



**Extensible Customer Relationships
Language (xCRL) Standard and
Description Document for W3C
DTD/Schema**

Version 1.1

A Standard from the Customer Information Quality Technical Committee

CHANGE HISTORY

Status	Version	Date	Author	Summary of Changes
Draft	1.0	20 November 2001	CIQ-TC	Initial Draft – from CRML Specs V1.0 of MSI
Draft	1.1	31 May 2002	CIQ TC	New release of xCRL DTD/Schema that supports namespaces and new structures
Draft	1.1	03 July 2002	CIQ TC	Account structure included

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OASIS and the CIQ TC wishes to acknowledge MSI for submitting its XML standards for Customer Relationships called Customer Relationships Markup Language (CRML) to OASIS for adoption in December 2001. xCRL is based on CRML, xNL, xAL and xCIL standards. Ram is also the author of CRML.

OASIS and the CIQ TC wishes to acknowledge AND Solutions, Inc, Netherlands, for submitting its Global Address Standards to OASIS in October 2000 to be included as part of the address standards (xAL) effort. Mr. Vincent Buller, former Co-Chair of the Customer Information Quality TC of OASIS and former Senior Consultant of AND Solutions has played a significant role along with Ram Kumar in setting up the technical committee and has contributed to the development of xAL Standard.

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Name	Organisation
Mr. Ram Kumar (Chairman)	MSI Business Solutions, Australia
Mr. David RR Webber	XML Global, Inc, USA
Mr. John Bennett	Parlo.com, USA
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Mr. Nikolaj Nyholm	Ascio Technologies, Norway
Mr. Marcus Goncalves	Individual member of OASIS, USA
Mr. Mark Meadows	Microsoft, USA
Mr. Robert James	Individual member of OASIS, U.K
Mr. Max Voskob	MSI Business Soilutions, New Zealand

The CIQ TC thanks all those who reviewed the specifications and provided feedback.

Last but not least, OASIS and the CIQ TC thanks all users of the CIQ TC standards in real world and for their continuous feedback and support.

2.0 The Objective and Scope

The objective of this document is to describe the extensible Customer Relationships Language (xCRL) W3C DTD/Schema in detail with examples.

This document provides a set of simple guidelines to help using xCRL and exchange information between different parties with minimum misinterpretation and misuse of the structures.

3.0 extensible Customer Relationships Language (xCRL)

3.1 What is xCRL and Why xCRL

Managing customer relationships is the key to building effective customer relationships. Customer relationships can be categorised into some the following:

- Organisation to Organisation relationship
- Organisation to Person relationship, and
- Person to Person relationship
- Group to Group relationships
- Person to Group relationships
- Organisation to Group relationships.

The following article about xCRL was published in CRMGuru.com [CRMGuru.com, Volume 5.14, May 2, 2002] written by Ram Kumar, Chair of OASIS CIQ TC that explains the need for xCRL:

The rapid adoption of e-business has created a new world of interoperability between organizations, systems, processes, platforms, tools and, most importantly, data. When we start to consider customer management initiatives such as CRM/eCRM, Single/360 degree View, Customer Information Warehouse, and so on, there are many other factors than software license fees and customisation, training, maintenance that raise the cost of deployment. Integration of systems, for example, can be a far more significant and costly challenge. That is because, in most large enterprises, customer information is captured and stored in multiple "proprietary" systems. Bringing it all together for analysis in a customer information management system usually involves time-consuming integration using the proprietary APIs provided by CRM and other enterprise software vendors. Backend systems integration is where most of the real cost – and risk – of implementing CRM and ERP systems lies. Many of these implementations have significantly under delivered because cost has prohibited them from interfacing with other key systems.

If there is a standard way of defining customer information and relationships that is vendor neutral and open (i.e., independent of tools, systems, languages and platforms) and enabled portability and interoperability of data, then it would be possible to reduce the expensive and complex Integration problems associated with new business initiatives.

The proposed standard by the Customer Information Quality Committee of OASIS, called extensible Customer Relationships Language, or xCRL, is intended to meet this requirement. xCRL, is a set of XML vocabulary specifications for defining customer characteristics such as

name, address, age, customer number, e-mail address and so on. In addition, xCRL describes, in a standard way, how individual customers and organizations interact with one another. As currently defined, xCRL enables users to describe relationships such as person-to-person, person-to-organisation or organisation-to-organisation in a standard way. So, if a CRM system and, say, an Enterprise Resource Planning system both understood xCRL definitions, they could automatically interoperate without needing expensive, custom integration. This would accelerate the time taken to deploy such systems and allow them to interact more readily with a wider range of other systems.

A standard way to represent customer relationship helps to achieve interoperability between different systems, processes, tools and platforms that deal with customer data and their relationships. There are no standards for representing customer relationships in the industry and hence, the CIQ TC of OASIS has defined a standard in XML to capture and represent such relationships.

3.2 The Goal

The goal of xCRL is:

- Open
- Vendor Neutral
- Application Independent
- Global, i.e., ability to represent addresses of any country irrespective of culture, religion, language and geographic location, and
- Flexible enough to handle simple representation of customer information and relationships to complex representation of customer information and relationships.

3.3 What does xCRL not represent

xCRL only defines the XML vocabulary to represent customer relationships in a common format.

xCRL does not:

- define vocabulary for security of the data represented in xCRL format
- define vocabulary for transportation of the data represented in xCRL format
- define vocabulary for messages associated with the data represented in xCRL format
- define vocabulary for privacy and permissioning of the data represented in xCRL format
- validate/verify the actual data represented in xCRL format
- format customer centric data and the relationships.

3.4 Pre-Requisite

It is important to also read the following documents to understand xCRL and use it:

- xNAL Specifications Document Version 2.0 for W3C DTD/Schema
- xNL Specifications Document Version 2.0 for W3C DTD/Schema
- xAL Specifications Document Version 2.0 for W3C DTD/Schema
- xCIL Specifications Document Version 2.0 for W3C DTD/Schema.

xCRL uses xNL, xAL and xCIL standards to represent customer names and addresses and other customer-centric data.

4.0 Definitions

In this section, we define the different entities associated with the customer relationships of xCRL.

4.1 Customer

A customer is a “Person” or an “Organisation”.

An “Organisation” could be: Company, University, College, School, Government Department, Not-for Profit Organisation, Banks, Hospitals, Airports, etc.

4.2 Joint Customer

A “Joint Customer” is defined as a minimum of two persons. Some examples of Joint Customers are:

- Mrs.Mary Johnson and Mr. James Johnson
- Mrs & Mr. Kumar
- Patrick Johnson and Stuart Jamison

4.3 Group

A “Group” is a type where you can have many members associated to it. Let us say for example, one wants to list all members of a Golf club, and then, the Golf club is a “Group”. To represent an organisation structure, then the Organisation is of type “Group”.

5.0 Types of Customer Relationships

Following are some of the customer relationships that are covered by version 1.1 of the standard.

5.1 Person2Person (P2P) Relationship

Some examples of P2P relationships are:

- Mrs Mary Johnson and Mr. Patrick Johnson, where Mary is the “Wife” of Patrick and Patrick is the “Husband” of Mary
- Mrs Mary Johnson and Mr. Patrick Johnson “IN TRUST FOR” Mr. Nick Johnson, where Mary and Patrick are the “Trustees” of Nick and Nick is the “Beneficiary”
- Mrs. Mary Johnson, Care of Mr. Patrick Johnson, where Mary is “Dependent” on Patrick
- Personal/Business contact management system.

5.2 Person2Organisation (P2O) Relationship

Some examples of P2O relationships are:

- Mrs. Mary Johnson and Mr. Patrick Johnson “DOING BUSINESS AS” Johnson & Associates, where Mary and Patrick are persons who are jointly doing a business under the name of a trading entity called Johnson & Associates
- Mr. Ram Kumar, Care of MSI Business Solutions Pty. Ltd, where Ram is the person and MSI Business Solutions is the company
- Mrs. Mary Johnson and Mr. Patrick Johnson “IN TRUST FOR” Mr. James Johnson “DOING BUSINESS AS” Johnson and Associates
- Mr. Ram Kumar is the “Chief Technical Officer” of XYZ Company
- Ram Kumar’s business contacts
- Ram Kumar of XYZ Company is a consultant/contractor/supplier to ABC Company.

5.3 Organisation2Organisation (O2O) Relationship

Some examples of O2O relationships are as follows:

- Company A is the subsidiary of Company B
- Company A is the parent of Company B
- Company A, Company B and Company C are the subsidiary companies of Company D
- Richardson and Wrench “TRADING AS” Johnson Associates, Inc
- Richardson and Wrench is a “LAND LINE CUSTOMER OF” AT&T and is also a “SUPPLIER” to AT&T
- Company A has Company B, Company C and Company D as its business partners.

5.4 Group2Group (G2G) Relationship

A group can also be considered to be of type “Organisation”. Some examples of G2G relationships are:

- Group A is a member of Group B. Example: Golf club of Novi is a member of Golf Club of Michigan
- Michigan XML user group is a member of USA XML Group.

5.5 Group2Person (G2P) Relationship

Some examples of G2P relationships are:

- Mr. Ram Kumar is a member of the Turramurra Cricket Club
- Mr. Ram Kumar is the external coach of the Turamurra Cricket Club.

5.6 Group2Organisation (G2O) Relationship

Some examples of G2O relationships are:

- MSI is a member of Interoperability Group of Australia
- The sponsor of Java User Group of Sydney is MSI.

6.0 Design of xCRL

xCRL is designed in such a way that there is only one party type called a customer where, a customer can be a person or an organisation. An organisation could be a club, school, university, company, association, etc.

xCRL uses xNL standard for defining customer names (Person Name, Organisation Name and Joint Customer Name).

xCRL uses xAL standard for defining customer addresses.

xCRL uses xCIL to represent the customer centric information. The evolution of xCRL is shown in Figure 1 below:

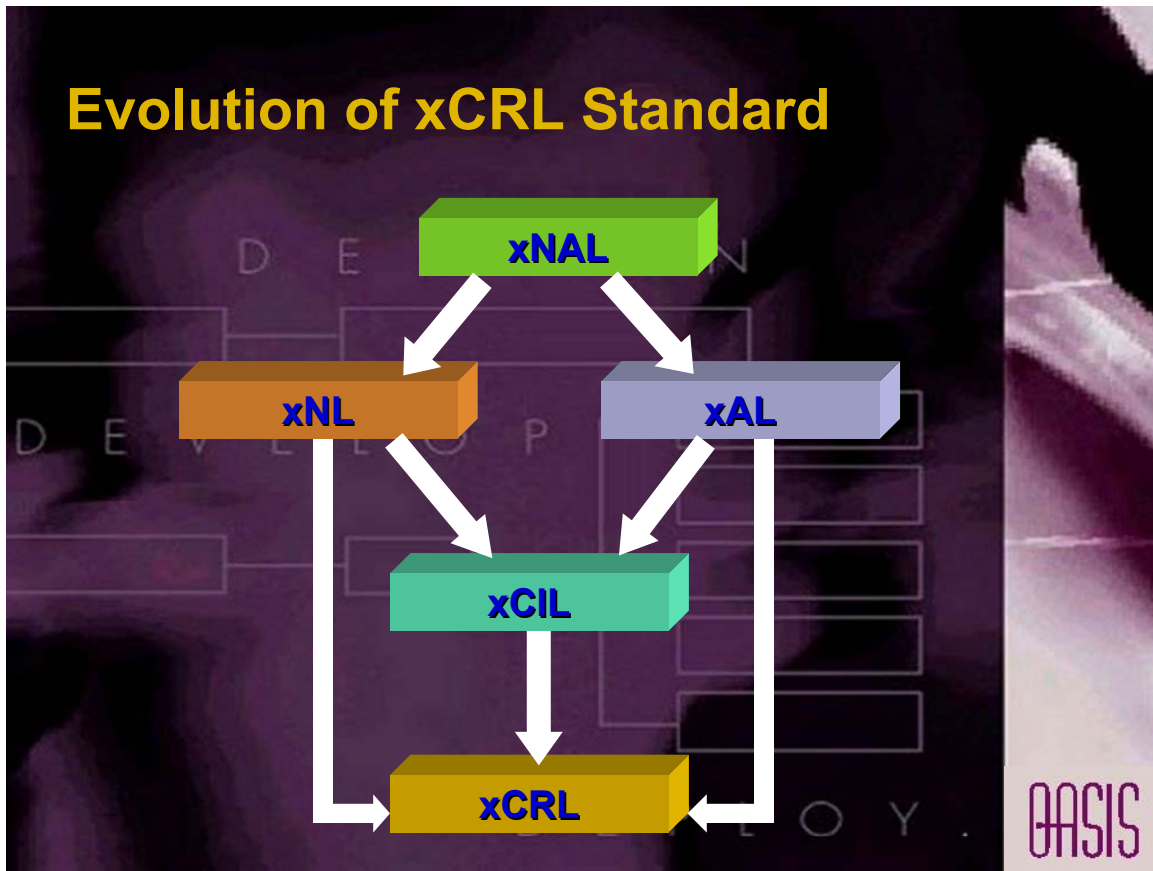


Figure 1: xCRL treats every individual or an organisation/group as a customer.

