<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>
    <Country isoCountryCode="US">United States</Country>
  </PostalAddress>
</Contact>
<Contact role="buyerParty" addressID="00000001">
  <Name xml:lang="en-US">Omega</Name>
  <PostalAddress>
    <Street>223 Smith</Street>
    <City>Arkansas City</City>
    <State>AR</State>
    <PostalCode>71630</PostalCode>
    <Country isoCountryCode="US">United States</Country>
  </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>
<!-- this is the lot quantity -->
<ItemInfo quantity="1000">
  <ItemID>
    <SupplierPartID>AX4518</SupplierPartID>
    <SupplierPartAuxiliaryID>AXSPA001</SupplierPartAuxiliaryID>
    <BuyerPartID>PROD001</BuyerPartID>
    <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">
  <BuyerBatchID>KL45342</BuyerBatchID>
  <SupplierBatchID>AH53333</SupplierBatchID>
</Batch>
<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>
<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>
</QualityInspectionRequestHeader>
<QualityInspectionRequestDetail>

```

```

<QualityInspectionCharacteristic characteristicID="1" operationNumber="12"
workCenter="1001" procedure="manual" allowDefectRecording="yes"
characteristicType="required" isQuantitative="yes"
recordingType="singleResult" expirationDate="2017-03-07T14:37:31-07:00"
inspectionPoint="Equipment" version="1">
  <Description xml:lang="en-US">Characteristic Description</Description>
  <IdReference identifier="001" domain="buyerInspectionCode">
    <Description xml:lang="en-US">Buyer characteristic
      description</Description>
  </IdReference>
  <IdReference identifier="002" domain="supplierInspectionCode">
    <Description xml:lang="en-US">Supplier characteristic
      description</Description>
  </IdReference>
  <IdReference identifier="005" domain="inspectionMethod">
    <Description xml:lang="en-US">Inspection Method
      0005 description</Description>
  </IdReference>
  <IdReference identifier="004" domain="additionalInfo">
    <Description xml:lang="en-US">Additional Info
      004 description</Description>
  </IdReference>
  <AllowedValues type="numeric"/>
  <ExpectedResult targetValue="90" valuePrecision="2">
    <MinimumLimit>
      <ComparatorInfo comparatorType="greaterOrEqual"
        comparatorValue="85"/>
    </MinimumLimit>
    <MaximumLimit>
      <ComparatorInfo comparatorType="lessOrEqual"
        comparatorValue="92"/>
    </MaximumLimit>
  </ExpectedResult>
  <SampleDefinition sampleSize="5" sampleType="samplingProcedure"/>
  <Comments xml:lang="en-US" type="TermsOfDelivery">Comments for
    characteristc</Comments>
  <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
</QualityInspectionCharacteristic>
</QualityInspectionRequestDetail>
</QualityInspectionRequest>
</Request>

```

19.5.1 QualityInspectionRequestHeader

The `QualityInspectionRequestHeader` element contains common information about the quality inspection request.

`QualityInspectionRequestHeader` has the following attributes:

Attribute	Description
requestID (required)	Network hub document number for the quality inspection request.
requestDate (required)	Quality inspection request date and time.

Attribute	Description
operation	<p>Operation to be performed. Possible values:</p> <ul style="list-style-type: none"> new (default)—Creates a new quality inspection request. update—Updates an existing quality inspection request. delete—Cancels an existing quality inspection request. <p>For update and delete operations, the DocumentReference element should indicate the original quality inspection request.</p>
version	Version number of this document if the current operation is update. The version of a new QualityInspectionRequest is 1. An update would increment the version to 2, 3, 4, and so on.
createdBy	User who created the quality inspection request.

QualityInspectionRequestHeader has the following elements:

Element	Description
DocumentReference	<p>Reference to an earlier quality inspection request.</p> <p>If the QualityInspectionRequestHeader@operation is "update", the DocumentReference is required and it must reference the original QualityInspectionRequest document (with value "new" for its QualityInspectionRequest@operation) during the same quality inspection process.</p> <p>If the attribute QualityInspectionRequestHeader@operation is "delete", the DocumentReference is required and it must reference the original QualityInspectionRequest document (with value "new" or "update" for its QualityInspectionRequest@operation) during the same quality inspection process.</p>
IdReference	Inspection type specified by code and description. The domain should be "inspectionType", and the identifier should be the code for the inspection type.
ShipTo	Optional ShipTo address for the item if it is not related to referenced purchase order or goods receipt.
BillTo	Optional BillTo address for the item if it is not related to referenced purchase order or goods receipt.
Contact	Related contacts like buyerParty, sellerParty, senderBusinessSystemID, senderParty, recipientParty, or componentSupplier.
Period	Start and end date of the quality inspection request.
Priority	Priority of the quality inspection.

Element	Description
ReferenceDocumentInfo	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 130] .
ItemInfo	Contains information about the goods.
SampleDefinition	Contains the sample size. See SampleDefinition [page 505] .
Batch	Captures batch information of the customer and supplier.
QualityInfo	Contains the representation of the quality information for a line item. See QualityInfo [page 172] .
AssetInfo	Detailed per-unit asset information for a line item. See AssetInfo [page 323] .
Comments	Contains comments associated with this quality inspection request.
Extrinsic	Contains any additional information related to this quality inspection request.

19.5.1.1 SampleDefinition

The `SampleDefinition` element defines the sample used for inspection.

`SampleDefinition` has the following attributes:

Attribute	Description
sampleSize	Number of the samples required.
sampleType	<p>Sample type. Possible values:</p> <ul style="list-style-type: none"> <code>samplingProcedure</code>—A sampling procedure must be assigned when the master inspection characteristic is used in the task list or in the material specification (optional for an inspection with a material specification). <code>additiveSample</code>—When samples are calculated, the size of the partial sample is increased by the quantity that is required for the inspection of this characteristic. <code>destructiveSample</code>—The sample should be destroyed after inspection. This means that it is no longer available. This quantity is used in the usage decision as the proposed quantity for the posting to sample. <code>spcCharacteristic</code>—A statistical process control chart should be run.

19.5.2 QualityInspectionRequestDetail

The `QualityInspectionRequestDetail` element contains details about a quality inspection request.

`QualityInspectionRequestDetail` has the following element:

Element	Description
<code>QualityInspectionCharacteristic</code> (required)	Represents an inspection characteristic that describes what should be inspected. See QualityInspectionCharacteristic [page 506].

19.5.2.1 QualityInspectionCharacteristic

The `QualityInspectionCharacteristic` element represents an inspection characteristic that describes what should be inspected.

`QualityInspectionCharacteristic` has the following attributes:

Attribute	Description
<code>characteristicID</code> (required)	Number of the characteristic. The combination of this attribute with <code>operationNumber</code> should be unique.
<code>operationNumber</code> (required)	Inspection operation. The combination of this attribute with <code>characteristicID</code> should be unique.
<code>workCenter</code>	Work center number.
<code>procedure</code>	A text value that specifies how the sample size is calculated and how the inspection characteristic is assigned values.
<code>isLocked</code>	Set to <code>yes</code> to indicate that a characteristic is locked and no further valuations are allowed.
<code>allowDefectRecording</code>	Set to <code>yes</code> 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.

Attribute	Description
<code>characteristicType</code>	<p>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.</p> <p>Specify one of the following values:</p> <ul style="list-style-type: none"> • <code>required</code>—The inspection of this characteristic is required to create an inspection decision. • <code>optional</code>—The inspection of this characteristic is not required to create an inspection decision. • <code>afterAccept</code>—This conditional inspection characteristic must be inspected if the previous required characteristic was accepted. • <code>afterRejection</code>—This conditional inspection characteristic must be inspected if the previous required characteristic was rejected.
<code>isQuantitative</code>	Set to <code>yes</code> if this characteristic uses a numerical measurement. Otherwise, the characteristic uses a non-numerical, qualitative measurement.
<code>recordingType</code>	<p>Indicates how the valuation will be sent for this characteristic:</p> <ul style="list-style-type: none"> • <code>singleResult</code>—Single values for each inspection characteristic. • <code>summarizedRecording</code>—Summarized values for each inspection characteristic. • <code>noCharacteristicRecording</code>—No characteristic record. • <code>classedRecording</code>—Classed values for each inspection characteristic.
<code>expirationDate</code>	Expiration date of the characteristic.
<code>inspectionPoint</code>	Inspection point types for equipment, functional locations, physical samples, or production. These inspection point types can be assigned individually in the user specifications, if required.
<code>version</code>	Version of characteristic. If any of the attributes change for the characteristic, the ERP generates another version for it.
<code>isAdHoc</code>	Indicates whether the characteristic does not exist in the reference document and is an additional valuation.

`QualityInspectionCharacteristic` has the following elements:

Element	Description
<code>Description</code>	Quality inspection request description.

Element	Description
IdReference	Describes the code and description of the buyer characteristic, supplier characteristic, inspection method and additional information. Possible domain values are: <ul style="list-style-type: none"> • buyerInspectionCode—Customer characteristic • supplierInspectionCode—Supplier characteristic • inspectionMethod—Inspection method • additionalInfo—Additional information
AllowedValues	Values allowed during the valuation for this characteristic.
ExpectedResult	Expected result for this characteristic, which is used to calculate the conformance and non-conformance samples by characteristic. See ExpectedResult [page 510] .
SampleDefinition	Contains the sample size and sample type.
Comments	Contains comments associated with this characteristic.
Extrinsic	Contains any additional information related to this characteristic.

The following example shows a `QualityInspectionCharacteristic` element:

```
<QualityInspectionCharacteristic characteristicID="0010"
  characteristicType="required" operationNumber="0010"
  recordingType="singleResult" workCenter="WC_1">
  <Description xml:lang="en-US">Color - Green
    <ShortName>
      Dissolution: Sitagliptin</ShortName>
    </Description>
  <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></AllowedValues>
</QualityInspectionCharacteristic>
<QualityInspectionCharacteristic characteristicID="0040"
    operationNumber="0010" recordingType="summarizedRecording" isLocked="yes"
    isAdHoc="yes">
    <AllowedValues></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:

Attribute	Description
<code>type</code>	Type of values. Possible values: <ul style="list-style-type: none"> <code>numeric</code> <code>decision</code> <code>choice</code>

`AllowedValues` has the following element:

Attribute	Description
<code>PropertyValue</code>	Contains values for valuating a property. You can use <code>PropertyValue</code> to provide the unit of measure of the allowed values by characteristic.

