XML

Business To Business Integration

XML as an Alternative to EDI

| RosettaNet | GS1 XML | CIDX | HL7 |

High Tech | **Consumer Products** | **Chemicals** | **Health Care**

Example XML Message

```xml
<Order>
    <OrderNo>O293881</OrderNo>
    <OrderDate>2020-08-12</OrderDate>
    <ShipToParty>
        <Name>Company ABC</Name>
        <Address>8391 State Street</Address>
        <City>New York</City>
        <State>NY</State>
        <Zip>102981</Zip>
        <Country>US</Country>
    </ShipToParty>
    <Item>
        <LineNo>001</LineNo>
        <ProductNo>12919928-1</ProductNo>
        <Description>Headphones</Description>
        <OrderQuantity>1200</OrderQuantity>
        <UnitPrice>35.50</UnitPrice>
        <CurrencyCode>USD</CurrencyCode>
    </Item>
    <Item>
        <LineNo>002</LineNo>
        <ProductNo>0299812</ProductNo>
        <Description>Power Adapter</Description>
        <OrderQuantity>500</OrderQuantity>
        <UnitPrice>1.23</UnitPrice>
        <CurrencyCode>USD</CurrencyCode>
    </Item>
</Order>
```

XML Attributes

```xml
<Order type="PurchaseOrder">
    <OrderNo>0293881</OrderNo>
    <OrderDate>2020-08-12</OrderDate>
```

Attribute key is *type*, value is *Purchase Order*

XML Declaration

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Order type="PurchaseOrder">
    <OrderNo>0293881</OrderNo>
    <OrderDate>2020-08-12</OrderDate>
```

Defines version and encoding of XML document

XML Comments

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Order type="PurchaseOrder">
    <!--Order details are stored below -->
    <OrderNo>0293881</OrderNo>
    <OrderDate>2020-08-12</OrderDate>
```

<!-- begins a comment and --> ends a comment

XML Escaping

```
<?xml version="1.0" encoding="UTF-8"?>
<Calculation>
    x &gt 7
</Calculation>
```

This is equivalent to x > 7

CDATA

```
<?xml version="1.0" encoding="UTF-8"?>
<Application>
    <Configuration>
        <!CDATA[
        ------ CDATA Section Code ------
        ------ CDATA Section Code ------
        ]]>
    </Configuration>
</Application>
```

Binary data like an image or file attachment can be stored in this section.

XML Namespaces

```xml
<?xml version="1.0" encoding="utf-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom">
  <atom:title>Example Feed</atom:title>
  <atom:link href="http://example.org/"/>
  <atom:updated>2003-12-13T18:30:02Z</atom:updated>
  <atom:author>
    <atom:name>John Doe</atom:name>
  </atom:author>
  <atom:id>urn:uuid:60a76c80-d399-11d9-b93C-0003939e0af6</atom:id>
  <atom:entry>
    <atom:title>Atom-Powered Robots Run Amok</atom:title>
    <atom:link href="http://example.org/2003/12/13/atom03"/>
    <atom:id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da344efa6a</atom:id>
    <atom:updated>2003-12-13T18:30:02Z</atom:updated>
    <atom:summary>Some text.</atom:summary>
  </atom:entry>
</atom:feed>
```

Xmlns attribute added to root element. Then use prefix on elements to reference namespace

XML Schema

```xml
<?xml version="1.0" encoding="UTF-8"?>
    <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified" attributeFormDefault="unqualified">
        <xs:element name="Order">
            <xs:complexType>
                <xs:sequence>
                    <xs:element name="OrderNo" type="xs:string"></xs:element>
                    <xs:element name="OrderDate" type="xs:date"></xs:element>
                    <xs:element name="ShipToParty">
                        <xs:complexType>
                            <xs:sequence>
                                <xs:element name="Name" type="xs:string"></xs:element>
                                <xs:element name="Address" type="xs:string"></xs:element>
                                <xs:element name="City" type="xs:string"></xs:element>
                                <xs:element name="State" type="xs:string"></xs:element>
                                <xs:element name="Zip" type="xs:int"></xs:element>
                                <xs:element name="Country" type="xs:string"></xs:element>
                            </xs:sequence>
                        </xs:complexType>
                    </xs:element>
                    <xs:element name="Item" maxOccurs="unbounded">
                        <xs:complexType>
                            <xs:sequence>
                                <xs:element name="LineNo" type="xs:int"></xs:element>
                                <xs:element name="ProductNo" type="xs:string"></xs:element>
                                <xs:element name="Description" type="xs:string"></xs:element>
                                <xs:element name="OrderQuantity" type="xs:int"></xs:element>
                                <xs:element name="UnitPrice" type="xs:double"></xs:element>
                                <xs:element name="CurrencyCode" type="xs:string"></xs:element>
                            </xs:sequence>
```

(Partial view of file)

XML Schema

```xml
<?xml version="1.0" encoding="utf-8"?>
<Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:schemaLocation="https://www.mysite.com/schemas/Order.xsd">
    <OrderNo>O293881</OrderNo>
    <OrderDate>2020-08-12</OrderDate>
    <ShipToParty>
        <Name>Company ABC</ShipTo>
        <Address>8391 State Street</Address>
        <City>New York</City>
        <State>NY</State>
        <Zip>102981</Zip>
        <Country>US</Country>
    </ShipToParty>
    <Item>
        <LineNo>001</LineNo>
        <ProductNo>12919928-1</ProductNo>
        <Description>Headphones</Headphones>
        <OrderQuantity>1200</OrderQuantity>
        <UnitPrice>35.50</UnitPrice>
        <CurrencyCode>USD</CurrencyCode>
    </Item>
```

Reference the XML Schema namespace and the XSD file to validate against.

RosettaNet

RNIF – RosettaNet Implementation Framework

- RNIF Version 1.1 and 2.0
- MIME encoded XML sent over HTTPS
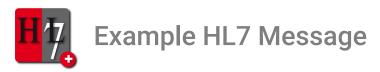- Encrypted and digitally signed

PIP – Partner Interface Processes

Commonly used PIPs

| 3A4 Request Purchase Order | 3B2 Notify of Advance Shipment | 3C3 Notify of Invoice | 3C6 Notify of Remittance Advice |

Example HL7 Message

```xml
<?xml version="1.0" encoding="UTF-8"?>
<hl7:POLB_IN224200UV01 xmlns:hl7="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ITSVersion="XML_1.0">
    <hl7:templateId extension="VS_RM200901CO01" assigningAuthorityName="HospitalJorgeHUribe"/>
    <hl7:id extension="MSG0000001"/>
    <hl7:creationTime value="20100511220525"/>
    <hl7:interactionId root="2.16.840.1.113883.1.6" extension="POLB_IN224202UV01"/>
    <hl7:processingCode code="P"/>
    <hl7:processingModeCode code="T"/>
    <hl7:acceptAckCode code="NE"/>
    <hl7:receiver typeCode="RCV">
        <hl7:device classCode="DEV" determinerCode="INSTANCE">
            <hl7:id extension="HIS001"/>
        </hl7:device>
    </hl7:receiver>
    <hl7:sender typeCode="SND">
        <hl7:device classCode="DEV" determinerCode="INSTANCE">
            <hl7:id extension="VSM001"/>
        </hl7:device>
    </hl7:sender>

(partial message)
```