The following figures show the different forms of relationships supported by xCRL:

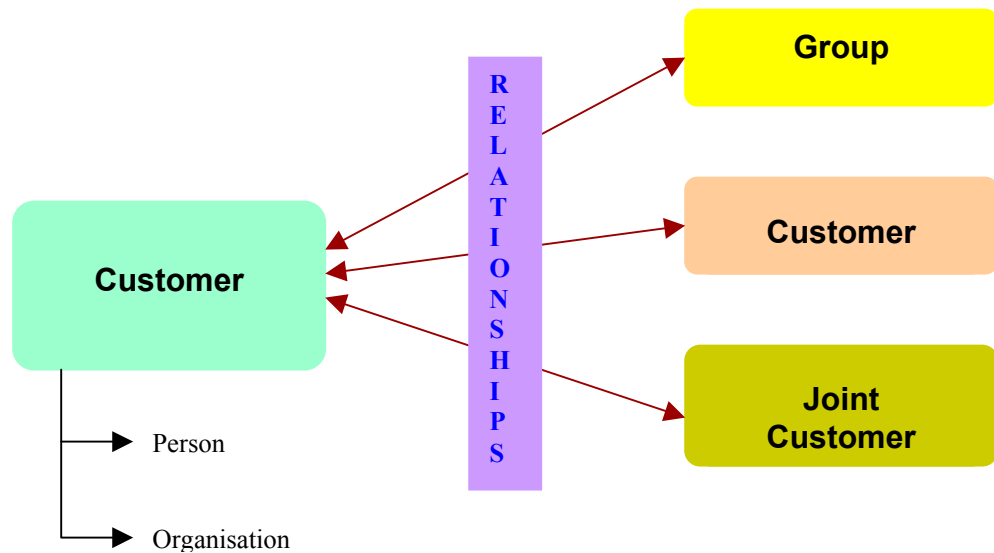
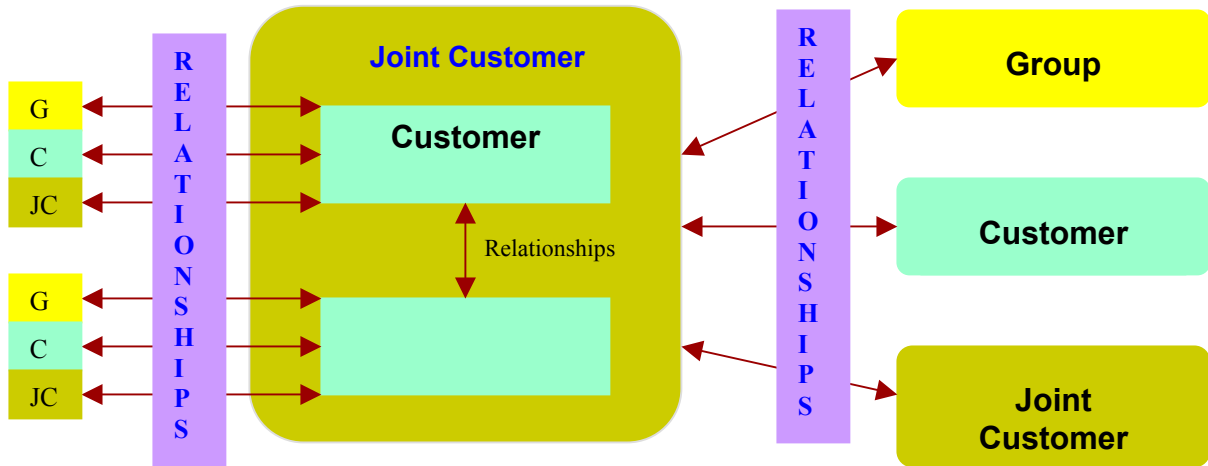


Figure 2: Customer Relationships

In Figure 2, a customer having relationships (can be multiple relationships, i.e., a customer having more than one relationship with another customer) with other type of customers namely, a group, Joint Customer or a customer can be represented in xCRL. The parties on the right hand side can in turn have relationships with other customers. This can also be represented using xCRL.

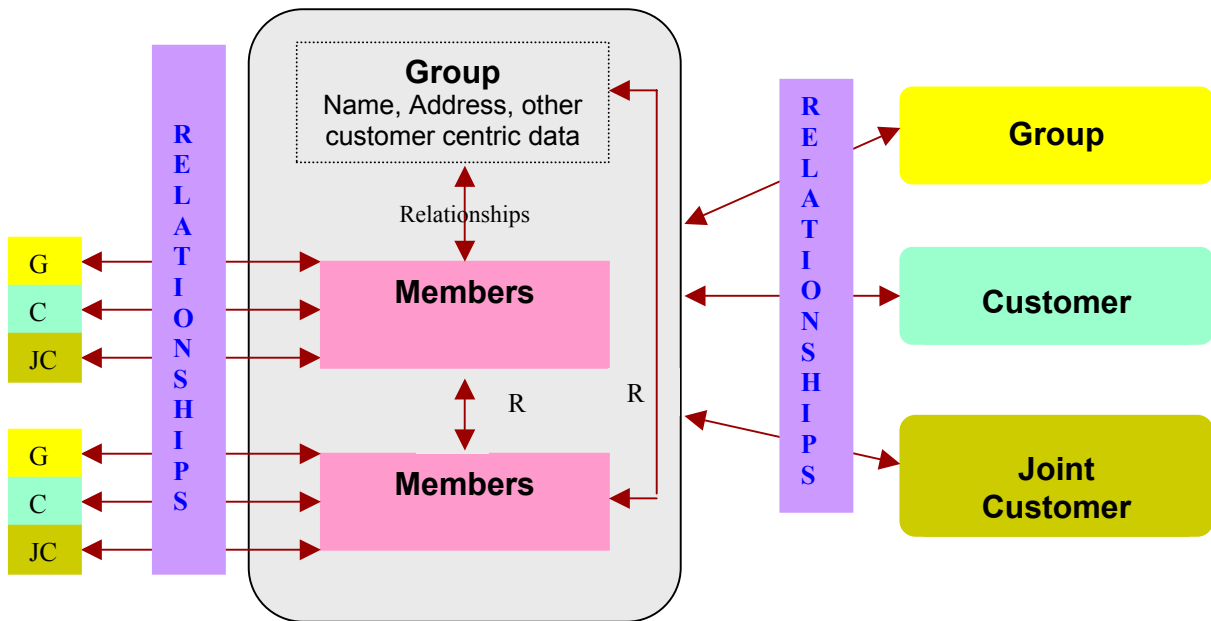


G: Group; JC: Joint Customer; C: Customer

Figure 3: Joint Customer Relationships

Figure 3 illustrates a joint customer having relationships (can be multiple relationships) with other types of customers namely; a group, joint customer or a customer can be represented in xCRL. The parties on the right hand side can in turn have their relationships with other customers. This can also be represented using xCRL. The joint customers on the left hand side can in turn have their own individual relationships with other customer and this can also be represented using xCRL.

In Figure 4, a group (comprising of more than one member who can be a group by itself, a customer or a joint customer) has relationships (can be multiple relationships) with other types of customers namely; a group, Joint Customer or a customer can be represented in xCRL. The parties on the right hand side can in turn have their relationships with other customers and this can also be represented using xCRL. The group on the left hand side can have relationships with its members (e.g., member, associate member, etc) and the individual members of the group can have their own relationships with other customers and this can be represented using xCRL.



*G: Group; JC: Joint Customer; C: Customer; R: Relationships
Member: A customer or Joint Customer or a Group*

Figure 4: Group Relationships

6.1 How to represent multiple customers using xCRL

A customer could be a person or an organisation (club, association, university, school, etc.) in xCRL. xCRL does not provide containers to define all persons of an organisation or a club, etc. Instead, all persons are presented in the same level of the XML hierarchy. For example, let us say that a local golf club has 10 members and this club has a membership with its state golf club. Let us say, that we want to represent this in xCRL that shows:

- The details about the local golf club (name, address, telephone, etc.)
- Details about every member of the local golf club (name, address, telephone, etc.)
- Relationship between the local golf club and each of its members (e.g., Associate member, Gold member, etc.)
- Details about the state golf club (name, address, telephone, etc.)
- Relationship between the local golf club and the state golf club.

The above details are represented in xCRL as shown in the Figure 5 below:

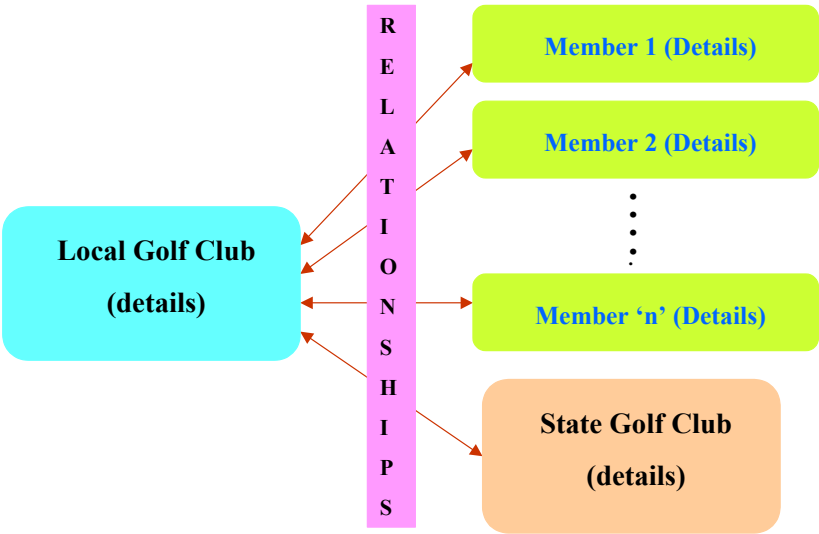


Figure 5: Relationship hierarchy

As you see in the Figure 5 above, all members of the local golf club are represented at the same level in the hierarchy. But members have their own “type” of relationship with the local golf club. Members are not directly related to the state golf club. If there is such a relationship, xCRL supports it. Each member in turn can have their own relationships with other groups or between members and xCRL supports these relationships too.

Customer “Relationship With” Customer “Relationship With” Customer “Relationship With”...
“Relationship With”
“Relationship With”
.
.
.
.
“Relationship With”

The hierarchy is generated as shown in the text above. We read the relationship from left to right. The customer on the left hand side of the relationship is termed as the primary customer and the customer on the right hand side of the relationship is termed as the secondary customer.

7.0 Using the xCRL Schema/DTD

7.1 Purpose of the XML Schema/DTD for Customer Relationships

The XML schema/DTD for customer relationships has been designed to be truly global and application independent and therefore, is designed to be flexible to handle customer relationship structures for different applications.

7.2 Flexibility

There is no necessity to define customer relationships using all the possible tags and therefore, make the definition complex. Flexibility is provided to define customer relationships with the tags that are necessary and are meaningful to the user.

A simple example is shown below:

Let us say, we want to define a simple husband and wife relationship:

Wife:

Mrs. Mary Johnson
Floor 4, Ste 5, Block C
Carnegie VIII
43 West Archer Street
Boulder, CO 80302-4598, USA
Phone: 243-448-5152
Fax: 243-448-5150
E-Mail: mjohnson@sakthisoft.com

Husband:

Mr. Patrick Johnson
Floor 4, Ste 5, Block C
Carnegie VIII
43 West Archer Street
Boulder, CO 80302-4598, USA
Phone: 243-448-5152
Fax: 243-448-5150
E-Mail: pjohnson@sakthisoft.com

With xCIL, you can define this as a simple structure as shown below:

```
<xCRL>
  <RelationshipRecord>
    <Customer PartyType="Person">
      <NameDetails>
        <NameLine>Mrs.MaryJohnson</NameLine>
      </NameDetails>
      <PersonInfo>
        <FreeTextLine Type="Email">mjohnson@sakthisoft.com</FreeTextLine>
      </PersonInfo>
    </Customer>
    <InRelationshipWith RelationshipType="Person-Person">
      <Customer PartyType="Person">
        <NameDetails>
          <NameLine>Mr.Patrick Johnson</NameLine>
        </NameDetails>
        <PersonInfo>
          <FreeTextLine Type="Email">
            pjohnson@sakthisoft.com
          </FreeTextLine>
        </PersonInfo>
      </Customer>
      <RelationshipInformation>
        <PrimaryCustomerRelationshipTitle>
          WIFE
        </PrimaryCustomerRelationshipTitle>
        <SecondaryCustomerRelationshipTitle>
          HUSBAND
        </SecondaryCustomerRelationshipTitle>
        <CommonEntities>
          <AddressDetails>
            <Address>
              Floor 4, Ste 5, Block C
              Carnegie VIII
              43 West Archer Street
              Boulder, CO 80302-4598, USA
            </Address>
          </AddressDetails>
          <PersonInfo>
            <FreeTextLine Type="Telephone Number">243-448-5152</FreeTextLine>
            <FreeTextLine Type="Fax Number">243-448-5150</FreeTextLine>
          </PersonInfo>
        </CommonEntities>
      </RelationshipInformation>
    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
```