The following example shows `AllowedValues` with a specified unit of measure for the characteristic:

```

<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:

Attribute	Description
<code>targetValue</code>	Target value for the measurement.
<code>valuePrecision</code>	Integer specifying the number of decimal places to include in the result.
<code>qualitativeValue</code>	A non-numerical value (a string) to send the expected result for qualitative valuation.

`ExpectedResult` has the following elements:

Element	Description
<code>MinimumLimit</code>	Minimum acceptable value.
<code>MaximumLimit</code>	Maximum acceptable value.
<code>PropertyValue</code>	Contains values for a property. Used to send the expected result for qualitative valuation.

The following example shows an `ExpectedResult`:

```
<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:

```
<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:

```
<QualityInspectionResultsRequest>
  <QualityInspectionResultRequestHeader>
    <QualityInspectionRequestReference/>
    <Batch/>
    <Comments/>
    <QualityInspectionQuantity/>
    <AssetInfo/>
    <Extrinsic/>
  </QualityInspectionResultRequestHeader>
  <QualityInspectionResultRequestDetail>
    <QualityInspectionValuation/>
  </QualityInspectionResultRequestDetail>
</QualityInspectionResultRequest>
```

`QualityInspectionResultRequest` has the following elements:

Element	Description
<code>QualityInspectionResultRequestHeader</code> (required)	Contains common information about a quality inspection result.
<code>QualityInspectionResultRequestDetail</code> (required)	Contains details about a quality inspection result.

The following example shows a `QualityInspectionResultRequest`:

```
<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.DO63.982348912738@speedy.corp.alfa.com</URL>
        </Attachment>
      </Comments>
    </QualityInspectionResultRequestHeader>
    <QualityInspectionResultRequestDetail>
      <QualityInspectionValuation>
        <!-- ... -->
      </QualityInspectionValuation>
    </QualityInspectionResultRequestDetail>
  </QualityInspectionResultRequest>
</Request>
```

```

</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>
</QualityInspectionResulRequestHeader>
<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"
    numberOfDefects="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"/>
    <QualitySampleResult sampleID="5" unitValue="95.00"
      physicalSampleNumber="50"/>
    <!-- This is the group code -->
    <ValueGroup>
      <IdReference domain="valuationCodeDomain1" identifier="123"/>
      <PropertyValue>
        <Characteristic code="GIV001" domain="valuationCodeDomain1"
          value="Code Description GIV001"/>
      </PropertyValue>
    </ValueGroup>
    <!-- This is the child -->
    <ValueGroup>
      <IdReference domain="valuationCodeDomain1" identifier="1"/>
      <ParentID>123</ParentID>
      <PropertyValue>
        <Characteristic code="IV001" domain="valuationCodeDomain1"
          value="Code Description IV001"/>
      </PropertyValue>
    </ValueGroup>
    <Description xml:lang="en-US">Valuation
      Description</Description>
    <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
  </QualityInspectionValuation>
</QualityInspectionResultRequestDetail>
</QualityInspectionResultRequest>
</Request>

```

19.6.1 QualityInspectionResultRequestHeader

The `QualityInspectionResultRequestHeader` element contains common information about a quality inspection result.

`QualityInspectionResultRequestHeader` has the following attributes:

Attribute	Description
<code>resultID</code> (required)	Network hub document number for the quality inspection result.
<code>resultDate</code> (required)	Quality inspection result date and time.
<code>version</code>	Version of the document.
<code>createdBy</code>	User who created the quality inspection result.

`QualityInspectionResultRequestHeader` has the following elements:

Element	Description
<code>QualityInspectionRequest-Reference</code> (required)	Reference to the quality inspection request, which can contain the <code>payloadID</code> or the <code>inspectionID</code> and <code>inspectionDate</code> of the quality inspection request. See QualityInspectionRequestReference [page 514] .
<code>Batch</code>	Captures batch information of the customer and supplier.
<code>Comments</code>	Contains comments associated with this quality inspection result request.
<code>QualityInspectionQuantity</code>	The quantity of inventory that is under quality inspection. See QualityInspectionQuantity [page 514] .
<code>AssetInfo</code>	Detailed per-unit asset information for a line item. See AssetInfo [page 323] .
<code>Extrinsic</code>	Contains any additional information related to this quality inspection result request.

19.6.1.1 QualityInspectionRequestReference

The `QualityInspectionRequestReference` element defines the ID of a quality inspection request document.

`QualityInspectionRequestReference` has the following attributes:

Attribute	Description
<code>inspectionID</code>	ID of a quality inspection request document.
<code>inspectionDate</code>	Date and time the quality inspection request document was created.

`QualityInspectionRequestReference` has the following element:

Element	Description
<code>DocumentReference</code>	Reference to an earlier quality inspection request.

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:

Attribute	Description
<code>quantity</code>	Quantity under quality inspection.

`QualityInspectionQuantity` has the following element:

Element	Description
<code>UnitOfMeasure</code>	Describes how the product is packaged or shipped. It must conform to UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfortrade/codes_index.html .

The following example shows a `QualityInspectionQuantity` element:

```
<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:

Element	Description
<code>QualityInspectionValuation</code> (required)	Contains the valuation of a characteristic of an inspection request. See QualityInspectionValuation [page 515].

19.6.2.1 QualityInspectionValuation

The `QualityInspectionValuation` element contains the valuation of a characteristic specified in an inspection request.

`QualityInspectionValuation` has the following attributes:

Attribute	Description
<code>valuationID</code> (required)	Number of the valuation.
<code>characteristicID</code> (required)	Characteristic ID number. The combination of this attribute with <code>operationNumber</code> should be unique.
<code>operationNumber</code> (required)	Inspection operation number. The combination of this attribute with <code>characteristicID</code> should be unique.
<code>workCenter</code>	Work center number.
<code>meanValue</code>	Mean value in the valuation.
<code>aboveTolerance</code>	Number of samples above tolerance limit.
<code>belowTolerance</code>	Number of samples below tolerance limit.
<code>inspectedQuantity</code>	Number of samples inspected.
<code>nonConformance</code>	Total number of samples above and below tolerance limits. This value is auto-calculated when suppliers specify the <code>aboveTolerance</code> or <code>belowTolerance</code> values. Otherwise, suppliers can specify the <code>nonConformance</code> value.
<code>deviation</code>	Standard deviation value.
<code>variance</code>	Variance of valid measured values for this characteristic. Applies to calculated characteristics for which the valuation is based on a formula.

Attribute	Description
numberOfDefects	Number of the defects in this valuation.
serialNumber	Single unit number for the unit to be inspected.
inspectionDate	Date of the characteristic inspection.
isAdHoc	Indicates whether the characteristic does not exist in the reference document and is an additional valuation.

QualityInspectionValuation has the following elements:

Element	Description
QualitySampleResult (required)	Valuation for each sample inspected. See QualitySampleResult [page 517] .
ValueGroup (required)	Structure to support codes and code groups for this valuation.
Description	Valuation description.
Extrinsic	Contains any additional information related to this valuation.

The following example shows several QualityInspectionValuation elements:

```
<QualityInspectionValuation valuationID="1"
  characteristicID="0010" operationNumber="12" workCenter="1001"
  inspectedQuantity="10" inspectionDate="2017-03-07T14:37:31-07:00">
  <QualitySampleResult>
    <PropertyValue>
      <Characteristic domain="color" value="Green" code="2"/>
    </PropertyValue>
  </QualitySampleResult>
  <Description xml:lang="en-US">Valuation Description</Description>
  <Extrinsic name="newExtrinsic">NewExtrinsic</Extrinsic>
</QualityInspectionValuation>
<QualityInspectionValuation aboveTolerance="0" belowTolerance="0"
  characteristicID="0020" nonConformance="0" operationNumber="0010"
  valuationID="3" isAdHoc="yes">
  <QualitySampleResult unitValue="10"/>
  <Description xml:lang="en-US">Additional Valuation
    Description</Description>
</QualityInspectionValuation>
<QualityInspectionValuation aboveTolerance="0" belowTolerance="0"
  characteristicID="0030" nonConformance="0" operationNumber="0010"
  valuationID="4" isAdHoc="yes">
  <QualitySampleResult unitValue="20"/>
  <Description xml:lang="en-US">Additional Valuation
    Description</Description>
</QualityInspectionValuation>
```

19.6.2.1.1 QualitySampleResult

Contains the valuation for each sample inspected.

QualitySampleResult has the following attributes:

Attribute	Description
sampleID	Sample number in valuation.
unitValue	Value of the sample.
physicalSampleNumber	Unique number for the sample when the sample was taken.

QualitySampleResult has the following element:

Element	Description
PropertyValue	Result of the valuation when AllowedValues@type is "choice" in QualityInspectionCharacteristic. You can use PropertyValue@Characteristic to provide the unit of measure for each QualityInspectionValuation.