OR, you can define a detailed description of the data as a complex structure as shown below:

```
<xCRL>
  <RelationshipRecord>
    <Customer PartyType="Person">
      <NameDetails>
        <PersonName>
          <Title>Mrs</Title>
          <FirstName>Mary</FirstName>
          <LastName>Johnson</LastName>
        </PersonName>
      </NameDetails>
      <PersonInfo>
        <EmailAddresses>
          <EmailAddress>mjohnson@sakthisoft.com</EmailAddress>
        </EmailAddresses>
      </PersonInfo>
    </Customer>
    <InRelationshipWith RelationshipType="Person-Person">
      <Customer PartyType="Person">
        <NameDetails>
          <PersonName>
            <Title>Mr</Title>
            <FirstName>Patrick</FirstName>
            <LastName>Johnson</LastName>
          </PersonName>
        </NameDetails>
        <PersonInfo>
          <EmailAddresses>
            <EmailAddress>pjohnson@sakthisoft.com</EmailAddress>
          </EmailAddresses>
        </PersonInfo>
      </Customer>
      <RelationshipInformation>
        <PrimaryCustomerRelationshipTitle>
          WIFE
        </PrimaryCustomerRelationshipTitle>
        <SecondaryCustomerRelationshipTitle>
          HUSBAND
        </SecondaryCustomerRelationshipTitle>
        <CommonEntities>
          <AddressDetails>
            <Country>
              <CountryName>USA</CountryName>
            </Country>
            <AdministrativeArea>
              <AdministrativeAreaName>
                COLORADO
              </AdministrativeAreaName>
            </AdministrativeArea>
            <Locality>
              <LocalityName>BOULDER</LocalityName>
            </Locality>
            <Thoroughfare>
              <ThoroughfareNumber>43</ThoroughfareNumber>
              <ThoroughfarePreDirection>
                WEST
              </ThoroughfarePreDirection>
            </Thoroughfare>
          </AddressDetails>
        </CommonEntities>
      </RelationshipInformation>
    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
```

```

        </ThoroughfarePreDirection>
        <ThoroughfareName>ARCHER</ThoroughfareName>
        <ThoroughfareTrailingType>
        Street</ThoroughfareTrailingType>
        <Premise Type="BUILDING">
            <PremiseName>CARNEGIE VIII</PremiseName>
            <SubPremise Type="BLOCK">
                <SubPremiseNumber>C</SubPremiseNumber>
                <SubPremise Type="STE">
                    <SubPremiseNumber>5</SubPremiseNumber>
                    <SubPremise Type="FLOOR">
                        <SubPremiseNumber>
                            4
                        </SubPremiseNumber>
                    </SubPremise>
                </SubPremise>
            </SubPremise>
        </Premise>
        </Thoroughfare>
        <PostalCode>
            <PostalCodeNumber>80302</PostalCodeNumber>
            <PostalCodeNumberExtension
                Type="DeliveryPointSuffix">
                4598</PostalCodeNumberExtension>
            </PostalCode>
        </Locality>
        </AdministrativeArea>
        </Country>
    </AddressDetails>
    <PersonInfo>
        <ContactNumbers>
            <ContactNumber Type="Telephone">
                <AreaCode>243</AreaCode>
                <Number>448-5152</Number>
            </ContactNumber>
            <ContactNumber Type="Fax">
                <AreaCode>243</AreaCode>
                <Number>448-5150</Number>
            </ContactNumber>
        </ContactNumbers>
    </PersonInfo>
</CommonEntities>
</RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

7.3 Don't get confused – keep it simple

Some users might feel that xCRL provides too much information to represent a simple customer data for their application. This is not true and the example in the previous section confirms this. xCRL can be used to define customer relationships in simple terms or in complex terms. It is up to the user to decide how they want to implement xCRL.

Important: Use only elements and attributes that make sense to you. Ignore the rest that are needless for you.

Enough flexibility is provided to make the customer data representation simple without using the detailed level of tags. Most of the elements and attributes are optional.

7.4 Namespaces and Versions

xCRL Schema's namespace is:

urn:oasis:names:tc:ciq:xsdschema:xCRL:[major version number]
where [major version number] is substituted with a number (e.g., 2.0, 2.5, etc.)

Schemas with different major version numbers are not compatible.

Attribute *version* of Schema's element *schema* indicates minor version number. Schemas with different minor version numbers are backward compatible.

DTD provides an attribute called "Version" that defines the version number of the DTD.

7.5 XML Schema: Extensibility

xCRL Schema was designed to be extensible.

1. some elements can have any child elements from **##other** namespaces (any that is not xCRL namespace)
2. all elements can have any attributes from **##other** namespaces (any that is not xCIL namespace)
3. key elements and types are declared globally to be reused by other schemas

7.6 XML Schema: Document Fragments

xCRL Schema can be used to validate document fragments with globally declared elements as root elements.

7.7 Deep Nesting vs. Flat Structure

xCRL Schema/DTD allows dual way of reflecting relationships between entities: building a hierarchy or setting a reference.

Following are the keys (Primary and Foreign) provided to set references:

- xNL and xAL provides Primary and Foreign Keys (*NameDetailsKey*, *AddressDetailsKey*, and *NameDetailsKeyRef*) to enable setting reference to name details of a person/organisation and address details of a person/organisation within and to an external XML document.
- xCIL provides a Primary Key (*CustomerDetailsKey*) and a Foreign Key (*CustomerDetailsKeyRef*).
- xCRL provides a Primary Key (*RelationshipRecordKey*) and a Foreign Key (*RelationshipRecordKeyRef*).

Given that xCRL heavily uses xNL's NameDetails element, xAL's AddressDetails element and xCIL's CustomerDetails element, use of the reference keys within an xCRL document will help simplify the nesting in the xCRL document. This feature is an option and is not mandatory.

Let us look at the example below:

```
<xCRL>
  <RelationshipRecord RelationshipRecordKey="RR1234">
    <Customer CustomerDetailsKey="1234567">
      <CustomerID>AUS12345678</CustomerID>
      <n:NameDetails NameDetailsKey="789689778947895"
        ext:KeyLocation="XPath statement or URL ">
      <a:AddressDetails AddressDetailsKey="reference to another
        a:AddressDetails element that can be elsewhere">
      <PersonInfo>
        <FinancialAccounts>
          <FinancialAccount Type="Cheque">
            <OwnershipInfo OwnershipType="Joint Account">
              <n:NameDetails NameDetailsKey="reference to another
                n:NameDetails element that can be elsewhere">
              <n:NameDetails NameDetailsKey="reference to another
                n:NameDetails element that can be elsewhere">
            </OwnershipInfo>
            <FinancialInstitutionDetails Type="Bank">
              <n:NameDetails NameDetailsKey="reference to another
                n:NameDetails element that can be elsewhere">
              <a:AddressDetails AddressDetailsKey="reference to
                another a:AddressDetails element that can be elsewhere">
            </FinancialInstitutionDetails>
          </FinancialAccount>
        </FinancialAccounts>
        <FamilyMembers>
          <FamilyMember Type="Parent" RelationshipType="Father"
            CustomerDetailsKeyRef="reference
              to another CustomerDetails element that can be elsewhere or
```

```
        in the same document"/>
        <FamilyMember Type="Parent" RelationshipType="Mother"
                      CustomerDetailsKeyRef="reference
        to another CustomerDetails element that can be elsewhere or
        in the same document"/>
    </FamilyMembers>
</PersonInfo>
</Customer>
<InRelationshipWith RelationshipRecordKeyRef=" reference to
another InRelationshipWith element that can be elsewhere or in the same
document"/>
    </InRelationshipWith>
    <RelationshipRecord>
</xCRL>
```

7.8 Where to start

Understanding this schema/DTD can be difficult for some users. To make it easier we would suggest you to undertake the following exercises:

- Read this document
- Take a look at the examples of XML documents for xCRL
- Take a look at schema/DTD diagrams.
- Try to build the structures you need using the schema/DTD.

Meaning of every element and attribute is described using *annotation/documentation* elements in XML schema.

For full schema description you can either go thru the schema's/DTDs source code or use the detailed description of elements in this document or in the HTML document.

7.9 Compatibility between DTD and Schema

Instances of XML documents valid for xCIL W3C Schema may not always be valid for xCIL DTD and vice-versa, but the structures are almost identical.

7.10 Document Exchange between different parties

xCRL provides descriptions for every element and attribute, but it is up to the users how they implement it.

If you want to exchange information between different parties make sure that they compatible:

1. all parties use the same namespace and version
2. all parties use the same interpretation of xCIL elements and attributes
3. all parties agreed on enumerations and values used to describe types of data (for example element "InRelationshipWith" has attribute "RelationshipType" to indicate that the type of relationship, which is likely to be a predefined list of values for one party, but may not compatible with a corresponding list of another party).

8.0 XML Tagging Conventions

We have extracted the XML tagging guidelines from the Open Travel Association Group (OTA) and from the ebXML as the basis for tagging xCRL definitions with some changes to them.

8.1 Guidelines for tag naming conventions

A key part of the XML grammar is consistent naming conventions for tags that represent the infrastructure and business-related elements. Tag name writers **MUST** follow these rules unless business requirements require other naming conventions.

- Use mixed case tag names, with the leading character of each word in upper case and the reminder in lower case.
Example: <PostalCode>
- Acronyms are discouraged, but where needed, use all upper case.
Example: <UserID>
- Illegal characters cannot be used (e.g.,: forward slash, etc.). Recommended characters in a tag name are basically limited to letters and underscores.
Example: (not allowed) <Date/Time>
- The use of periods to indicate the version and hierarchy, is discouraged.

Tag writers **SHOULD** use these guidelines when constructing tag names:

- Use the same tag names with elements in a similar child structure
Example: <ContactAddress>
 <HomeAddress>
 <WorkAddress>
- Use plural tag names only for collections
Example: <CreditCards>
 <CreditCard>
- Element and attribute name size have no limitation. The names must be meaningful.
Example: <CustomerRelationshipInformation>

Element and attribute names should incorporate the proposed list of suffixes for tag names as recommended by ebXML. The following are ebXML Data Element Representation Classes (includes ebXML definition):

Amount - A number of monetary units specified in a currency where the unit of currency is explicit or it may be implied.

Code - A character string that represents a member of a set of values.

Boolean - An enumerated list of two, and only two, values which indicates a Condition such as on/off; true/false etc. (It was the general consensus to use 'Flag' as a term to indicate a Boolean value).

Date - A day within a particular calendar year. Note: Reference ISO 8601.

Time - The time within any day in public use locally, independent of a particular day.
Reference ISO 8601:1988.

DateTime - A particular point in the progression of time. Note: This may incorporate dependent on the level of precision, the concept of date.

Identifier - (standard abbreviation Id, meaning a unique identifier) A character string used to identify and distinguish uniquely, one instance of an object within an identification scheme.

Name - A word or phrase that constitutes the distinctive designation of a person, object, place, event, concept etc.

Quantity - A number of non-monetary units. It is normally associated with a unit of measure.

Number - A numeric value that is often used to imply a sequence or a member of a series.

Rate - A ratio of two measures.

Text - A character string generally in the form of words.


Measure - A numeric value that is always associated with a unit of measure.

9.0 xCRL DTD/Schema Grammar

This section describes the xCRL Grammar in detail. We have used the DTD version of xCRL to generate the diagrams and to explain the grammar. However, note that the structures of DTD and Schema are compatible except for the **##other** element used in the Schema. Moreover, in Schema, structures are defined as elements (local and global), simple type, and complex type or of a particular Type.

For detailed documentation of the XML Schema version of xCRL, users are recommended to download the HTML documentation of xCRL from <http://www.oasis-open.org/committees/ciq>.

How to read the diagrams in the following sections:

1	:	Either Or
?	:	Optional (0 or more occurrences)
+	:	At least 1 (1 or more occurrences)
◆	:	An Element
●	:	An Attribute
	:	Has sub elements

XML Containers consist of sub-XML elements and are not used to tag a piece of data directly. They use their sub-elements to tag the data. XML Elements are used to tag a piece of data directly.

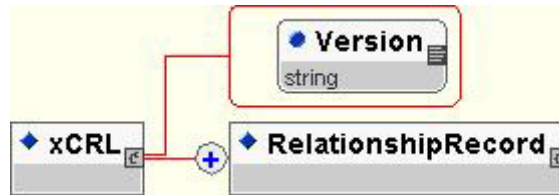
For ease of reading, under XML Elements column in the tables in the following sections, XML Tag names in **bold** are XML Containers (consisting of sub-XML elements), XML Tags in regular text are XML Elements and Tag names in *italics* in the Description column of the tables are Attributes of XML elements. Let us consider the following example:

```
<Name>
  <FirstName Type="Given Name">Ram</FirstName>
  <LastName>Kumar</LastName>
</Name>
```

<Name> is the Container, <FirstName> and <LastName> are the XML Elements and *Type* is the Attribute.

In the following sections, we have deliberately used examples of addresses that are represented using xAL at a detailed level. It is emphasised here again that addresses need not be represented at a detailed level. It depends upon the application requirements to define the level of addressing.

9.1 xCRL Element



xCRL is a container and is the root element that contains all elements to define customer relationships in detail. xCRL consists of a sub-element called “RelationshipRecord” that must occur at least once. The attribute “Version” defines the version of xCRL used (specific to DTD only) and has a fixed value. For example, the value is “1.1” for version number 1.1.

Example:

```
<xCRL Version="1.1">
  <RelationshipRecord>
    .....
    .....
  </RelationshipRecord >
  <RelationshipRecord >
    .....
    .....
  </RelationshipRecord >
</xCIL>
```

9.2 FreeTextLine Element

FreeTextLine element can be used as a free format text to represent customer relationships data. This element can be used when one does not want to break a piece of string of data into individual elements. For example, a name say, Mr. Ram Kumar, can be tagged with XML elements in xCRL as:

```
<FreeTextLine Type="Full Name">Mr. Ram Kumar</FreeTextLine>
```

OR

```
<Title>Mr</Title>
<FirstName>Ram</First Name>
<LastName>Kumar</LastName>
```

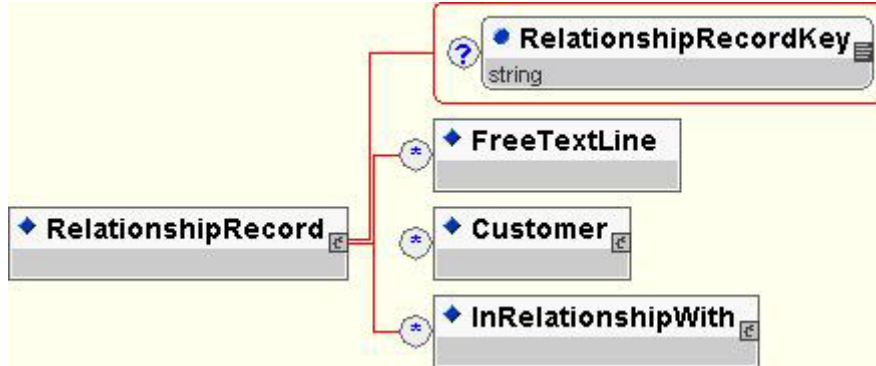


FreeTextLine element has an attribute namely,

Type: To indicate the type of customer information data tagged by FreeTextLine element. This is optional.

9.3 RelationshipRecord Element

The “RelationshipRecord” element defines the customers involved in the relationship. It provides sub-elements that can be used to define the relationship between two entities.



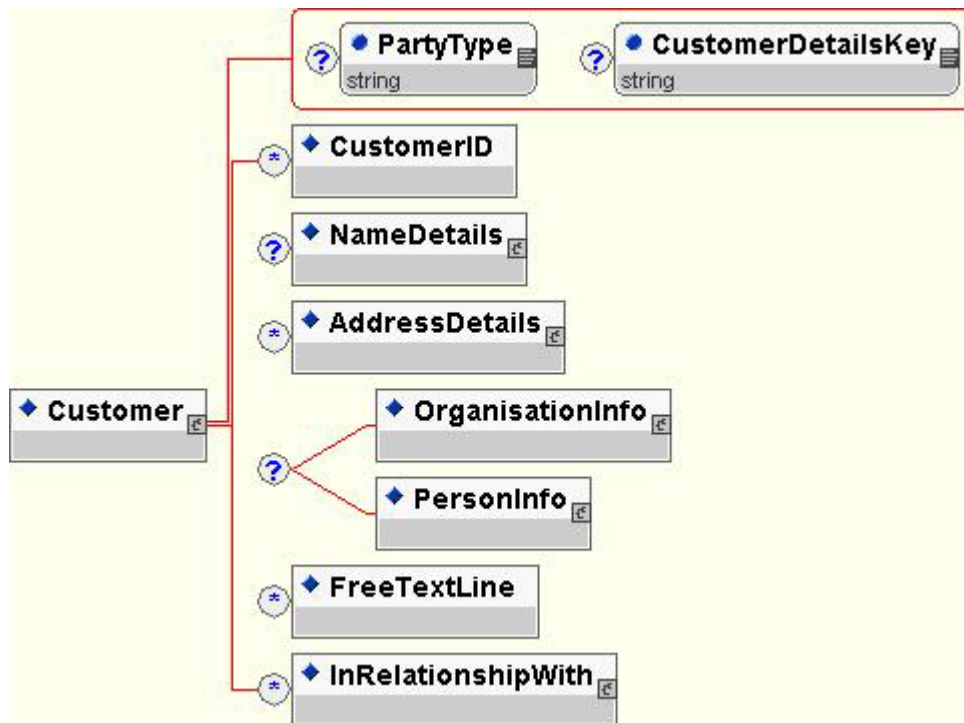
Customer Relationships Elements	xCRL Elements (XML Tags)	Description
A record defining customer relationships	RelationshipRecord	This element is a container and is a sub-element of the root element “xCRL”. This element can occur multiple times and it is mandatory that it must occur at least once (1 or more). This element provides the following attributes: <i>RelationshipRecordKey</i> : Defines the Primary key for the record and is optional. Key identifier for the element for not reinforced references from other elements. Not required to be unique for the document to be valid, but application may get confused if not unique. Extend this schema adding unique constraint if needed.
Description of relationship record as free format text	FreeTextLine	This element is used to describe the relationship record with free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Description of a customer	Customer	This element is a container and is a sub-element of the “RelationshipRecord” element and is used to describe the details of a customer such as name, address, etc. using its sub-elements. This element can occur multiple times and is optional. See section “Customer Element for further details.

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Relationship with the other customer	InRelationshipWith	This element is a container and is a sub-element of the “RelationshipRecord” element and is used to define the person or organization (customer) the customer is in relationship with. This element has sub-elements to define the relationship in detail. This element can occur multiple times and is optional. See section “InRelationshipWith Element” for further detail.

9.4 Customer Element

The “Customer” element defines each customer in detail. This customer can be used to define the customer and the customer in relationship with. Customers could be joint customers also. For example,

- Customer X and Customer Y “TRADING AS” Customer A and Customer B (OR)
- Customer X and Customer Y (OR)
- Customer X in relationship with Customer Y

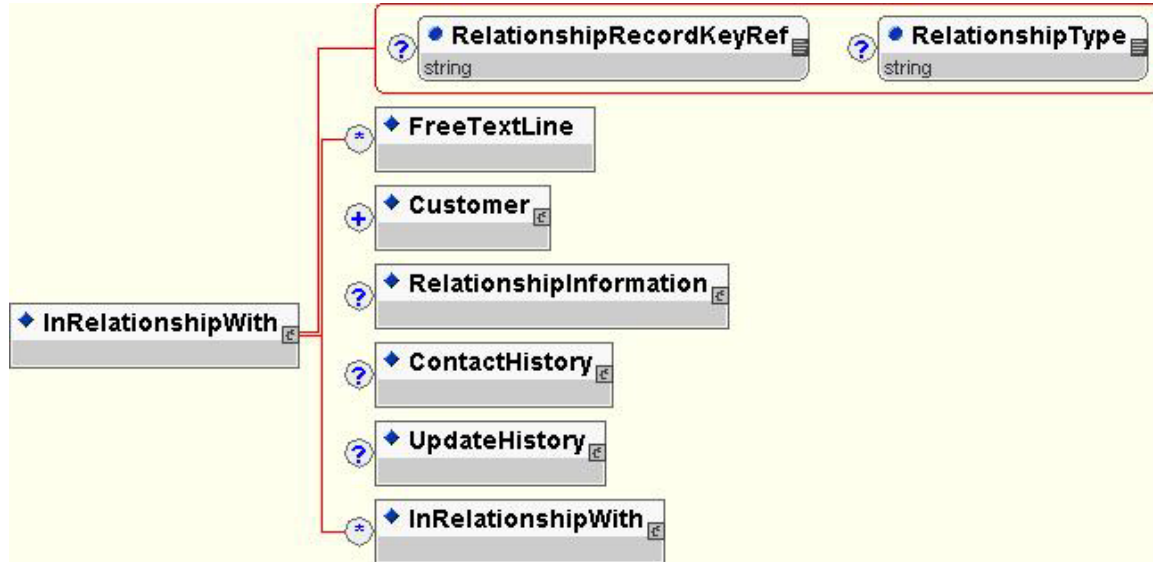


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Description of a customer	Customer	<p>This element is a container and is used to describe the details of a customer such as name, address, etc. using its sub-elements. This element can occur multiple times and is optional. The Customer could be a primary or secondary customer. For example, “X in relationship with Y”, where X is the Primary Customer and Y is the Secondary Customer. The relationship is described from left to right. This element has the following attributes:</p> <p><i>PartyType</i>: Defines the type of party and is optional. Example: Person, Organisation, Club, Association, etc.</p> <p><i>CustomerDetailsKey</i>: Defines the primary key for customer details and is optional. Key identifier for the element for not reinforced references from other elements. Not required to be unique for the document to be valid, but application may get confused if not unique. Extend this schema adding unique constraint if needed.</p>
Identification of the customer	CustomerID	<p>This element is a sub-element of “Customer” element and is used to define the Identification of the Customer. This element can occur multiple times and is optional. This element is a sub-element of xCIL standard. Refer to “xCIL Specifications” for further details about this element.</p>
Name details of the customer	NameDetails	<p>This element is a container and is a sub-element of the “Customer” element and is used to define the name of the Customer in detail. This element can occur once and is optional. This element is a sub-element of xNL standard. Refer to “xNL Specifications” for further details about this element.</p>
Address details of the customer	AddressDetails	<p>This element is a container and is a sub-element of the “Customer” element and is used to define the address of the Customer in detail. This element can occur once and is optional. This element is a sub-element of xAL standard. Refer to “xAL Specifications” for further details about this element.</p>
Address details of the customer	AddressDetails	<p>This element is a container and is a sub-element of the “Customer” element and is used to define the address of the Customer in detail. This element can occur once and is optional. This element is a sub-element of xAL standard. Refer to “xAL Specifications” for further details about this element.</p>
Information about Organisation	OrganisationInfo	<p>This element is a container and is a sub-element of the element “Customer”. This element can occur once and is optional. If the customer is an “Organisation”, then</p>

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		this element should be used. This element has sub-elements that define customer centric data (other than name and address) about the organisation in detail. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” for further details about this element.
Information about Person	PersonInfo	This element is a container and is a sub-element of the element “Customer”. This element can occur once and is optional. If the customer is a “Person”, then this element should be used. This element has sub-elements that define customer centric data (other than name and address) about the person in detail. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” for further details about this element.
Define customer as free text format	FreeTextLine	This element is used to describe customer with free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Relationship with the other customer	InRelationshipWith	This element is a container and is a sub-element of “RelationshipRecord” element and is used to define the person or organization (customer) the customer is in relationship with. This element has sub-elements to define the relationship in detail. This element can occur multiple times and is optional. See section “InRelationshipWith Element” for further detail.

9.5 InRelationshipWith Element

The “InRelationshipWith” element defines the relationship between two customers in detail.

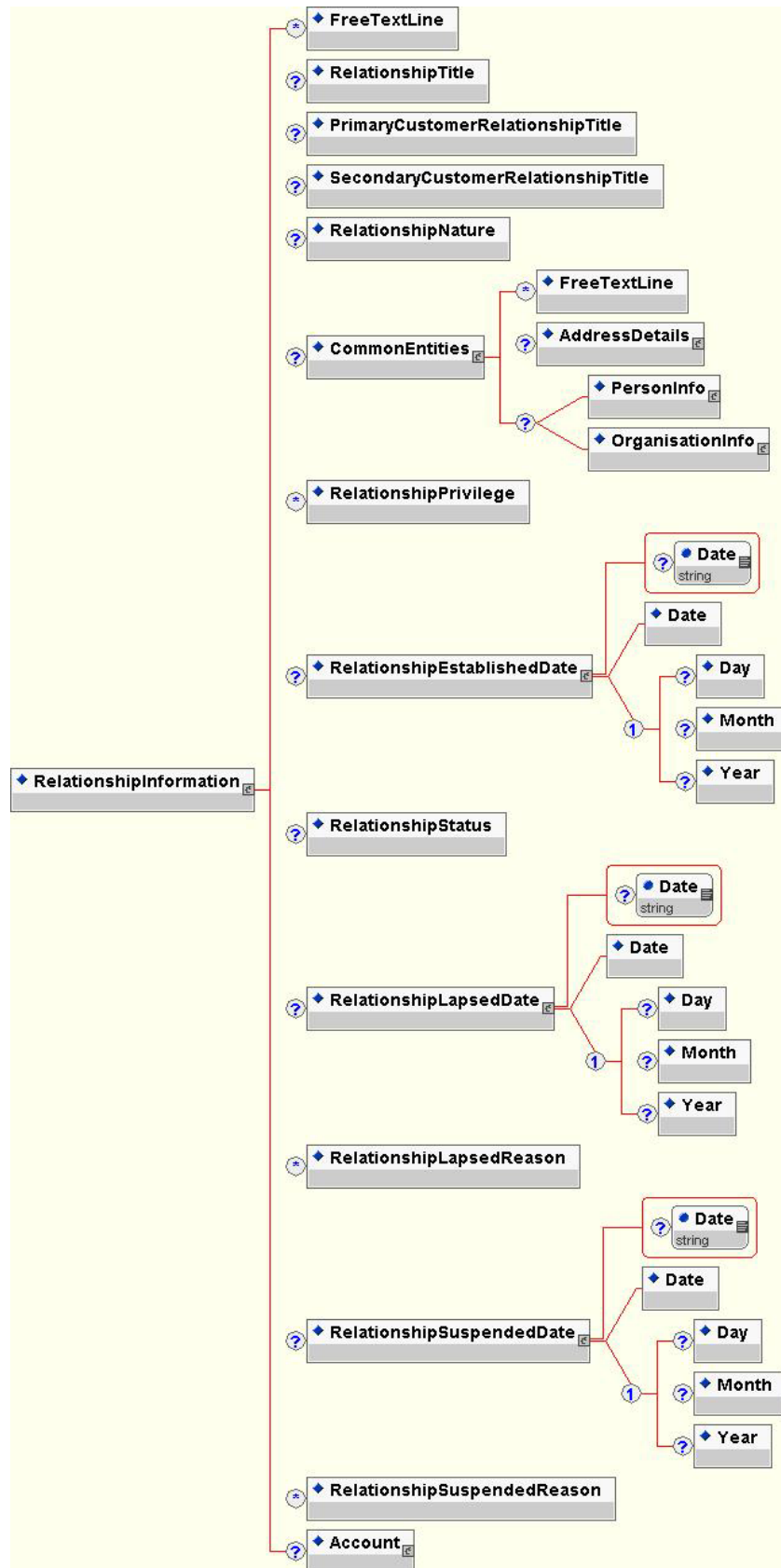


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Relationship with the other customer	InRelationshipWith	<p>This element is a container and is used to define the person or organization (customer) the customer is in relationship with. This element has sub-elements to define the relationship in detail. This element can occur multiple times and is optional. This element provides the following attributes:</p> <p><i>RelationshipRecordKeyRef</i>: Defines the foreign key and is optional. Use this element to break up the chain of deeply nested relationships and start it from the top again. At the same time the logical chain of relationships will be preserved.</p> <p><i>RelationshipType</i>: Defines the type of relationship established and is optional. Who to Who: person to person, person to organisation, biz to biz etc. Can be any variation or even encoded. Different parties have to agree on the list of values for this attribute prior to information exchange, if required.</p>
Description of relationships as free text format	FreeTextLine	<p>This element is used to describe relationships with free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.</p>

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Description of a customer	Customer	This element is a container and is used to describe the details of a customer (in this case, secondary customer) such as name, address, etc. using its sub-elements. This element can occur multiple times and must occur at least once (1 or more). See section “Customer Element for further details.
Description of the relationship between two customers in detail	RelationshipInformation	This element is a container, a sub-element of the “InRelationshipWith” element and is used to define the relationships between two customers in detail using its sub-elements. This element can occur multiple times as a customer can have multiple relationships and hence, multiple descriptions of the relationships are necessary. This element is optional. See section “RelationshipInformation” for further details.