The following example shows QualitySampleResult:

```
<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:

```
<QualityInspectionDecisionRequest>
  <QualityInspectionDecisionDetail>
    <QualityInspectionResultReference/>
    <QualityInspectionLotStock/>
    <ValueGroup/>
    <Description/>
    <Extrinsic/>
  </QualityInspectionDecisionDetail>
</QualityInspectionDecisionRequest>
```

QualityInspectionDecisionRequest has the following element:

Element	Description
QualityInspectionDecisionDetail (required)	Contains information from the quality inspection decision. See QualityInspectionDecisionDetail [page 519] .

The following example shows a QualityInspectionDecisionRequest:

```
<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>
</Request>
```

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:

Attribute	Description
<code>decisionID</code> (required)	Network hub document number for the quality inspection decision request.
<code>decisionDate</code> (required)	Quality inspection decision request date and time.
<code>status</code>	Usage decision status. Possible values are "accepted" or "rejected".
<code>qualityScore</code>	Quality score for this inspection decision.
<code>createdBy</code>	The user who created the quality inspection decision request.

`QualityInspectionDecisionDetail` has the following elements:

Element	Description
<code>(QualityInspectionResult- Reference QualityInspectionRequest- Reference ShipNoticeReference ReceiptReference)</code> (required)	Enter one of the reference elements: <ul style="list-style-type: none">• <code>QualityInspectionResultReference</code>—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 <code>payloadID</code> or <code>DocumentNumber</code> and <code>DocumentDate</code> of the inspection result. See QualityInspectionResultReference [page 520].• <code>QualityInspectionRequestReference</code>—Reference to the quality inspection request. The reference can contain the <code>payloadID</code> or <code>DocumentNumber</code> and <code>DocumentDate</code> of the quality inspection request. See QualityInspectionRequestReference [page 514].• <code>ShipNoticeReference</code>—Reference to the ship notice request. The reference can contain the <code>payloadID</code> or <code>DocumentNumber</code> and <code>DocumentDate</code> of the ship notice request.• <code>ReceiptReference</code>—Reference to the receipt request. The reference can contain the <code>payloadID</code> or <code>DocumentNumber</code> and <code>DocumentDate</code> of the receipt request.
<code>QualityInspectionLotStock</code> (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 521] .
<code>ValueGroup</code>	Structure to support codes and code groups for this inspection decision.
<code>Description</code>	Description of the quality inspection decision.

Element	Description
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>
    <!-- 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>
```

19.7.1.1 QualityInspectionResultReference

The `QualityInspectionResultReference` element defines the ID of a quality inspection result document.

`QualityInspectionResultReference` has the following attributes:

Attribute	Description
inspectionID	ID of a quality inspection result document.
inspectionDate	Date and time the quality inspection result document was created.

`QualityInspectionResultReference` has the following element:

Element	Description
DocumentReference	Reference to an earlier quality inspection result.

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:

Element	Description
<code>UnrestrictedUseQuantity</code>	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.
<code>ScrapQuantity</code>	The quantity of stock to post as scrap. Scrap of material is expected to occur during production if the material is a component.
<code>SampleUsageQuantity</code>	The quantity of stock to post as sample usage stock.
<code>BlockedQuantity</code>	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.
<code>NewMaterialQuantity</code>	The quantity of stock to post as new material.
<code>ReserveQuantity</code>	The quantity of stock to post as reserve stock.
<code>ReturnQuantity</code>	The quantity of stock in the inspection lot that was returned.

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>
```

ApprovalRequest has the following elements:

i Note

The following example shows an `ApprovalRequest` from a supplier:

522

The following example shows an `ApprovalRequest` from a buyer:

19.8.1 ApprovalRequestHeader

523

ApprovalRequestHeader has the following attributes:

Attribute	Description
approvalStatus	Approval status of the request. Possible values: <ul style="list-style-type: none">• approved• awaitingApproval• reject• approvedAndUpdatePO
type	The type of document needing approval. The only possible value is "orderConfirmation".
creationDate	Date and time when the document was created.
approvalStartDate	Reserved for future use. The date and time on which the approval is allowed to start.
approvalEndDate	Reserved for future use. The date and time on which the approval is allowed to end.

ApprovalRequestHeader has the following elements:

Element	Description
DocumentReference (required)	Contains the payloadID of the underlying document to be approved (for example, the order confirmation).
cXMLAttachment (required)	Contains the original cXML ConfirmationRequest document to be approved.
Contact	Contact information for the document partners.
Comments	Contains comments associated with this approval request.
Extrinsic	Contains any additional information related to this ApprovalRequestHeader.

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:

Attribute	Description
lineNumber (required)	Number of the line item.
acceptanceStatus (required)	Acceptance status of the line item. Possible values: <ul style="list-style-type: none">• approved• awaitingApproval• rejected• approvedAndUpdatePO

AcceptanceItem has the following elements:

Element	Description
DeviationReason	Deviation reason why it is not approved. See DeviationReason [page 525] .
Comments	Contains comments associated with this acceptance item.
AcceptanceItemDetail	Contains the information about the deviation approved when the acceptance status is approvedAndUpdatePO. See AcceptanceItemDetail [page 526] .
Extrinsic	Contains any additional information related to this AcceptanceItem.

The following example shows an AcceptanceItem:

```
<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 approvedAction="update" lineNumber="1"
      quantity="50" deliveryDate="2019-04-15T00:00:00-08:00" />
    <AcceptanceScheduleDetail quantity="50" approvedAction="new"
      deliveryDate="2019-04-25T00:00:00-08:00" />
    <AcceptanceScheduleDetail approvedAction="new" quantity="50"
      deliveryDate="2019-04-19T00:00:00-08:00" />
    <AcceptanceScheduleDetail lineNumber="2" quantity="50"
      deliveryDate="2019-05-15T00:00:00-08:00" />
    <AcceptanceScheduleDetail approvedAction="delete" 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:

Attribute	Description
value (required)	Type of deviation. Possible values: <ul style="list-style-type: none">• dateDeviation• quantityDeviation• priceDeviation

DeviationReason has the following element:

Element	Description
Comments	Contains comments associated with this deviation reason.

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:

Attribute	Description
approvedAction	The action generated from the approval process. Possible values: <ul style="list-style-type: none">• update—Updates an existing item with the lineNumber specified in the AcceptanceItem.• replace—Replaces all the schedule information for an existing item with the lineNumber specified in the AcceptanceItem.

AcceptanceItemDetail has the following elements:

Element	Description
AcceptanceScheduleDetail	Contains detailed information for the schedule line. See AcceptanceScheduleDetail [page 526] .
UnitPrice	Unit price of the item. If this element is included, the unit price is updated.
Extrinsic	Contains any additional information related to this AcceptanceItemDetail.

19.8.2.2.1 AcceptanceScheduleDetail

Contains detailed information for the schedule line. It has the following attributes:

Attribute	Description
quantity (required)	Quantity approved.
deliveryDate	Delivery date approved.

Attribute	Description
approvedAction	The action generated from the approval process. Possible values: <ul style="list-style-type: none"> new—Generates a new schedule line. update—Updates the schedule line of the specified lineNumber in the AcceptanceScheduleDetail. delete—The schedule line referenced no longer exists and must be deleted. The lineNumber attribute must be present in this case.
lineNumber	The line number of the schedule line to delete or update.

AcceptanceScheduleDetail has the following element:

Element	Description
Extrinsic	Contains any additional information related to this AcceptanceScheduleDetail.

19.8.3 ApprovalItem

Note

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:

Attribute	Description
lineNumber (required)	Number of the line item.
quantity (required)	Cumulative confirmed quantity of all elements of the same line item in the corresponding order confirmation.
approvalStatus (required)	Approval status of the line item. Possible values: <ul style="list-style-type: none"> approved awaitingApproval reject approvedAndUpdatePO
reason	Reason why the line item is out of tolerance. Possible values: <ul style="list-style-type: none"> quantityDeviation dateDeviation quantityAndDateDeviation
startDate	Reserved for future use.

Attribute	Description
endDate	Reserved for future use.
deviatedDate	First delivery date of all confirmed elements of the same line item that is out of tolerance.

ApprovalItem has the following elements:

Element	Description
UnitOfMeasure (required)	Unit of measure to specify the quantity.
Comments	Contains comments associated with this approval item.

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:

```
<SalesOrderRequest>
  <SalesOrderHeader>
    <DocumentReference/>
    <Total/>
    <Tax/>
    <Contact/>
    <Comments/>
    <Extrinsic/>
  </SalesOrderHeader>
  <ItemIn/>
</SalesOrderRequest>
```

`SalesOrderRequest` has the following elements:

Element	Description
SalesOrderHeader (required)	Contains common information about a sales order request. See SalesOrderHeader [page 529]
ItemIn	Contains an item from a shopping basket to add to a requisition in the procurement application. See ItemIn [page 88] .

The following example shows a `SalesOrderRequest` element:

```
<Request deploymentMode="production">
  <SalesOrderRequest>
    <SalesOrderHeader noticeDate="2017-12-29T10:59:30-08:00"
      operationAllowed="create" salesOrderID="R09820697" operation="new"
      channelType="buy">
      <Contact>
        <Name xml:lang="EN"/>
      </Contact>
    </SalesOrderHeader>
  </SalesOrderRequest>
</Request>
```

```

    </Contact>
    <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">
        </IdReference>
      </Contact>
      <DateInfo type="requestedDeliveryDate" date="2017-12-28T00:00">
        </DateInfo>
      <DateInfo type="expectedShipmentDate" date="2017-12-28T00:00">
        </DateInfo>
      </ItemIn>
    </SalesOrderRequest>
  </Request>

```

19.9.1 SalesOrderHeader

Contains common information about a sales order.

`SalesOrderHeader` has the following attributes:

Attribute	Description
<code>salesOrderID</code> (required)	<p>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 <code>payloadID</code> attribute of the cXML element) identifier for this document. This value should remain same for all <code>SalesOrderRequests</code> corresponding to the same order.</p> <p>The <code>salesOrderID</code> may be used in the procurement application for processing this request. Links between these documents must be deduced using the <code>DocumentReference</code> element contained in the update's <code>SalesOrderHeader</code> and the <code>payloadID</code> attribute of the original or previous update.</p>

Attribute	Description
operation	<p>The (optional) operational mode of the sales order document. Defaults to "new".</p> <p>An "update" operation allows a supplier to correct an error in a sale order or to add additional information learned later. In either case, an "update" document must be complete: All data from the original sale order or a previous update should be discarded by the recipient.</p> <p>A "cancel" operation allows a supplier to cancel a sale order sent earlier.</p> <p>A SalesOrderRequest with an "update" 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.</p>
operationAllowed (required)	<p>Highest operation allowed on the shopping basket in the procurement application. "create" allows only later OrderRequest operations on these items. "inspect" adds a PunchOutSetupRequest with operation="inspect". And, "edit" allows operation="edit" in the later punchout setup request.</p>
noticeDate (required)	The date and time this sale order was created.
orderVersion	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.
channelType	<p>Indicates the action expected by the supplier who initiates the sales document. Possible values:</p> <ul style="list-style-type: none"> • buy - The buyer will create a Sales Order. • sell - The buyer will create a Purchase Order. • 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.

SalesOrderHeader has the following elements:

Element	Description
DocumentReference	Required when the operation is "update". 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="update". That document must, in turn, refer to the original (operation="new") SalesOrderRequest document.
Total	The total of the sales order request.
Tax	Indicates taxes that are applicable to this sales order request.
Contact (required)	Uniquely identifies the requester in the procurement application. There must a contact with the role of "requester" along with the details of the requester.