Contact details with the customer	ContactHistory	This element is a container, a sub-element of the “InRelationshipWith” element and is used to define the contact details established with the customer over a period of time. This element can occur once and is optional. See the section “ContactHistory Element” for further details about this element.
Update details about the customer	UpdateHistory	This element is a container, a sub-element of the “InRelationshipWith” element and is used to define the update details about the customer over a period of time. This element can occur once and is optional. See the section “UpdateHistory Element” for further details about this element.
Relationship with the other customer	InRelationshipWith	This element is used again because the relationship could be nested. For example Customer A, Customer B, etc. could be in the same hierarchy and they could be having a relationship as a group with other customer(s). This element is optional.

9.6 RelationshipInformation Element

The RelationshipInformation element is used to define the relationship between two customers in detail in the form of structured text.



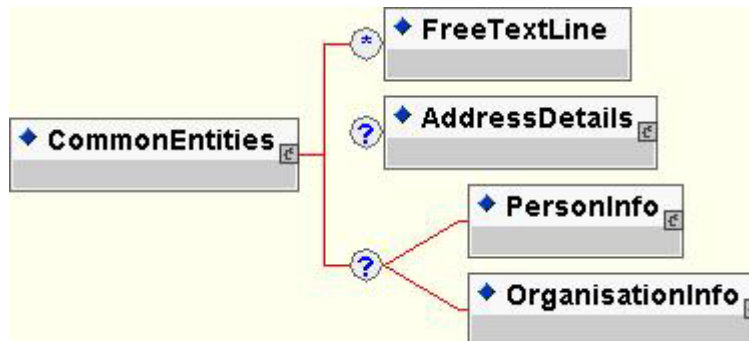
Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Description of the relationship between two customers in detail	RelationshipInformation	This element is a container, a sub-element of the “InRelationshipWith” element and is used to define the relationships between two customers in detail using its sub-elements. This element can occur multiple times as a customer can have multiple relationships and hence, multiple descriptions of the relationships are necessary. This element is optional.
Description of relationships as free text format	FreeTextLine	This element is used to describe relationships with free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Title of relationship	RelationshipTitle	This element is a sub-element of the “RelationshipInformation” element and is used to define the title of relationship between two customers. This element can occur once and is optional. Example: “IN TRUST FOR”, “DOING BUSINESS AS”, “TRADING AS”, HUSBAND-WIFE, “PARTNERS”, “CONSUMER-SUPPLIER”, “VENDOR-CLIENT”, etc
Title of Primary Customer	PrimaryCustomerRelationshipTitle	This element is a sub-element of the “RelationshipInformation” element and is used to define the title of relationship of the primary customer. This element is optional and can occur once. Customer X “InRelationshipWith” Customer Y. Here Customer X is the Primary Customer and Customer Y is the Secondary Customer. The relationship is from left to right in the text. Relationship Examples: WIFE, HUSBAND, TRUSTEE, and BENEFICIARY. For example, in “Customer X IS IN TRUST for Customer Y, Customer X’s relationship title is “TRUSTEE” and Customer Y’s relationship title is “BENEFICIARY”.
Title of SecondaryCustomer	SecondaryCustomerRelationshipTitle	This element is a sub-element of the “RelationshipInformation” element and is used to define the title of relationship of the secondary customer. This element is optional and can occur once. Customer X “InRelationshipWith” Customer Y. Here Customer X is the Primary Customer and Customer Y is the Secondary Customer. The relationship is from left to right in the text. Relationship Examples: WIFE, HUSBAND, TRUSTEE, and BENEFICIARY. For example, in “Customer X IS IN TRUST for Customer Y, Customer X’s relationship title is “TRUSTEE” and Customer Y’s relationship title is “BENEFICIARY”.
Nature of Relationship	RelationshipNature	This element is a sub-element of the

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		“RelationshipInformation” element and is used to define the nature of a relationship the customers have with each other. This element is optional and can occur once. Examples: Formal, Legal, Illegal, Defacto, Personal Contact, Business Contact, Personal, etc.
Commonly shared entities between customers	CommonEntities	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the commonly shared entities between the two customers. This element is optional and can occur once. Examples of commonly shared entities are: Address, Telephone, e-mail, Fax, account, etc. See section “CommonEntities” for further details about this element.
Special privileges held by the customer	RelationshipPrivilege	This element is a sub-element of the “RelationshipInformation” element and is used to define the privilege the customer has. This element is optional and can occur once. This element provides the following attribute: <i>Type</i> : Defines the type of privilege and is optional.
Date of establishing relationship	RelationshipEstablishedDate	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the relationship established date details. This element has sub-elements to define date. This element can occur once and is optional. See section “Date Element” for further details about this element.
Status of relationship	RelationshipStatus	This element is a sub-element of the “RelationshipInformation” element and is used to define the status of relationship with the customer. This element is optional and can occur once. Example: Potential, Current, Former, etc.
Date of lapse in relationship	RelationshipLapsedDate	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the relationship lapsed date details. This element has sub-elements to define date. This element can occur once and is optional. See section “Date Element” for further details about this element.
Reason for lapse in relationship	RelationshipLapsedReason	This element is a sub-element of the “RelationshipInformation” element and is used to describe the reasons for lapse of relationship. This element can occur multiple times and is optional. This element provides the following attribute: <i>Type</i> : Defines the type of reason for lapse and is optional.
Date of suspension of the relationship	RelationshipSuspendedDate	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the relationship suspended date details. This

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		element has sub-elements to define date. This element can occur once and is optional. See section “Date Element” for further details about this element.
Reason for suspension in relationship	RelationshipSuspensionReason	This element is a sub-element of the “RelationshipInformation” element and is used to describe the reasons for suspension of relationship. This element can occur multiple times and is optional. Example: Unpaid bill. This element provides the following attribute: <i>Type</i> : Defines the type of reason for suspension in relationship and is optional.
Account details	Account	This element is a container and is a sub-element of the “RelationshipInformation” element. This element is used to describe relationships between two customers via an account. This element can occur once and is optional. This element provides the following attributes: <i>AccountID</i> : Defines the unique ID associated with the account and is optional. <i>ForeignSystemAccountID</i> : If this account information is present in more than one system, this attribute can be used to link the accounts in different systems. This attribute is optional. <i>AccountStatus</i> : Defines the current Account status, such as: Active, Inactive, Locked, Suspended, Disputed, etc. This attribute is optional. See section “Account” for further details about this element.

9.7 CommonEntities Element

The CommonEntities element is used to define the commonly shared entities such as address, telephone, fax, e-mail, etc. between customers in their relationships.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Commonly shared entities between customers	CommonEntities	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the commonly shared entities between the two customers. This element is optional and can occur once. Examples of commonly shared entities are: Address, Telephone, e-mail, Fax, account, etc.
Description of commonly shared entities as free format text	FreeTextLine	This element is used to describe commonly shared entities as free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Common address details	AddressDetails	This element is a container and is used to describe commonly shared address between the customers in detail. This element is a sub-element of the xAL Standard. Refer to “xAL Specifications” document for further details about this element.
Customer centric (person) details shared between customers	PersonInfo	This element is a container and is used to describe commonly shared customer centric (person) data between customers. Example: Telephone, e-mail, fax, etc. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” document for further details about this element.
Customer centric (organisation) details shared between customers	OrganisationInfo	This element is a container and is used to describe commonly shared customer centric (Organisation) data between customers. Example: Telephone, e-mail, fax, etc. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” document for further details about this element.

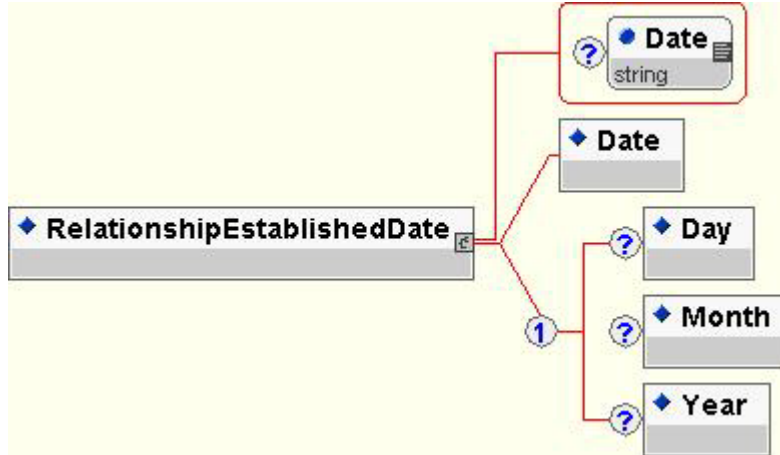
9.8 Date Element

The Date element is used to define the details about the date structure that is re-used throughout xCRL standard. The Date element is referenced from xCIL Standard. This Date element structure is used by the following elements:

- RelationshipEstablishedDate
- RelationshipLapsedDate
- RelationshipSuspendedDate
- ContactDate
- UpdateDate
- FirstBillingDate
- NextBillingDate
- LastBillingDate
- FinalBillingDate
- PaymentDueDate

- PaymentDate
- BilledUpToDate
- DateCharged

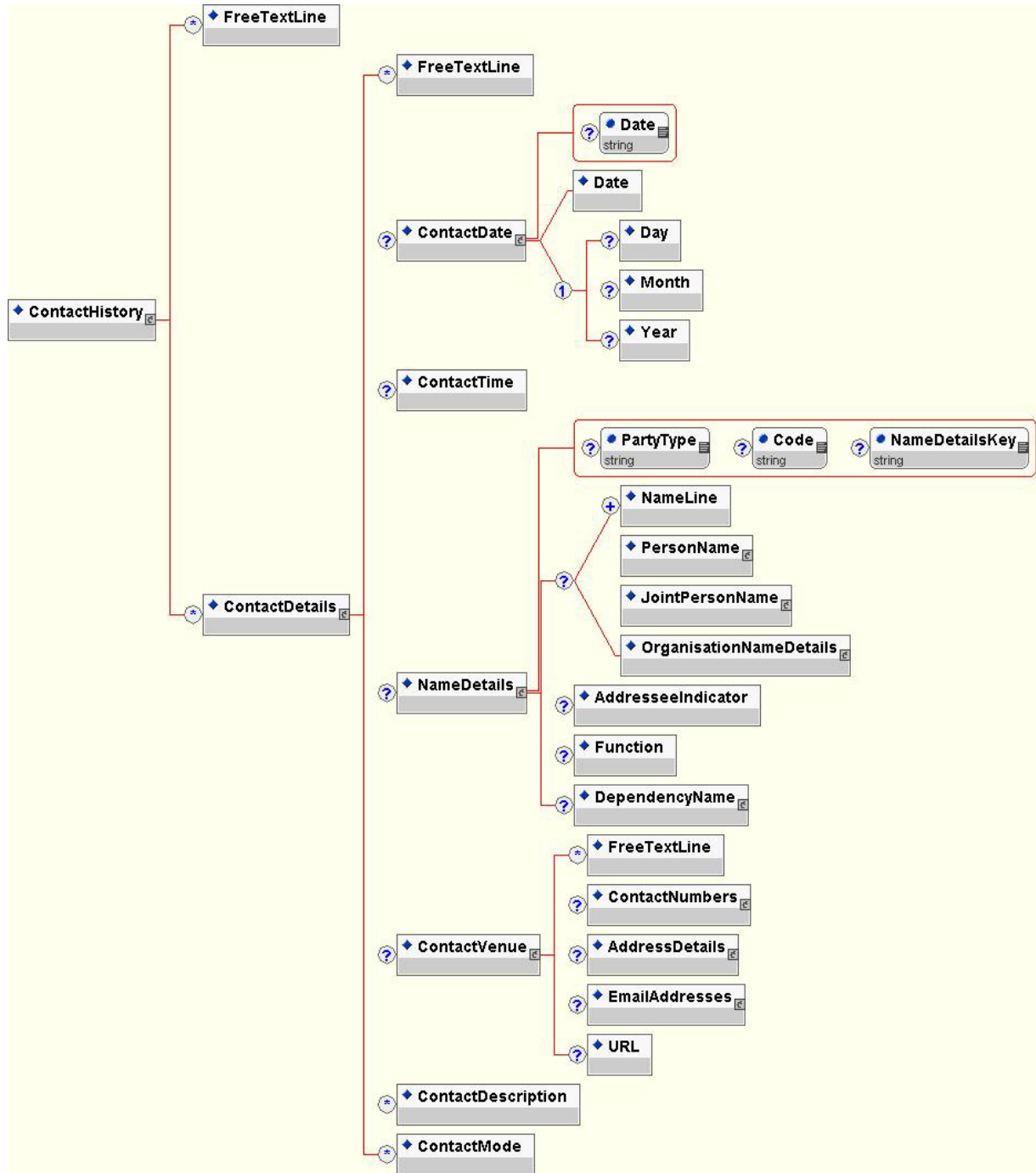
In this section, we will use “RelationshipEstablishedDate” element that uses the “Date” structure to describe the structure of “Date”.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Date of establishing relationship	RelationshipEstablishedDate	This element is a container and is a sub-element of the “RelationshipInformation” element. It is used to define the relationship established date details. This element has sub-elements to define date. This element can occur once and is optional.
Date	Date	This element can occur once and it is optional (0 or 1). This element defines the Date as a general field. In Schema it is of type xsd:Date.
Day	Day	This element can occur once and is optional (0 or 1). This element defines the day of the date.
Month	Month	This element can occur once and is optional (0 or 1). This element defines the month of the date.
Year	Year	This element can occur once and is optional (0 or 1). This element defines the year of the date.

9.9 ContactHistory Element

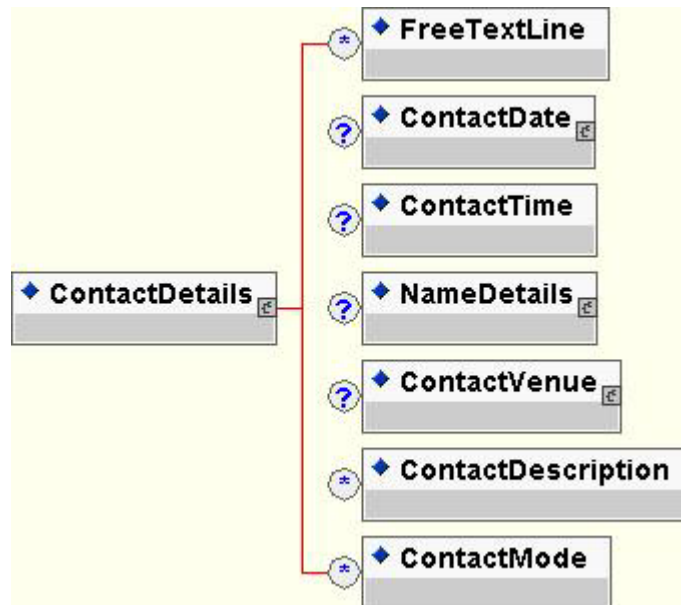
The “ContactHistory” element defines and tracks the details of the contacts established with the customer over a period of time in detail.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Contact details with the customer	ContactHistory	This element is a container and is a sub-element of the “InRelationshipWith” element. It is used to define the contact details established with the customer over a period of time. This element can occur once and is optional.
Description of contact history as free text format	FreeTextLine	This element is used to describe the contact history with customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Contact details at a detailed level as structured text	ContactDetails	This element is a container and is a sub-element of “ContactHistory” element and is used to define the contact details using sub-elements at a detailed level. This element can occur more than once and is optional. See section “ContactDetails Element” for further details.

9.10 ContactDetails Element

The ContactDetails element describes the details of customer contact in detail by structuring the data.

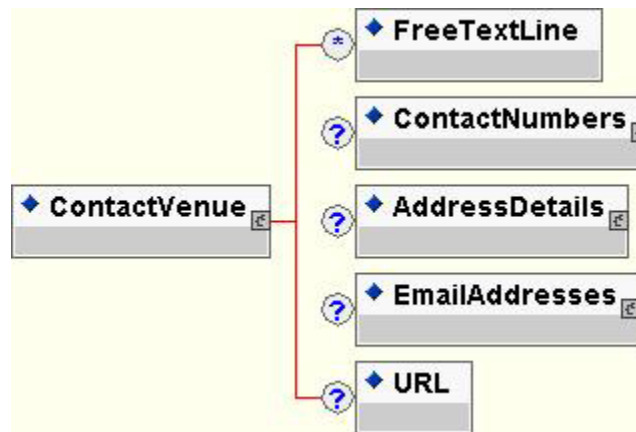


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Contact details at a detailed level as structured text	ContactDetails	This element is a container and is a sub-element of the “ContactHistory” element. It is used to define the contact details using sub-elements at a detailed level. This element can occur more than once and is mandatory.
Description of contacts as free format format	FreeTextLine	This element is used to describe the contact history with customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Date of Contact	ContactDate	This element is a container and is a sub-element of the “ContactDetails” element. It is used to define the contact date details. This element has sub-elements to define date. This element can occur once and is optional. See section “Date Element” for further details about this element.
Time of contact	ContactTime	This element is a sub-element of the “ContactDetails” element and is used to define the time of contact. This element can occur once and is optional. This element provides the following attribute: <i>TimeType</i> : Defines the time type and is optional. Example: 12 Hrs, 24 Hrs.
Name details of the contact	NameDetails	This element is a container and is a sub-element of the “ContactDetails” element. It is used to define the name of contact in detail. This element can occur once and is optional. This element is a sub-element of the xNL Standard. Refer to “xNL Specifications” for further details about this element. This element provides the following attribute: <i>NameDetailsKey</i> : Defines the Primary key and is optional. Key identifier for the element for not reinforced references from other elements. Not required to be unique for the document to be valid, but application may get confused if not unique. Extend this schema adding unique constraint if needed.
Contact Venue details	ContactVenue	This element is a container and is a sub-element of the “ContactDetails” element. It is used to define the contact venue details using its sub-elements. This element can occur once and is optional. See section “ContactVenue Element” for further details.
Description of contact	ContactDescription	This element is a sub-element of the “ContactDetails” element and is used to describe the contact made. This

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		element can occur multiple times and is optional. This element provides the following attribute: <i>Type</i> : Defines the type of description and is optional
Mode of contact	ContactMode	This element is a sub-element of the “ContactDetails” element and is used to describe the mode of contact. This element can occur multiple times and is optional. Example: Telephone, fax, e-mail, etc. This element provides the following attribute: <i>Type</i> : Defines the type of contact mode and is optional

9.11 ContactVenue Element

The ContactVenue element is used to describe the venue of contact between the customers in detail.

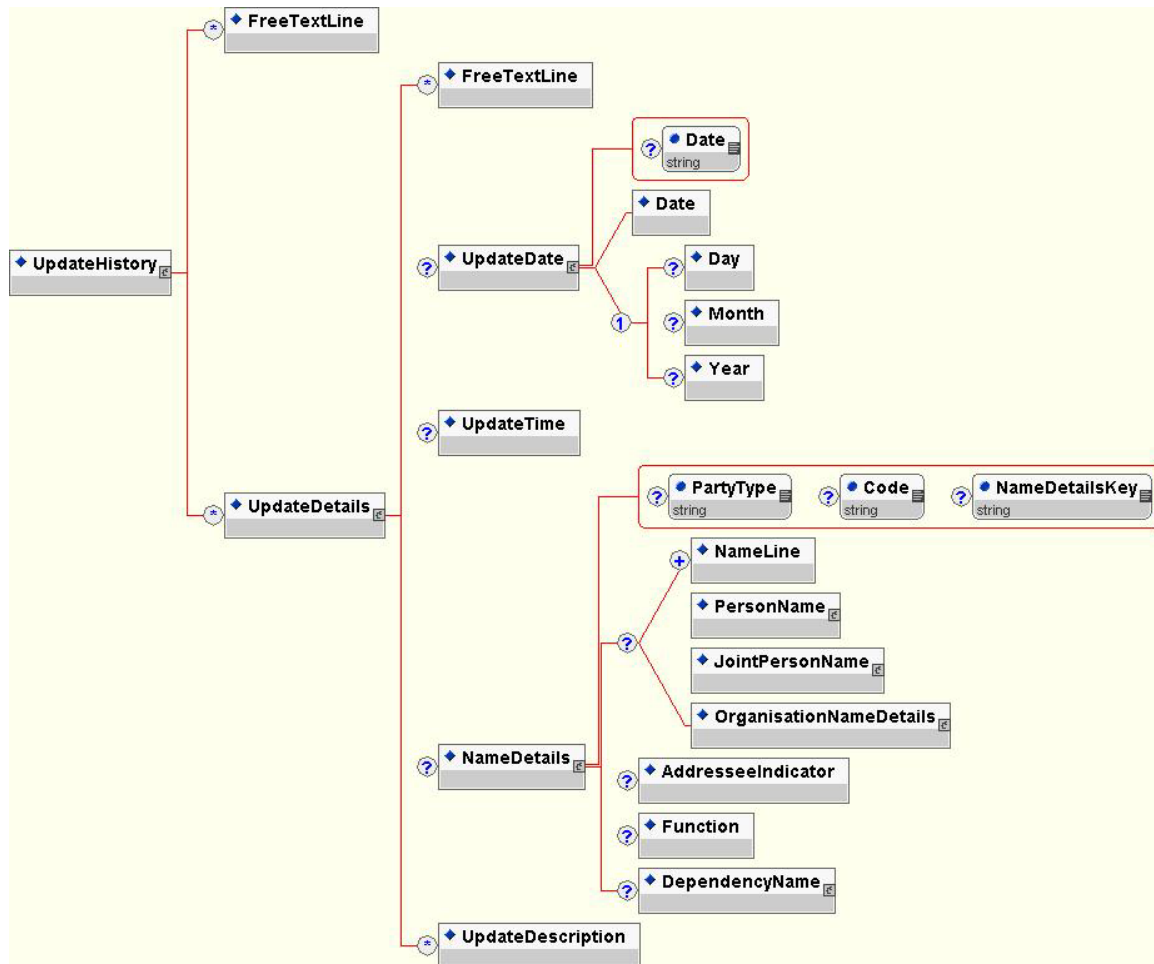


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Contact Venue details	ContactVenue	This element is a container and is a sub-element of the “ContactDetails” element. It is used to define the contact venue details using its sub-elements. This element can occur once and is optional.
Description of contact venue as free format text	FreeTextLine	This element is used to describe the contact history with customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Address of the venue	AddressDetails	This element is a container and is used to define the address of the venue in detail using its sub-elements. This element can occur once and is optional. This element is a sub-element of the xAL Standard. Refer to “xAL Specifications” for further details about this

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		element.
Contact number for the venue	ContactNumbers	This element is a container and is used to define the contact number(s) of the venue in detail using its sub-elements. This element can occur once and is optional. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” for further details about this element.
E-mail address(es) for the venue	EmailAddresses	This element is a container and is used to define the email address(es) of the venue in detail using its sub-elements. This element can occur once and is optional. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” for further details about this element.
URL for the venue	URL	This element is used to define the URL of the venue. This element can occur once and is optional. This element is a sub-element of the xCIL Standard. Refer to “xCIL Specifications” for further details about this element.

9.12 UpdateHistory Element

The “UpdateHistory” element defines and tracks the details of the update done to the customer record over a period of time in detail.

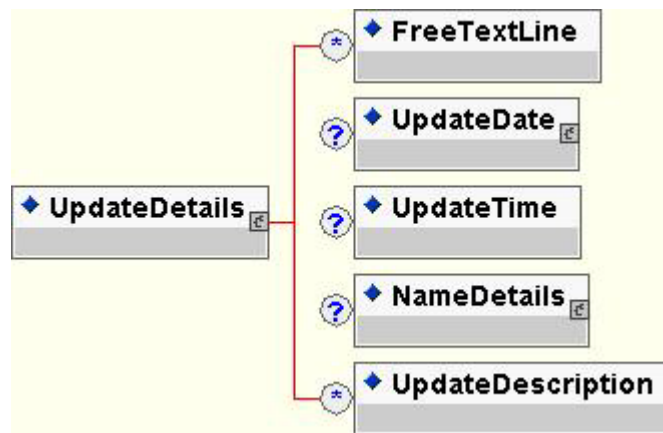


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Update details about the customer	UpdateHistory	This element is a container and is a sub-element of the “InRelationshipWith” element. It is used to define the update details about the customer over a period of time. This element can occur once and is optional.
Description of update history as free format text	FreeTextLine	This element is used to describe the update history of customer data using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Update details at a detailed level as structured text	UpdateDetails	This element is a container and is a sub-element of the “UpdateHistory” element. It is used to define the update details using sub-elements at a detailed level. This element can occur more than once and is optional. See section “UpdateDetails Element” for further details.

9.13 UpdateDetails Element