Element	Description
Comments	Contains comments associated with this sales order request.
Extrinsic	Contains any additional information related to this sales order request.

20 Logistics

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 \[page 532\]](#)

[TransportRequest \[page 534\]](#)

[TransportConfirmation \[page 545\]](#)

[Other Logistics Elements \[page 552\]](#)

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:

```
<TransportRequest>
  <TransportRequestHeader>
    <TransportPartner/>
    <Comments/>
    <Extrinsic/>
  </TransportRequestHeader>
  <Consignment>
    <ConsignmentHeader/>
    <ConsignmentLineDetail/>
    <TransportEquipment/>
  </Consignment>
  <TransportSummary>
    <FreightChargesAmount/>
    <SubtotalAmount/>
    <InsuranceValue/>
    <Dimension/>
    <Extrinsic/>
  </TransportSummary>
</TransportRequest>
```

`TransportRequest` has the following elements:

Element	Description
<code>TransportRequestHeader</code> (required)	Contains common information for all consignments. See TransportRequestHeader [page 537] .
<code>Consignment</code> (required)	Describes a consignment, which is a collection of packages going from a single originating party to a single destination party. See Consignment [page 538] .
<code>TransportSummary</code> (required)	Contains a summary of the data contained in all the consignments of this document. See TransportSummary [page 544] .

The following example shows a `TransportRequest` document:

```
<Request>
  <TransportRequest>
    <TransportRequestHeader 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>
    </TransportRequestHeader>
    <Consignment consignmentID="1">
```

```

<ConsignmentHeader numberOfPackages="1">
  <TransportPartner role="shipFrom">
    <Contact role="from">
      <Name xml:lang="en_US">Originating Company</Name>
      <PostalAddress>
        <Street>123 Demo Street</Street>
        <City>Demo City</City>
        <Country isoCountryCode="US"/>
      </PostalAddress>
      <IdReference identifier="AN03000000104" domain="NetworkID"/>
    </Contact>
  </TransportPartner>
  <TransportPartner role="shipTo">
    <Contact role="to">
      <Name xml:lang="en_US">Destination Company</Name>
      <PostalAddress>
        <Street>123 Second Demo Street</Street>
        <City>Second Demo City</City>
        <Country isoCountryCode="US"/>
      </PostalAddress>
      <IdReference identifier="AN02000000104" domain="NetworkID"/>
    </Contact>
  </TransportPartner>
  <CommercialTerms incoterms="fob"/>
  <TransportRequirements></TransportRequirements>
  <Origin>
    <Address>
      <Name xml:lang="en_US">Originating Company</Name>
      <PostalAddress>
        <Street>123 Demo Street</Street>
        <City>Demo City</City>
        <State>CA</State>
        <Country isoCountryCode="US"/>
      </PostalAddress>
    </Address>
    <DateInfo type="requestedPickUpDate"
      date="2015-11-03T17:00:00-05:00"></DateInfo>
  </Origin>
  <Destination>
    <Address>
      <Name xml:lang="en_US">Destination Company</Name>
      <PostalAddress>
        <Street>123 Second Demo Street</Street>
        <City>Second Demo City</City>
        <State>FL</State>
        <Country isoCountryCode="US"/>
      </PostalAddress>
    </Address>
    <DateInfo type="requestedDeliveryDate"
      date="2015-11-10T17:00:00-05:00"></DateInfo>
  </Destination>
  <Route method="motor" means="truck"/>
  <Comments type="line1" xml:lang="en_US">First line of
    comments</Comments>
  <Comments type="line2" xml:lang="en_US">Second line of
    comments</Comments>
</ConsignmentHeader>
<ConsignmentLineDetail lineNumber="1" numberOfPackages="1">
  <!-- This defines a root package, which is big box that will contain
    all the other packages -->
  <TransportPackage>
    <Packaging>
      <PackagingCode xml:lang="en_US">bigBox</PackagingCode>
      <Description xml:lang="en_US">Standard Big Box</Description>
      <PackagingLevelCode>outer</PackagingLevelCode>
      <ShippingContainerSerialCode>0
    </ShippingContainerSerialCode>
    </Packaging>
  </TransportPackage>
</ConsignmentLineDetail>

```

```

</TransportPackage>
<TransportPackage>
  <Packaging>
    <PackagingCode xml:lang="en_US">regularBox</PackagingCode>
    <Description xml:lang="en_US">Standard box</Description>
    <PackagingLevelCode>inner</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>
    <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:

Attribute	Description
<code>operation</code>	Operation to perform. Defaults to "new", which creates a new request. Update and delete operations are not supported for this document.
<code>requestID</code>	A user-supplied identifier for this transport request.
<code>requestDate</code>	User-supplied date and time when this document was created.

`TransportRequestHeader` has the following elements:

Element	Description
<code>TransportPartner</code>	Represents a party, or company, of the transport service. See TransportPartner [page 537] .
<code>Comments</code>	Contains comments associated with this object.
<code>Extrinsic</code>	Contains any additional information related to this object.

20.2.1.1 TransportPartner

`TransportPartner` represents a party, or company, of the transport service. It has the following attribute:

Attribute	Description
<code>role</code> (required)	The role of the transport partner. Possible values: <ul style="list-style-type: none"><code>shipFrom</code>—The originating party for this consignment.<code>shipTo</code>—The destination party for this consignment.<code>carrier</code>—The party in charge of carrying the goods.

`TransportPartner` has the following elements:

Element	Description
<code>Contact</code> (required)	Supplies additional Address or Location information for the requesting company.
<code>Extrinsic</code>	Contains any additional information related to this object.

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:

Attribute	Description
<code>consignmentID</code> (required)	Identifier for this consignment.

20.2.2.1 ConsignmentHeader

`ConsignmentHeader` contains common information for all the packages of this consignment. It has the following optional attribute:

Attribute	Description
<code>numberOfPackages</code>	Total number of physical packages of this consignment.

`ConsignmentHeader` has the following elements:

Element	Description
<code>TransportPartner</code>	Represents a party, or company, of the transport service. See TransportPartner [page 537] .
<code>Dimension</code>	Specifies a single dimension for the packaging of the item.
<code>CommercialTerms</code>	Defines the commercial terms of these goods. See CommercialTerms [page 539] .
<code>NetAmount</code>	Total value of the goods in this consignment.
<code>ReferenceDocumentInfo</code>	Reference to legal documents related to this consignment. See ReferenceDocumentInfo [page 130] .
<code>ShipmentIdentifier</code>	Identifier for this consignment as assigned by the carrier (if known).
<code>TransportRequirements</code>	Contains information about the transport service that is requested from the logistics provider. See TransportRequirements [page 539] .
<code>Origin</code> (required)	Describes the origin location for the goods. See Origin [page 540] .
<code>Destination</code> (required)	Describes the destination location for the goods. See Destination [page 540] .

Element	Description
Route	Indicates the transport mode (method) and means for this consignment. No other Route data is needed for this context. See Route [page 540] .
TransportCondition	Contains required conditions for the transport. See TransportCondition [page 541] .
Comments	Contains comments associated with this object.
Extrinsic	Contains any additional information related to this object.

20.2.2.1.1 CommercialTerms

CommercialTerms defines the commercial terms of goods. It has the following attribute:

Attribute	Description
incoterms (required)	<p>Contains the three-letter Incoterms 2010 edition code, in lower case, as defined by the International Chamber of Commerce (ICC). Possible values are:</p> <ul style="list-style-type: none"> • cfr—Cost And Freight • cif—Cost Insurance And Freight • cip—Carriage And Insurance Paid • cpt—Carriage Paid • daf—Delivered At Frontier • ddp—Delivered Duty Paid • ddu—Delivered Duty Unpaid • deq—Delivered Ex Quay • des—Delivered Ex Ship • exw—Ex Works • fas—Free Alongside Ship • fca—Free Carrier • fob—Free On Board

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:

Element	Description
Hazard	Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment.

Element	Description
TransportTemperature	Contains a temperature or temperature range that must be observed during transportation. See TransportTemperature [page 554] .
Classification	Classification of the goods carried.
Extrinsic	Contains any additional information related to this object.

20.2.2.1.3 Origin

Origin describes the origin location for the goods. It has the following elements:

Element	Description
Address (required)	Contains the address of this location.
DateInfo	Contains dates applicable for this location. See DateInfo [page 552] .
Extrinsic	Contains any additional information related to this object.

20.2.2.1.4 Destination

Destination describes the destination location for the goods.

Element	Description
Address (required)	Contains the address of this location.
DateInfo	Contains dates applicable for this location. See DateInfo [page 552] .
Extrinsic	Contains any additional information related to this object.

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 \[page 312\]](#).

20.2.2.1.6 TransportCondition

`TransportCondition` contains required conditions for the transport. It has the following elements:

Element	Description
Priority	Priority indicator representing the "speed" of the service. The highest priority is an express service, while the lowest one is a mail service.
Extrinsic	Contains any additional information related to this object.

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:

Attribute	Description
lineNumber (required)	A sequential number for this line that is unique for this consignment.
numberOfPackages (required)	Total number of physical packages of this consignment.

`ConsignmentLineDetail` has the following elements:

Element	Description
TransportPackage	Describes the material items contained within a package. See TransportPackage [page 542] .
TransportRequirements	Contains information about the transport service that is requested from the logistics provider. See TransportRequirements [page 539] .
TransportPlacement	Describes how the packages are placed into transport equipment. See Transport-Placement [page 542] .
ReferenceDocumentInfo	Reference to external documents. See ReferenceDocumentInfo [page 130] .
Comments	Contains comments associated with this object.
Extrinsic	Contains any additional information related to this object.

20.2.2.2.1 TransportPackage

`TransportPackage` describes the material items contained within a package. It has the following elements:

Element	Description
Packaging	Contains details about the packaging of this line item.
ItemInfo	References a specific item and its relationship with a Purchase Order, Invoice, and Ship Notice. See ItemInfo [page 553] .

20.2.2.2.2 TransportPlacement

`TransportPlacement` describes how the packages are placed into transport equipment. It has the following attributes:

Attribute	Description
equipmentID (required)	ID of the transport equipment.
numberOfPackages (required)	The quantity of packages placed into the equipment.

20.2.2.3 TransportEquipment

`TransportEquipment` defines a piece of transport equipment needed for this consignment. It has the following attributes:

Attribute	Description
equipmentID (required)	The identifier of this equipment. Must be unique for this consignment.

Attribute	Description
type	<p>Type of this equipment. Possible values:</p> <ul style="list-style-type: none"> dimeCoatedTank - A tank coated with dime. epoxyCoatedTank - A tank coated with epoxy. pressurizedTank - A tank capable of holding pressurized goods. refrigeratedTank - A tank capable of keeping goods refrigerated. stainlessSteelTank - A tank made of stainless steel. nonWorking40ftReeferContainer - A 40 foot refrigerated container that is not actively controlling temperature of the product. euroPallet - 80 x 120 cm. scandinavianPallet - 100 x 120 cm. trailer - Non self-propelled vehicle designed for the carriage of cargo so that it can be towed by a motor vehicle. nonWorking20ftReeferContainer - A 20 foot refrigerated container that is not actively controlling temperature of the product. nonWorking30ftReeferContainer - A 30 foot refrigerated container that is not actively controlling temperature of the product. nonWorking40ftReeferContainer - A 40 foot refrigerated container that is not actively controlling temperature of the product. exchangeablePallet - Standard pallet exchangeable following international convention. semiTrailer - Non self-propelled vehicle without front wheels designed for the carriage of cargo and provided with a kingpin. tankContainer20ft - A tank container with a length of 20 feet. tankContainer30ft - A tank container with a length of 30 feet. tankContainer40ft - A tank container with a length of 40 feet. refrigeratedTank20ft - A refrigerated tank with a length of 20 feet. refrigeratedTank30ft - A refrigerated tank with a length of 30 feet. refrigeratedTank40ft - A refrigerated tank with a length of 40 feet. temperatureControllerContainer20ft - Temperature-controlled container measuring 20 feet. temperatureControllerContainer30ft - Temperature-controlled container measuring 30 feet. temperatureControllerContainer40ft - Temperature-controlled container measuring 40 feet. totebin - A steel open top unit of about 1,5 * 1,5 * 2,5 meters for road transport of bulk cargo. dualTrailers - Two trailers linked together one behind another and pulled by one tractor.
numberOfEquipments	The number of equipment units available.
providedBy	<p>Indicates who provides this equipment. Possible values:</p> <ul style="list-style-type: none"> sender receiver carrier other

Attribute	Description
status	Indicates the status of the equipment after loading this consignment. Possible values: <ul style="list-style-type: none"> full empty

TransportEquipment has the following elements:

Element	Description
VehicleRegistration	Contains the registration number of a vehicle and its country. See VehicleRegistration [page 544].
Extrinsic	Contains any additional information related to this object.

20.2.2.3.1 VehicleRegistration

VehicleRegistration contains the registration number of a vehicle and its country. It has the following element:

Element	Description
RegistrationNumber (required)	The vehicle registration number can be one of the following numbers: <ul style="list-style-type: none"> License plate for cars and trucks. Registration number for airplanes. IMO number for ships.

20.2.3 TransportSummary

TransportSummary contains a summary of the data contained in all the consignments of this document. It has the following attribute:

Attribute	Description
numberOfPackages (required)	Total number of physical packages in this transport request.

TransportSummary has the following elements:

Element	Description
FreightChargesAmount	Contains the total of freight charges. See FreightChargesAmount [page 545].
SubtotalAmount	Taxable amount for the freight charges.

Element	Description
InsuranceValue	Contains the declared value of the goods for insurance purposes. See Insurance-Value [page 545] .
Dimension	Total dimensions for the packages of all consignments.
Extrinsic	Contains any additional information related to this object.

20.2.3.1 FreightChargesAmount

FreightChargesAmount contains the total of freight charges. It has no attributes and one required element:

Element	Description
Money (required)	Monetary amount of the freight charges.

20.2.3.2 InsuranceValue

InsuranceValue contains the declared value of the goods for insurance purposes. It has no attributes and one required element:

Element	Description
Money (required)	Monetary amount of the declared value of the goods.

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:

```
<TransportConfirmation>
  <TransportConfirmationHeader>
    <TransportPartner/>
    <Extrinsic/>
  </TransportConfirmationHeader>
  <TransportReference>
    <DocumentReference/>
  </TransportReference>
  <ConsignmentConfirmation>
```

```

    <ConsignmentConfirmationHeader/>
    <TransportEquipment/>
  </ConsignmentConfirmation>
</TransportConfirmation>

```

TransportConfirmation has the following elements:

Element	Description
TransportConfirmation-Header (required)	Contains common information that applies to the whole confirmation message. See TransportConfirmationHeader [page 549] .
TransportReference (required)	Defines a reference to an earlier TransportRequest document. See TransportReference [page 549] .
ConsignmentConfirmation (required)	Represents an update made to a previously existing consignment from the referenced TransportRequest. See ConsignmentConfirmation [page 550] .

The following example shows a TransportConfirmation document with a consignment status of "accepted":

```

<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>
        <ReferenceDocumentInfo>
          <DocumentInfo documentType="cte" documentID="CTE--001"
            documentDate="2015-12-23T16:42:35-05:00"/>
        </ReferenceDocumentInfo>
        <ShipmentIdentifier domain="trackingNumber"

```

```

        trackingNumberDate="2015-12-23T16:42:35-05:00"/>
    <OriginConfirmation>
        <DateInfo type="expectedPickUpDate"
            date="2015-12-23T16:42:35-05:00"></DateInfo>
    </OriginConfirmation>
    <DestinationConfirmation>
        <DateInfo type="expectedDeliveryDate"
            date="2016-01-21T13:24:42-05:00"></DateInfo>
    </DestinationConfirmation>
    <Extrinsic name="Beater PF Value">N12-2123</Extrinsic>
    <Extrinsic name="Beater Accredited Qtd">N12-2123</Extrinsic>
    <Extrinsic name="Extra Service Value">1212</Extrinsic>
    <Extrinsic name="License Value">N12-2123</Extrinsic>
</ConsignmentConfirmationHeader>
<TransportEquipment equipmentID="CONTAINER-001"
    numberOfEquipments="1" providedBy="carrier" type="container">
    <VehicleRegistration>
        <RegistrationNumber>ANH-212</RegistrationNumber>
    </VehicleRegistration>
</TransportEquipment>
</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">
                    <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="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">
      <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="1377081258533@10.58.34.53"/>
</TransportReference>
<ConsignmentConfirmation consignmentID="1" consignmentStatus="collected">
  <ConsignmentConfirmationHeader numberOfPackages="1">
    <Dimension quantity="10" type="grossWeight">
      <UnitOfMeasure>TN</UnitOfMeasure>
    </Dimension>
    <Dimension quantity="23" type="grossVolume">
      <UnitOfMeasure>m3</UnitOfMeasure>
    </Dimension>
    <OriginConfirmation>
      <DateInfo type="actualPickUpDate"
        date="2015-12-23T16:42:35-05:00"></DateInfo>
    </OriginConfirmation>
    <DestinationConfirmation>
      <DateInfo type="expectedDeliveryDate"
        date="2016-01-21T13:24:42-05:00"></DateInfo>
    </DestinationConfirmation>
  </ConsignmentConfirmationHeader>
  <TransportEquipment equipmentID="1">
    <VehicleRegistration>
      <RegistrationNumber>ANH-212
    </RegistrationNumber>
    </VehicleRegistration>
  </TransportEquipment>
</ConsignmentConfirmation>
</TransportConfirmation>
</Request>

```

The following example shows a TransportConfirmation document with a consignment status of "cancelled":

```

<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="1377081258533@10.58.34.53"/>
    </TransportReference>
    <ConsignmentConfirmation consignmentID="1" consignmentStatus="cancelled"
      rejectionReason="Unauthorized">
      <ConsignmentConfirmationHeader numberOfPackages="1">
        <Comments type="cancelation" xml:lang="en_US">

```