The UpdateDetails element is used to describe the update done to the customer data in detail.

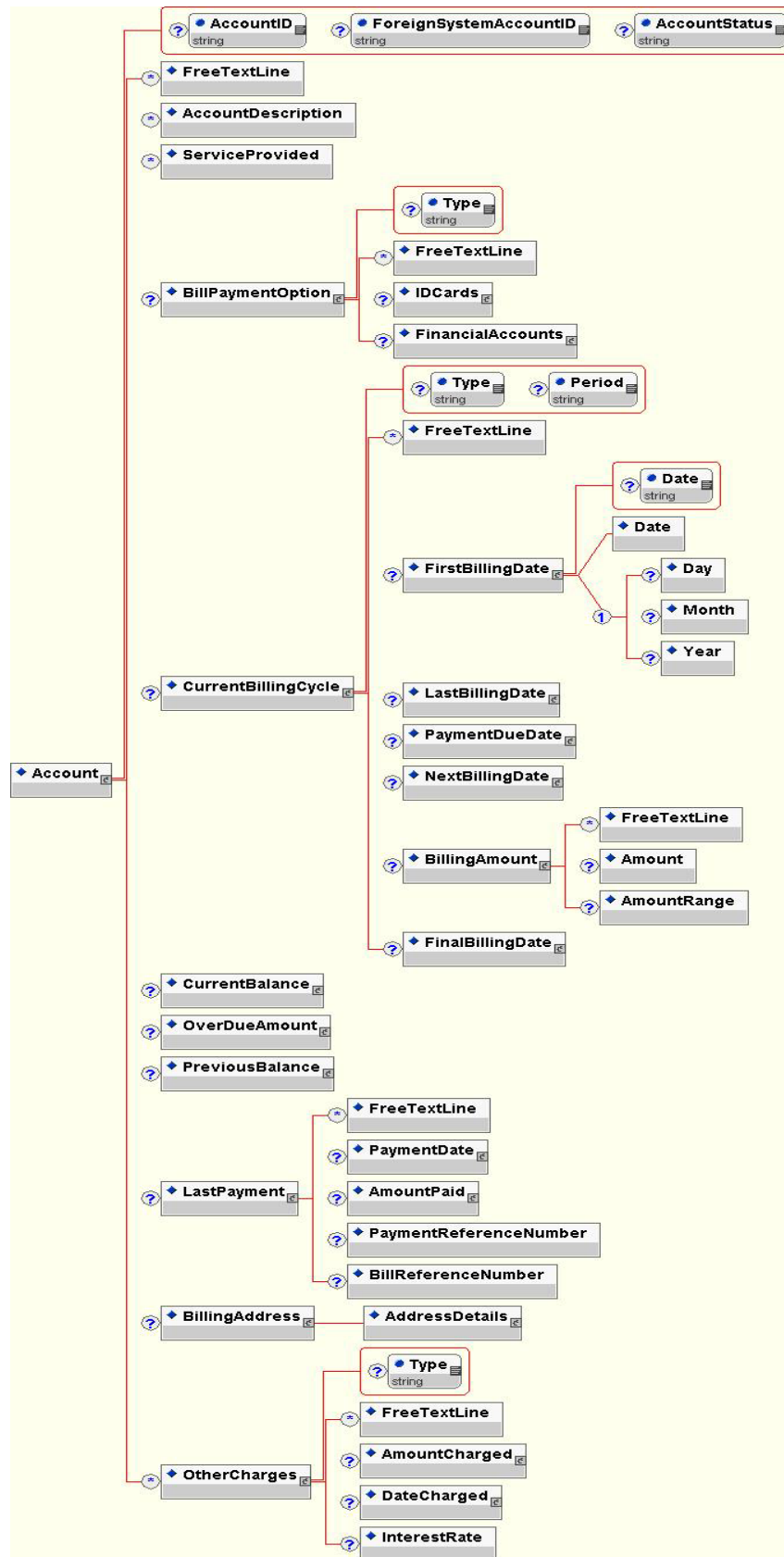


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Update details at a detailed level as structured text	UpdateDetails	This element is a container and is a sub-element of the “UpdateHistory” element. It is used to define the update details using sub-elements at a detailed level. This element can occur more than once and is mandatory.
Description of update details as a free format text	FreeTextLine	This element is used to describe the update details of customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Date of Update	UpdateDate	This element is a container and is a sub-element of the “UpdateDetails” element. It is used to define the update date details. This element has sub-elements to define date. This element can occur once and is optional. See section “Date Element” for further details about this element.
Time of Update	UpdateTime	This element is a sub-element of the “UpdateDetails”

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		element and is used to define the time of update. It Can occur more than once and is optional. This element provides the following attribute: <i>TimeType</i> : Defines the type and is optional. Example: 12Hours, 24 Hours
Person who did the update	NameDetails	This element is a container and is used to define the name of the person who did the update in detail using its sub-elements. This element can occur once and is optional. This element is a sub-element of the xNL Standard. Refer to “xNL Specifications” for further details.
Description of the update as a free format text	UpdateDescription	This element is a sub-element of the “UpdateDetails” element and is used to describe about the update in detail. This element can occur once and is optional. This element provides the following attribute: <i>Type</i> : Defines the type of update and is optional.

9.14 Account Element

The Account element is used to define the details about the account held by a customer of another customer. Normally an account is set up between two customers involved in currency transactions in some form or other. Example: Supplier



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Account details	Account	<p>This element is a container and is a sub-element of the “RelationshipInformation” element. This element is used to describe relationships between two customers via an account. This element can occur once and is optional. This element provides the following attributes:</p> <p><i>AccountID</i>: Defines the unique ID associated with the account and is optional.</p> <p><i>ForeignSystemAccountID</i>: If this account information is present in more than one system, this attribute can be used to link the accounts in different systems. This attribute is optional.</p> <p><i>AccountStatus</i>: Defines the current Account status, such as: Active, Inactive, Locked, Suspended, Disputed, etc. This attribute is optional.</p>
Description of account details as a free format text	FreeTextLine	<p>This element is used to describe the account details of customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.</p>
Description of the account	AccountDescription	<p>This element is a sub-element of “Account” element and is used to describe about the account. This element can occur multiple times and is optional (0 or more). This element provides the following attribute:</p> <p><i>Type</i>: Defines the type of description and is optional.</p>
Bill payment option	BillPaymentOption	<p>This element is a container and is a sub-element of “Account” element and is used to describe the bill payment options for the account. This element can occur once and is optional (0 or 1). This element provides the following attribute:</p> <p><i>Type</i>: Defines the type of paying bills and is optional. Example: Direct Debit, Cash, Cheque, Credit Card, etc.</p> <p>See section “BillPaymentOption Element” for further details about this element.</p>
Current Billing Cycle	CurrentBillingCycle	<p>This element is a container and is a sub-element of “Account” element and is used to describe the current billing cycle details for the account. This element can occur once and is optional (0 or 1). This element provides the following attribute:</p> <p><i>Type</i>: Defines the type of billing cycle and is optional. Example: Fortnightly, quarterly, monthly, etc.</p> <p><i>Period</i>: Defines the period of billing cycle. For</p>

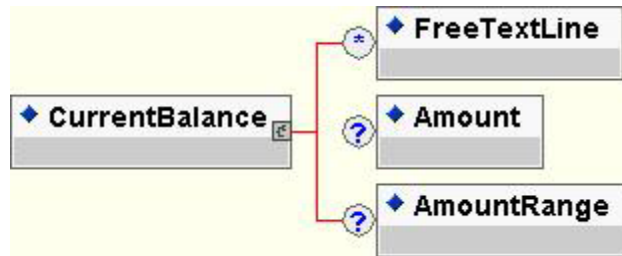
Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		example, 26 months contract, 25 years contract. Example: 36 months, 5 years, 325 days, etc See section “CurrentBillingCycle Element” for further details about this element.
Current balance	CurrentBalance	This element is a container and is a sub-element of “Account” element and is used to describe the current balance on the account. This element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Over due amount	OverDueAmount	This element is a container and is a sub-element of “Account” element and is used to describe the amount that is over due on this account. This element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Previous balance on the account	PreviousBalance	This element is a container and is a sub-element of “Account” element and is used to describe the previous balance on this account. This element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Last payment made on the account	LastPayment	This element is a container and is a sub-element of “Account” element and is used to describe the last payment made on this account. This element can occur once and is optional (0 or 1). See section “LastPayment Element” for further details about this element.
Billing address	BillingAddress	This element is a container and is a sub-element of “Account” element and is used to describe the billing address of the customer. This element can occur once and is optional (0 or 1). See section “BillingAddress Element” for further details about this element.
Other charges	OtherCharges	This element is a container and is a sub-element of “Account” element and is used to describe the other charges on the account. This element can occur multiple times and is optional (0 or more). See section “OtherCharges Element” for further details about this element.

9.15 Amount Element

The Amount element is used to define the amount details and this structure is re-used throughout xCRL standard. The Amount element is referenced from xCIL Standard. This Amount element structure is used by the following elements:

- CurrentBalance
- BillingAmount
- OverDueAmount
- PreviousBalance
- AmountPaid
- AmountCharged

In this section, we will use “CurrentBalance” element to describe the “Amount” structure.

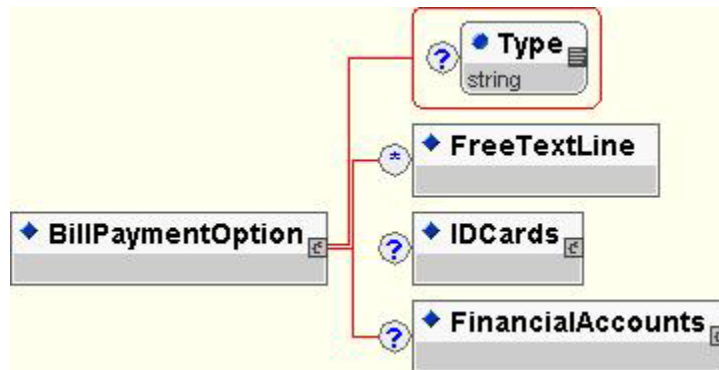


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Current balance	CurrentBalance	This element is a container and is a sub-element of “Account” element and is used to describe the current balance on the account. This element can occur once and is optional (0 or 1).
Amount details as a free format text	FreeTextLine	This element is used to define the amount details as a free formatted text line. This element can occur multiple times and is optional (0 or more). See section “FreeTextLine Element” for further details.
Amount	Amount	This element can occur once and is optional (0 or 1). This element defines the amount as an exact figure. This element provides the following attributes: <i>CurrencyType</i> : Defines the currency name or symbol and is optional. Example: Dollar, \$, Rupees, Rs., etc <i>FinancialYear</i> : Defines the financial year and is optional. Example: 1999, 1999-2000, etc. <i>Period</i> : Defines the period in the financial year and is optional. Example: Quarter 1, Spring Quarter, January to March, July-Sept., etc <i>PeriodUnits</i> : Defines the units of measure of the Period and is optional. Example: 374 Days, 32 Months, 2 Years, etc. <i>Type</i> : Defines the type of amount and is optional.

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Amount Range	AmountRange	<p>Example: Total earning, profit, loss, turnover, etc.</p> <p>This element can occur once and is optional (0 or 1). This element defines the amount as a range. Example: \$20,000-\$50,000. This element provides the following attributes:</p> <p><i>CurrencyType</i>: Defines the currency name or symbol and is optional. Example: Dollar, \$, Rupees, Rs., etc</p> <p><i>FinancialYear</i>: Defines the financial year and is optional. Example: 1999, 1999-2000, etc.</p> <p><i>Period</i>: Defines the period in the financial year and is optional. Example: Quarter 1, Spring Quarter, January to March, July-Sept., etc.</p> <p><i>PeriodUnits</i>: Defines the units to measure the Period and is optional. Example: 374 Days, 32 Months, 2 Years, etc.</p> <p><i>Type</i>: Defines the type of amount and is optional. Example: Total earning, profit, loss, turnover, etc.</p>