```
        Not able to pick up the goods
    </Comments>
  </ConsignmentConfirmationHeader>
</ConsignmentConfirmation>
</TransportConfirmation>
</Request>
```

20.3.1 TransportConfirmationHeader

`TransportConfirmationHeader` contains common information that applies to the whole confirmation message. It has the following attributes:

Attribute	Description
operation	Operation to perform. Defaults to "new", which creates a new confirmation. Update and delete operations are not supported for this document.
confirmationID	User-supplied identifier for this confirmation.
confirmationDate	User-supplied date for this confirmation.

`TransportConfirmationHeader` has the following elements:

Element	Description
TransportPartner	Represents a party, or company, of the transport service. See TransportPartner [page 537] .
Extrinsic	Contains any additional information related to this object.

20.3.2 TransportReference

`TransportReference` defines a reference to an earlier `TransportRequest` document. It has the following attributes:

Attribute	Description
requestID	The ID of a transport request known to the system of the party that created the <code>TransportRequest</code> .
requestDate	The date and time the transport request was created.

`TransportReference` has the following element:

Element	Description
DocumentReference (required)	References an earlier document, for example, a <code>TransportRequest</code> .

20.3.3 ConsignmentConfirmation

`ConsignmentConfirmation` represents an update made to a previously existing consignment from the referenced `TransportRequest`. It has the following attributes:

Attribute	Description
<code>consignmentID</code> (required)	Identifier for this consignment.
<code>consignmentStatus</code> (required)	The new status for this consignment. Possible values: <ul style="list-style-type: none">• <code>accepted</code>• <code>collected</code>• <code>rejected</code>• <code>cancelled</code>
<code>rejectionReason</code>	If the <code>consignmentStatus</code> is "rejected", then a reason must be provided in this attribute.

20.3.3.1 ConsignmentConfirmationHeader

`ConsignmentConfirmationHeader` contains common information for this consignment confirmation. It has the following optional attribute:

Attribute	Description
<code>numberOfPackages</code>	The updated package count, only if it needs to be updated.

`ConsignmentConfirmationHeader` has the following elements:

Element	Description
<code>Hazard</code>	Provides a textual description and optional codes about hazards inherent in both an item and an overall shipment.
<code>Dimension</code>	Specifies a single dimension for the packaging of the item.
<code>ReferenceDocumentInfo</code>	Contains information about a referenced document. See ReferenceDocumentInfo [page 130] .
<code>ShipmentIdentifier</code>	A tracking number defined by the carrier that appears on the shipment that can be used to obtain additional detail about the shipment.
<code>OriginConfirmation</code>	Specifies additional dates to the origin location specified in the referenced <code>TransportRequest</code> . See OriginConfirmation [page 551] .

Element	Description
DestinationConfirmation	Specifies additional dates to the destination location specified in the referenced <code>TransportRequest</code> . See DestinationConfirmation [page 551] .
Comments	Contains comments associated with the consignment confirmation.
Extrinsic	Contains any additional information related to this object.

20.3.3.1.1 OriginConfirmation

`OriginConfirmation` specifies additional dates to the origin location specified in the referenced `TransportRequest`. It has the following elements:

Element	Description
DateInfo	Contains date information associated with a document or item. See DateInfo [page 552] .
Extrinsic	Contains any additional information related to this object.

20.3.3.1.2 DestinationConfirmation

`DestinationConfirmation` specifies additional dates to the destination location specified in the referenced `TransportRequest`.

Element	Description
DateInfo	Contains date information associated with a document or item. See DateInfo [page 552] .
Extrinsic	Contains any additional information related to this object.

20.3.3.2 TransportEquipment

`TransportEquipment` defines a piece of transport equipment needed for this consignment. See [TransportEquipment \[page 542\]](#).

20.4 Other Logistics Elements

This section lists other elements used by `TransportRequest` and `TransportConfirmation` elements.

[DateInfo](#) [page 552]

[ItemInfo](#) [page 553]

[TransportIDInfo](#) [page 554]

[TransportTemperature](#) [page 554]

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:

Attribute	Description
<code>type</code> (required)	<p>Date type. Possible values:</p> <ul style="list-style-type: none">• <code>expectedShipmentDate</code>—Expected ship date for the material is used to determine when the supplier is expected to ship the material from their location.• <code>productionStartDate</code>—Production start date.• <code>productionFinishDate</code>—Production finish date.• <code>requestedPickUpDate</code>—Pick up date as requested by the party arranging the transport.• <code>expectedPickUpDate</code>—Date when the logistic provider expects to pick up the materials.• <code>actualPickUpDate</code>—Actual pick up date, as it has occurred.• <code>requestedDeliveryDate</code>—Delivery date as requested by the party arranging the transport.• <code>expectedDeliveryDate</code>—Expected delivery date for the material to be received at the partner location.• <code>actualDeliveryDate</code>—Actual delivery date of the goods.• <code>confirmedShipDate</code>—Shipment date confirmed by the supplier.• <code>confirmedDeliveryDate</code>—Delivery date confirmed by the supplier.
<code>date</code> (required)	Date value.

DateInfo has the following element:

Element	Description
Extrinsic	Contains any additional information related to this object.

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:

Attribute	Description
quantity (required)	The quantity included in the document.

ItemInfo has the following elements:

Element	Description
ItemID	Provides unique identification of an item.
Description	Contains a string that describes something.
Classification	Contains the recommended commodity classification code for the line item.
ManufacturerPartID	ID with which the item's manufacturer identifies the item.
ManufacturerName	Name of the item's manufacturer.
Country	The country of origin of the product listed in the line item.
SupplierBatchID	Specifies the batch number for goods made or manufactured at the same time.
ReferenceDocumentInfo	Contains information about a referenced document. See ReferenceDocumentInfo [page 130] .
UnitOfMeasure (required)	Describes how the product is packaged or shipped. It must conform with UN/CEFACT Unit of Measure Common Codes. See www.unece.org/cefact/codesfor-trade/codes_index.html .
Extrinsic	Contains any additional information related to the item.

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:

Element	Description
<code>requestID</code>	The ID of a transport request known to the system of the party that created it.
<code>requestDate</code>	The date and time the transport request was created.

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:

Attribute	Description
<code>temperature</code>	The temperature to be observed if a range is not specified.
<code>maximum</code>	The upper limit to observe in a range.
<code>minimum</code>	The lower limit to observe in a range.

`TransportTemperature` has the following element:

Element	Description
<code>UnitOfMeasure</code> (required)	The unit of measure for the temperature. For example, "CEL" (degree Celsius), "FAH" (degree Fahrenheit), "KEL" (kelvin), or "A48" (degree Rankin).

21 Alternative Authentication Methods

cXML supports alternatives to the shared secret authentication method for verifying the sender of cXML documents.

[Message Authentication Code \(MAC\) \[page 555\]](#)

[Auth Transaction \[page 559\]](#)

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 \[page 31\]](#).

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:

Value	Normalize by...	Normalized Example
domain	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.	networkid
Identity	Discard leading or trailing whitespace and use the lowercase version of the string.	an9900000100
creationDate expirationDate	No normalization needed, because they are in ISO8601 format described in Date, Time, and Other Data Types [page 27] .	2003-01-15T11:42:46-08:00 0

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 30 30 31 30 30 00 6e 65 74 77 6f 72 6b 69 64
00 61 6e 39 39 30 30 30 30 30 31 30 30 00 32 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 61 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.

```
<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 \[page 47\]](#)

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.

```
<cXML>
```

```

<Header>
  <To>
    <Credential domain="DUNS">
      <Identity>049329048</Identity>
    </Credential>
  </To>
  <From>
    <Credential domain="NetworkId">
      <Identity>AN9900000100</Identity>
    </Credential>
  </From>
  <Sender>
    <Credential domain="NetworkId">
      <Identity>AN9900000100</Identity>
      <CredentialMac type="FromSenderCredentials"
        algorithm="HMAC-SHA1-96"
        creationDate="2016-01-15T08:42:46-0800">
        expirationDate="2016-01-15T11:42:46-0800">
        cR6Jpz58nriXERDN
      </CredentialMac>
      <UserAgent>Procure System 3.0</UserAgent>
    </Credential>
  </Sender>
</Header>
[. . .]
</cXML>

```

Related Information

[Credential \[page 31\]](#)

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.

```
<!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 31].

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.

X509IssuerSerialChild 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:

Attribute	Description
<code>expirationDate</code>	Specifies the time beyond which the information contained in the <code>AuthResponse</code> must be discarded. The inclusion of this attribute specifies that the receiver can cache the <code>AuthResponse</code> information until the <code>expirationDate</code> .

The absence of an `expirationDate` should be interpreted to forbid caching.

```
<?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.

[Digital Signature Overview \[page 563\]](#)

[Signing cXML Documents \[page 564\]](#)

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.

Attribute	Description
<code>signatureVersion</code>	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 <code>1.0</code> ; other values are reserved for future use.
<code>Id</code>	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><Request Id="foo"></code> , then in the digital signature <code><Reference URI="#foo"></code> will refer to the <code>Request</code> element and all its children. If the document is signed, this attribute must be present.

The `Message`, `Request`, and `Response` elements contain an `Id` attribute.

Related Information

[cXML Envelope \[page 26\]](#)

[cXML Basics \[page 19\]](#)

22.2.1.2 cXMLSignedInfo

The `cXMLSignedInfo` element includes cXML-specific details about the signature, and has the following attributes:

Attribute	Description
<code>signatureVersion</code> (required)	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. The only valid value for the attribute is <code>1.0</code> ; other values are reserved for future use.
<code>payloadID</code> (required)	Used to establish links between documents. The <code>payloadID</code> in the <code>cXMLSignedInfo</code> element must be the same as the <code>payloadID</code> in the document's main cXML element.
<code>Id</code> (required)	Identifies this <code>cXMLSignedInfo</code> element for purposes of the signature. This attribute must always be present and should always have the value <code>"cXMLSignedInfo"</code> .

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:

```
<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:

```
<ds:Reference URI="#cXMLSignedInfo">
  <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
  <ds:DigestValue>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</ds:DigestValue>
</ds:Reference>
```

The `Request`, `Response`, or `Message` element should be signed in its entirety. To do this, specify the string `"cXMLData"` as the value of the `Id` attribute on the `Request`, `Response`, or `Message` element and include a `ds:Reference` element with the URI `"#cXMLData"` in the `ds:SignedInfo`. No transforms should be applied to this reference. This `ds:Reference` must be the second `ds:Reference` in the `ds:SignedInfo`.

The `ds:KeyInfo` element should be present with a single `ds:X509Certificate` element. This should include the Base64 encoding of the DER representation of an X.509 certificate containing the public key corresponding to the private key used to sign the document.

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>P6ua59kKBLtMBFE+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>P6ua59kKBLtMBFE+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:

Status	Text	Meaning
475	Signature Required	The receiver is unwilling to accept the document because it does not have a digital signature.
476	Signature Verification Failed	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.
477	Signature Unacceptable	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.

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 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>
```

```

    </InvoiceDetailRequest>
  </Request>
  <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:CanonicalizationMethod>
      <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1">
      </ds:SignatureMethod>
      <ds:Reference URI="#cXMLSignedInfo">
        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1">
        </ds:DigestMethod>
        <ds:DigestValue>mxtVp6Rg9K5wo/c5B088g7sZYEq=</ds:DigestValue>
      </ds:Reference>
      <ds:Reference URI="#cXMLData">
        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1">
        </ds:DigestMethod>
        <ds:DigestValue>luBJgSa3BXewh/1wsPDWCzn8Sgk=</ds:DigestValue>
      </ds:Reference>
      <ds:Reference URI="#XAdESSignedProps">
        <ds:DigestMethod
          Algorithm="http://www.w3.org/2000/09/xmldsig#sha1">
        </ds:DigestMethod>
        <ds:DigestValue>XIasOHckorH8fz/thdyZIZvV2yI=</ds:DigestValue>
      </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>
nNfsBpc22u9aypYLvgE5cuiHVO077vnaolS76LoAuks9bAwLO0kz/nkTQfb2zKSQTy8jj6W/
TJGCQj691PlKBnIgaMPPN3k+hbi6A5cJHPRd3HNPexU5sSi4StTuxlWaiHe/
XEeBEeclu7K6sR4RhlgzzELg05v2laRX4oVgbjk=</ds:SignatureValue>
    <ds:KeyInfo>
      <ds:X509Data>
        <ds:X509Certificate>
MIICgDCCAekCAw7cUTANBgkqhkiG9w0BAQQFADCBijELMAkGA1UEBhMCVV
w7cUTANBgkqhkiG9w0BAQQFADCBijELMAkGA1UEBhMCVVMxEzARBGNV
MIICgDCCAekCAw7cUTANBgkqhkiG9w0BAQQFADCBijELMAkGA1UEBhMCVV
w7cUTANBgkqhkiG9w0BAQQFADCBijELMAkGA1UEBhMCVVMxEzARBGNVBA
MIICgDCCAekCAw7cUTANBgkqhkiG9w0BAQQFADCBijELMAkGA1UEBhMCVV
zuRel/9tb8M95FuN5yR9GUGl5PgkzwwCQYobJqIcAs=</ds:X509Certificate>
        </ds:X509Data>
      </ds:KeyInfo>
    <ds:Object>
      <cXMLSignedInfo Id="cXMLSignedInfo"
        payloadID="20030912.rsmith004@live.hub.com" signatureVersion="1.0">
      </cXMLSignedInfo>
    </ds:Object>
    <ds:Object>
      <xades:QualifyingProperties xmlns:xades=
"http://uri.etsi.org/01903/v1.1.1#"
        Target="#cXMLSignature">
      <xades:SignedProperties Id="XAdESSignedProps">
        <xades:SignedSignatureProperties>
          <xades:SigningTime>2003-09-30T18:32:27Z</xades:SigningTime>
          <xades:SigningCertificate>
            <xades:Cert>
              <xades:CertDigest>
                <ds:DigestMethod
                  Algorithm="http://www.w3.org/2000/09/xmldsig#sha1">
                </ds:DigestMethod>
                <ds:DigestValue>LEtnt8c7gvZqp3oVt8/BLOJpeeA=
                </ds:DigestValue>
              </xades:CertDigest>
            </xades:Cert>
            <xades:IssuerSerial>
              <ds:X509IssuerName>EMAILADDRESS=an_ops@company.com,
                CN=anrc.hub.com, O="Hub, Inc.", L=Mountain View,
                ST=California, C=US</ds:X509IssuerName>
              <ds:X509SerialNumber>973905</ds:X509SerialNumber>
            </xades:IssuerSerial>
          </xades:Cert>

```

```
        </xades:SigningCertificate>
        <xades:SignaturePolicyIdentifier>
          <xades:SignaturePolicyImplied>
            </xades:SignaturePolicyImplied>
          </xades:SignaturePolicyIdentifier>
        </xades:SignedSignatureProperties>
      </xades:SignedProperties>
    </xades:QualifyingProperties>
  </ds:Object>
</ds:Signature>
</cXML>
```

23 Revision History

The following table provides a brief history of the updates to this guide.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
January 2020	New Features in cXML 1.2.045	New chapter.
	cXML Basics	Updated “Base Elements” topic.
	Purchase Orders	Added or updated the following topics: <ul style="list-style-type: none"> OrderRequestHeader ItemOut ItemOutIndustry PackagingDistribution Packaging
	Payment	Added the following topics: <ul style="list-style-type: none"> PaymentReceiptConfirmationRequest PaymentReceiptConfirmationRequestHeader PaymentReceiptDetails PaymentReceiptItem PaymentDetails PaymentAmount PreviousBalance PresentBalance PaymentReceiptSummary ChargeFileRequest ChargeFileRequestHeader ProviderName ChargeFileDetails ChargeFile NumberOfCharges
	Multiple topics	Added isoStateCode attribute to State elements in examples. Updated URL for UN/CEFACT Unit of Measure Common Codes.
October 2019	New Features in cXML 1.2.044	New chapter, earlier in book (after license).
	cXML Basics	Updated “Type Entities” topic.
	Purchase Orders	Updated the following topics: <ul style="list-style-type: none"> ItemDetailRetail Packaging

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Request for Quotations	<p>Added the following topics:</p> <ul style="list-style-type: none"> • “Specifying Pricing Conditions” • UnitPrice • PricingConditions • ValidityPeriods • ValidityPeriod • ConditionTypes • ConditionType • CostTermValue • Scales • Scale
	Payment	Added IncorporationType.
	Master Agreements and Contracts	Updated ContractItemIn.
	Supply Chain Collaboration	Updated InventoryTimeSeries.
July 2019	PunchOut Transaction	<p>Updated the following topics:</p> <ul style="list-style-type: none"> • PunchOutSetupRequest • ItemIn
	Purchase Orders	<p>Updated the following topics:</p> <ul style="list-style-type: none"> • ShipTo/BillTo • InvoiceInstruction • SESInstruction • OrderRequestHeaderIndustry • ItemOut • ItemOutIndustry • BatchInfo
	Request for Quotations	<p>Updated the following topics:</p> <ul style="list-style-type: none"> • SupplierSelector • QuoteItemOut • QuoteItemIn
	Payment	<p>Added or updated the following topics:</p> <ul style="list-style-type: none"> • Contact • IdReference • NatureOfBusiness
	Master Agreements and Contracts	<p>Updated the following topics:</p> <ul style="list-style-type: none"> • ContractItemIn

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Later Status Changes	Updated the following topics: <ul style="list-style-type: none"> • ConfirmationItem • ShipNoticeItem • AssetInfo • ReceiptItem
	Invoices	Updated the following topics: <ul style="list-style-type: none"> • ServiceEntryItemReference • InvoiceDetailServiceItem
	Supply Chain Collaboration	Updated the following topics: <ul style="list-style-type: none"> • ComponentConsumptionItem • ApprovalRequest • ApprovalRequestHeader • AcceptanceItem • AcceptanceItemDetail • AcceptanceScheduleDetail
	cXML Digital Signatures	Updated “Digital Signature Overview” topic, adding links to resources.
	New Features in cXML 1.2.043	New chapter.
April 2019	PunchOut Transaction	Updated ItemIn topic.
	Purchase Orders	Updated ItemOut topic.
	Request for Quotations	Updated QuoteHeaderInfo topic.
	Payment	Updated the following topics: <ul style="list-style-type: none"> • TaxAdjustment • TaxAdjustmentDetail • PaymentProposalRequest Examples
	Master Agreements and Contracts	Updated the following topics: <ul style="list-style-type: none"> • ContractRequestHeader • FollowUpDocument
	Later Status Changes	Updated the following topics: <ul style="list-style-type: none"> • DocumentStatus • ConfirmationStatus • ScheduleLineReference

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Invoices	Updated the following topics: <ul style="list-style-type: none"> • Tax • TaxDetail
	Supply Chain Collaboration	Updated the following topics: <ul style="list-style-type: none"> • ProductActivityMessage • ProductActivityHeader • ProductActivityDetails • ResourceID • InputItemID • OutputItemID • PlanningTimeSeries • ProductReplenishmentMessage • ProductReplenishmentHeader • ProductReplenishmentDetails • ReplenishmentTimeSeries
	New Features in cXML 1.2.042	New chapter.
January 2019	Purchase Orders	Updated ItemOutIndustry topic.
	Supply Chain Collaboration	Updated the following topics: <ul style="list-style-type: none"> • ComponentConsumptionItem • QNCode • QualityNotificationRequestItem
	New Features in cXML 1.2.041	New chapter.
October 2018	Purchase Orders	Updated SerialNumberInfo and ScheduleLine topics.
	New Features in cXML 1.2.040	New chapter.
July 2018	Purchase Orders	Added LegalEntity, OrganizationalUnit, ReferenceDocumentInfo, and CertificateInfo topics. Updated BlanketItemDetail, ItemOutIndustry, QualityInfo, and SerialNumberInfo topics.
	Request for Quotations	Updated QuoteItemOut topic.
	Later Status Changes	Added LegalEntity, OrganizationalUnit, and ReferenceDocumentInfo topics. Updated ItemStatus, ShipNoticeRequest, ShipNoticePortion, ShipNoticeItem, ReceiptItem, and ReceiptItemReference topics.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Service Sheets	Updated <code>ServiceEntryRequestHeader</code> and <code>Comments</code> topics.
	Supply Chain Collaboration	Added <code>AcceptanceItem</code> , <code>DeviationReason</code> , <code>SalesOrderRequest</code> , and <code>SalesOrderHeader</code> topics. Updated <code>ProductActivityMessage</code> , <code>ProductActivityDetails</code> , <code>QualityNotificationRequest</code> , <code>QualityNotificationRequestHeader</code> , <code>QualityNotificationTask</code> , <code>QualityNotificationRequestItem</code> , <code>QualityInspectionRequest</code> , <code>QualityInspectionRequestHeader</code> , <code>AllowedValued</code> , <code>QualityInspectionResultRequest</code> , <code>QualityInspectionResultRequestHeader</code> , <code>QualitySampleResult</code> , and <code>ApprovalRequest</code> topics.
	New Features in cXML 1.2.039	New chapter.
April 2018	Multiple chapters	Split <i>cXML User's Guide</i> into two books, <i>Getting Started with cXML</i> and <i>cXML Reference Guide</i> .
February 2018	Introduction to cXML	Updated graphics.
	PunchOut Transaction	
	Purchase Orders	Updated example in "OrderRequest Documents" topic.
	Purchase Orders	Updated <code>ItemOutIndustry</code> and <code>Batch</code> topics. Added <code>SerialNumberInfo</code> .
	Request for Quotations	Updated <code>QuoteItemOut</code> and <code>QuoteItemIn</code> topics. Added <code>Alternative</code> .
	Master Agreements and Contracts	Updated <code>ContractItemIn</code> .
	Later Status Changes	Updated <code>ShipNoticeItem</code> and <code>ReceiptOrder</code> .

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Supply Chain Collaboration	<p>Added or updated the following topics:</p> <ul style="list-style-type: none"> ProductActivityMessage ProductActivityDetails ProductReplenishmentDetails ConsignmentMovement ComponentConsumptionRequest ComponentConsumptionPortion ComponentConsumptionItem ProductReplenishmentMessage TimeSeriesDetails QualityNotificationRequest QualityNotificationRequestHeader QualityInspectionRequestReference QualityInspectionCharacteristic QualityInspectionResultRequest QualityInspectionResultRequestHeader QualityInspectionQuantity QualityInspectionValuation ApprovalRequest
	New Features in cXML 1.2.037	New chapter; removed "New Features in cXML 1.2.036."
	PunchOut Transaction	Updated ItemIn.
	Purchase Orders	Updated Batch.
	Later Status Changes	Updated ReceiptItem.
October 2017	Supply Chain Collaboration	<p>Updated the following topics:</p> <ul style="list-style-type: none"> ProductActivityMessage ProductActivityDetails ProductReplenishmentDetails TimeSeriesDetails QualityInspectionRequest QualityInspectionResultRequest QualityInspectionDecisionRequest
	Catalogs	<p>Updated the following topics:</p> <ul style="list-style-type: none"> SubscriptionContentRequest SubscriptionStatusUpdateRequest
	New Features in cXML 1.2.036	New chapter; removed "New Features in cXML 1.2.035."
	PunchOut Transaction	Updated ItemIn.
July 2017	PunchOut Transaction	Updated ItemIn.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Purchase Orders	Updated Attachment and QualityInfo.
	Later Status Changes	Updated the following topics: <ul style="list-style-type: none"> OrderStatusRequestItem ReceiptRequest ReceiptItemReference
	Supply Chain Collaboration	Added the following topics: <ul style="list-style-type: none"> QualitySampleResult TimeSeriesDetails Updated the following topics: <ul style="list-style-type: none"> ExpectedResult QualityInspectionCharacteristic QualityInspectionDecisionDetail QualityInspectionRequest QualityInspectionRequestHeader QualityInspectionResultRequest QualityInspectionValuation QualityNotificationRequestHeader PlanningTimeSeries InventoryTimeSeries ReplenishmentTimeSeries
	Logistics	Updated DateInfo.
	New Features in cXML 1.2.035	New chapter; removed "New Features in cXML 1.2.034."
April 2017	PunchOut Transactions	Updated ItemDetail.
	Purchase Orders	Updated ItemOut, SubcontractingComponent, and ItemOutIndustry. Added QualityInfo.
	Request for Quotations	Updated QuoteHeaderInfo, QuoteItemOut, and QuoteItemIn.
	Master Agreements and Contracts	Updated ContractItemIn.
	Later Status Changes	Updated ItemStatus.
	Payment	Updated PaymentProposalRequest.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Invoices	Updated the following topics: <ul style="list-style-type: none"> • InvoiceDetailItem • InvoiceDetailLineIndicator • InvoiceDetailRequestHeader • InvoiceDetailServiceItem • TaxDetail
	Service Sheets	Updated ServiceEntryItem.
	Supply Chain Collaboration	<ul style="list-style-type: none"> • Updated ComponentConsumptionItem. • Added QualityInspectionRequest, QualityInspectionResultRequest, QualityInspectionDecisionRequest, and their child elements.
	New Features in cXML 1.2.034	New chapter; removed "New Features in cXML 1.2.033."
January 2017	PunchOut Transaction	Updated ItemDetail.
	Purchase Orders	Updated the following topics: <ul style="list-style-type: none"> • InvoiceInstruction • ScheduleLine • Batch
	Invoices	Updated InvoiceDetailItem.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
November 2016	Supply Chain Collaboration	<p>Added or updated the following topics:</p> <ul style="list-style-type: none"> • ProductActivityMessage • ProductActivityHeader • ProductActivityDetails • Classification • PlannedAcceptanceDays • ManufacturerPartID • ReferenceDocumentInfo • Contact • Characteristic • PlanningTimeSeries • Extrinsic • ProductReplenishmentHeader • ReplenishmentTimeSeries • QualityNotificationRequest • QualityNotificationRequestHeader • QualityNotificationTask • QualityNotificationActivity • QualityNotificationRequestItem • OwnerInfo • AdditionalQNInfo • QualityNotificationCause • Quality Notification Examples
	New Features in cXML 1.2.033	New chapter; removed "New Features in cXML 1.2.032."
	Purchase Orders	Updated TravelDetail Common Elements.
	Later Status Changes	Updated OrderStatusRequestHeader and ShipNoticeItemIndustry.
	Invoices	Updated InvoiceDetailItem and InvoiceDetailSummaryIndustry.
October 2016	Supply Chain Collaboration	Updated ConsignmentMovement, ComponentConsumptionItem, and ReplenishmentTimeSeries.
	Purchase Orders	Updated OrderRequestHeaderIndustry, ItemDetailRetail, ScheduleLine, and ItemOutIndustry.
	Request for Quotations	Added new QuoteHeaderInfo topic.
	Payment	Updated AdjustmentAmount.
	Later Status Changes	Updated ConfirmationStatus.
	Invoices	Updated TaxDetail.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
July 2016	Supply Chain Collaboration	Updated ForecastDetails, TimeSeries, and Forecast. Added new sections for QualityNotificationRequest and ApprovalRequest.
	New Features in cXML 1.2.032	New chapter; removed "New Features in cXML 1.2.031."
	Purchase Requisitions	New chapter.
	cXML Basics	Updated "Date, Time, and Other Data Types" topic.
	PunchOut Transaction	Updated ItemDetail.
	Purchase Orders	Added or updated ControlKeys, OCInstruction, ASNInstruction, SESInstruction, InvoiceInstruction, OrderRequestHeaderIndustry, ItemOut, ItemOutIndustry, and ReleaseInfo.
	Payment	Added or updated PaymentProposalRequest, PaymentTerms, PaymentRemittanceRequestHeader, RemittanceDetail, PaymentBatchRequest, PaymentBatchRequestHeader, PaymentBatchSummary, ControlSum, NumberOfPayments, PaymentRemittanceRequest, and TradeItem.
	Later Status Changes	Added or updated Status, IntegrationStatus, ShipNoticeHeader, ReceiptRequestHeader, and ReceiptItem.
	Invoices	,Added or updated InvoiceDetailRequestHeader, InvoiceDetailHeaderIndicator, InvoiceIDInfo, and PaymentProposalIDInfo.
	Supply Chain Collaboration	Updated ComponentConsumptionItem.
May 2016	New Features in cXML 1.2.031	New chapter; removed "New Features in cXML 1.2.030."
	PunchOut Transaction	Updated ItemIn and its subtopics.
	Purchase Orders	Updated ItemOut and its subtopics.
	Payment	Added or updated PaymentProposalRequest, DiscountBasis, TaxAdjustment, TaxAdjustmentDetail, TradeRequest, TradeRequestHeader, TradeRequestSummary, and TradeItem.
	Later Status Changes	Added ReceiptRequest and its subtopics.
	Invoices	Updated InvoiceDetailItemInvoiceDetailServiceItem, InvoiceDetailOrderSummary, SpecialHandlingAmount, Shipping Amount, and "Example Invoices."
	Supply Chain Collaboration	Added or updated ProductActivityDetails, ItemID, and InventoryTimeSeries.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
January 2016	Logistics	New chapter.
	cXML Digital Signatures	Updated cXMLSignedInfo.
	New Features in cXML 1.2.030	New chapter; removed "New Features in cXML 1.2.029."
	Service Sheets	Updated the following topics: <ul style="list-style-type: none"> ServiceEntryRequest > ServiceEntryRequestHeader > IdReference Service Sheet Status Updates
	Supply Chain Collaboration	Added or updated the following topics: <ul style="list-style-type: none"> ProductActivityMessage ComponentConsumptionRequest > ComponentConsumptionPortion > ComponentConsumptionItem > ComponentConsumptionDetails ProductActivityMessage > ProductActivityDetails ProductActivityMessage > ProductActivityDetails > Inventory ProductActivityMessage > ProductActivityDetails > SalesReport ProductReplenishmentMessage
January 2016	New Features in cXML 1.2.029	New chapter; removed "New Features in cXML 1.2.026 and 1.2.028."
	PunchOut Transaction	Added ItemIn@itemClassification and Classification@code.
	Purchase Orders	Added or updated the following topics: <ul style="list-style-type: none"> OrderRequest Documents OrderRequestHeader OrderRequestHeader > Total OrderRequestHeader > ControlKeys OrderRequestHeader > TermsOfDelivery OrderRequestHeader > OrderRequestHeaderIndustry OrderRequest Documents > ItemOut OrderRequest Documents > ItemOut > Tolerances OrderRequest Documents > ItemOut > ControlKeys OrderRequest Documents > ItemOut > ScheduleLine OrderRequest Documents > ItemOut > ItemOutIndustry
	Path Routing	Updated "Overview of Path Routing," "Copy Nodes," and CopyRequest.
	Payment	Added TradeRequest.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Master Agreements and Contracts	<p>Changed chapter title, and added the following topics:</p> <ul style="list-style-type: none"> ContractRequest ContractStatusUpdateRequest
	Later Status Changes	<p>Added or updated the following topics:</p> <ul style="list-style-type: none"> StatusUpdateRequest > DocumentStatus StatusUpdateRequest > DocumentStatus > DocumentInfo StatusUpdateRequest > DocumentStatus > ItemStatus StatusUpdateRequest > DocumentStatus > Comments ConfirmationRequest > ConfirmationHeader > IdReference ShipNoticeRequest > ShipControl > ShipmentIdentifier
	Invoices	<p>Added or updated the following topics:</p> <ul style="list-style-type: none"> 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	<p>Updated topics for the following elements/attributes:</p> <ul style="list-style-type: none"> ConfirmationItem PayableInfo TermsOfTransport ShipNoticeItem ShipNoticeItemDetail SupplierBatchID/Batch ComponentConsumptionDetails
	Invoices	Updated InvoiceDetailItem, and created new topics for InvoiceDetailReceiptInfo and InvoiceDetailShipNoticeInfo.

Month/Year of Update	Updated Chapter/Section	Short Description of Change
	Service Sheets	<p>Updated topics for the following elements:</p> <ul style="list-style-type: none"> • PartnerContact • ServiceEntryDetailLineIndicator • ServiceEntryDetailShipping • ShipNoticeIDInfo • PaymentTerm • ServiceEntryItem • ServiceEntrySummary
	Supply Chain Collaboration	New chapter.
	New Features in cXML 1.2.026 and 1.2.028	Changed title of chapter, and added a section on new features in cXML 1.2.028.
April 2015	Multiple chapters	Updated format and structure.