9.16 BillPaymentOption Element

The BillPaymentOption element is used to define the details about the options available for paying the bills.

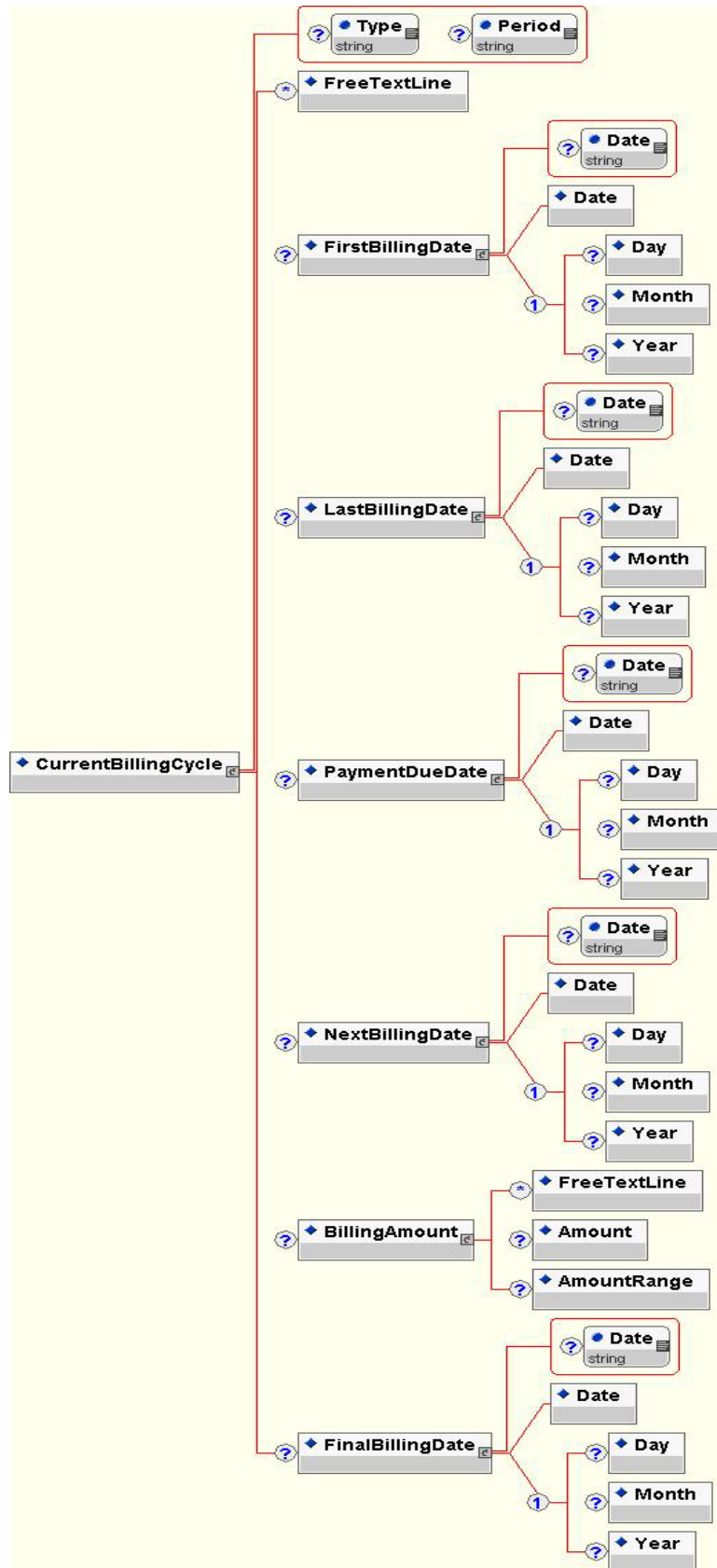


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Bill payment option	BillPaymentOption	<p>This element is a container and is a sub-element of “Account” element and is used to describe the bill payment options for the account. This element can occur once and is optional (0 or 1). This element provides the following attribute:</p> <p><i>Type</i>: Defines the type of paying bills and is optional. Example: Direct Debit, Cash, Cheque, Credit Card,</p>

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		etc.
Description of bill payment option as a free format text	FreeTextLine	This element is used to describe the bill payment options of the customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
If the customer’s option is direct debit using credit card to pay the bills	IDCards	This element is a container and is used to describe the credit card details of the customer used for paying bills. This element can occur once and is optional (0 or more). This element is a sub-element of xCIL standards. Refer to “xCIL Specifications” for further details about this element.
If the customer’s option is direct debit using bank account to pay the details	FinancialAccounts	This element is a container and is used to describe the direct debit bank account details of the customer used for paying bills. This element can occur once and is optional (0 or more). This element is a sub-element of xCIL standards. Refer to “xCIL Specifications” for further details about this element.

9.17 CurrentBillingCycle Element

The CurrentBillingCycle element is used to define the details about the current billing cycle for the customer.

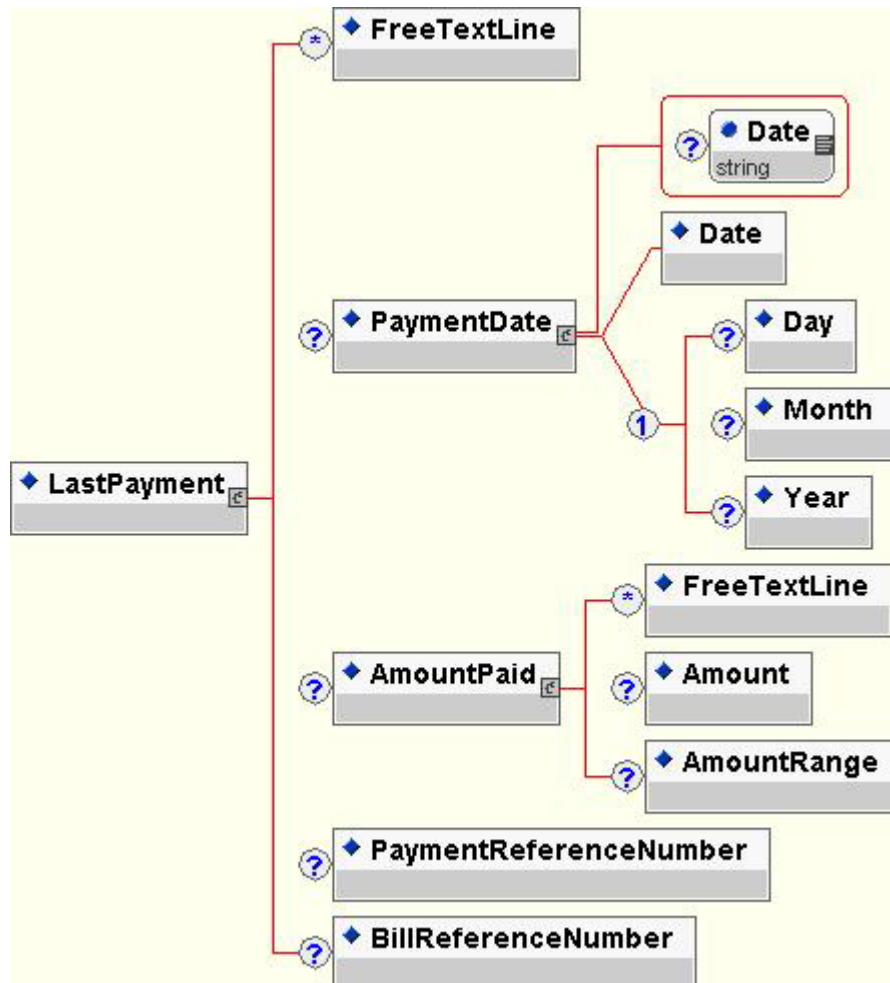


Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Current Billing Cycle	CurrentBillingCycle	This element is a container and is a sub-element of “Account” element and is used to describe the current billing cycle details for the account. This element can occur once and is optional (0 or 1). This element provides the following attribute: <i>Type</i> : Defines the type of billing cycle and is optional. Example: Fortnightly, quarterly, monthly, etc. <i>Period</i> : Defines the period of billing cycle. For example, 26 months contract, 25 years contract. Example: 36 months, 5 years, 325 days, etc
Description of current billing cycle as a free format text	FreeTextLine	This element is used to describe the current billing cycle for the customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Date of the first billing to the customer in the billing cycle	FirstBillingDate	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to describe the date the customer is first billed in the billing cycle. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
Date up to which the customer has been billed in the billing cycle	LastBillingDate	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to define the date up to which the customer has been billed in the billing cycle. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
Payment due date for the last bill	PaymentDueDate	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to define the due date of the payment for the last bill. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
Date of the next billing to the customer in the billing cycle	NextBillingDate	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to describe the date the customer is next billed in the billing cycle. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
The amount to be billed in the next bill	BillingAmount	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to define the amount that will be billed in the next bill. This

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
		element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Date of the final billing to the customer in the billing cycle	FinalBillingDate	This element is a container and is a sub-element of “CurrentBillingCycle” element and is used to describe the date the customer will be finally billed in the billing cycle. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.

9.18 LastPayment Element

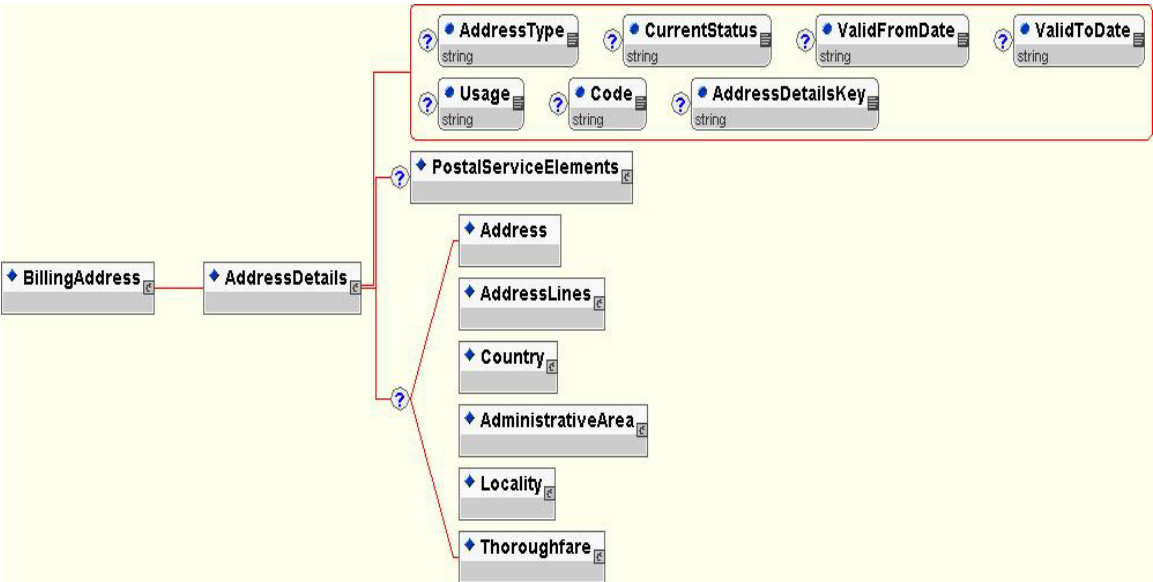
The LastPayment element is used to describe the last payment details made by the customer for a bill.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Last payment made on the account by the customer	LastPayment	This element is a container and is a sub-element of “Account” element and is used to describe the last payment made on this account by the customer. This element can occur once and is optional (0 or 1).
Description of last payment details as a free format text	FreeTextLine	This element is used to describe the last payment details by the customer using free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Date of payment of the bill	PaymentDate	This element is a container and is a sub-element of “LastPayment” element and is used to describe the date of last payment made by the customer. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
Amount paid	AmountPaid	This element is a container and is a sub-element of “LastPayment” element and is used to define the amount paid by the customer. This element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Reference number for the payment made	PaymentReferenceNumber	This element is a container and is a sub-element of “LastPayment” element and is used to define the reference number for the last payment made. This element can occur once and is optional (0 or 1).
Reference number for bill for which payment was made	BillReferenceNumber	This element is a container and is a sub-element of “LastPayment” element and is used to define the reference number of the bill for which the last payment was made. This element can occur once and is optional (0 or 1).

9.19 BillingAddress Element

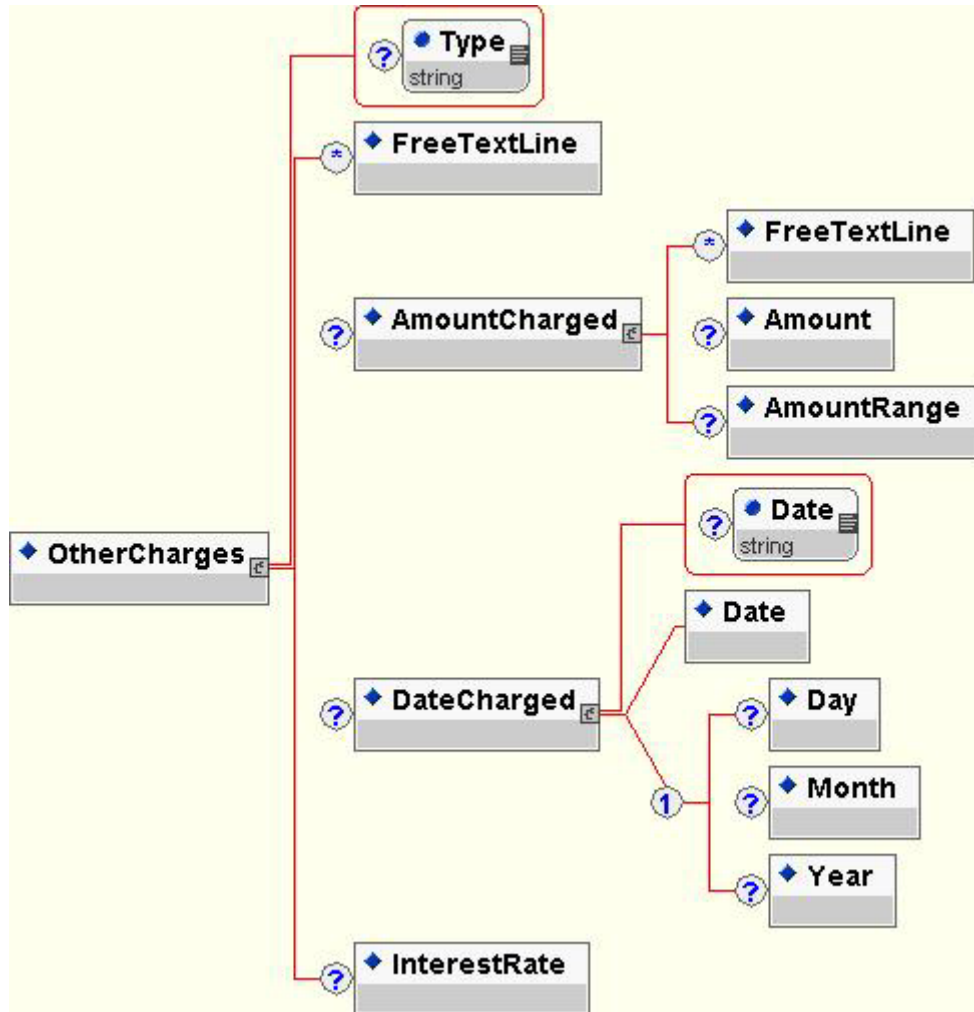
The BillingAddress Element is used to define the billing address of the customer in detail.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Billing address of the customer	BillingAddress	This element is a container and is a sub-element of “Account” element and is used to describe the billing address of the customer. This element can occur once and is optional (0 or 1).
Address Details	AddressDetails	This element is a container and has sub-elements that are used to describe the billing address of the customer in detail. This element is a sub-element of xAL Standard. See “xAL Specifications” for further details about this element.

9.20 OtherCharges Element

The OtherCharges Element is used to define in detail the other additional charges incurred on the customer account.



Customer Relationships Elements	xCRL Elements (XML Tags)	Description
Other charges associated with the account	OtherCharges	This element is a container and is a sub-element of “Account” element and is used to describe the other charges on the account. This element can occur multiple times and is optional (0 or more). For example, other charges could be, Penalty, Interest, etc. This element provides the following attribute: <i>Type</i> : Defines the type of charge and is optional. Example: Penalty, Interest, account service fee, etc.
Description of other	FreeTextLine	This element is used to describe the other charges as a

Customer Relationships Elements	xCRL Elements (XML Tags)	Description
charges as a free format text		free format text rather than breaking text into structured format. This element can occur multiple times and is optional. See section “FreeTextLine Element” for further details about this element.
Amount Charged	AmountCharged	This element is a container and is a sub-element of “OtherCharges” element and is used to define the amount that has been charged on the account. This element can occur once and is optional (0 or 1). See section “Amount Element” for further details about this element.
Date the amount was charged	DateCharged	This element is a container and is a sub-element of “OtherCharges” element and is used to define the date the amount was charged on the account. This element can occur once and is optional (0 or 1). See section “Date Element” for further details about this element.
Interest rate charged	InterestRate	This element is a container and is a sub-element of “OtherCharges” element and is used to define the interest rate that has been applied (if any) to calculate the extra amount charged on the account. This element can occur once and is optional (0 or 1). Example: 7.5%. This element provides the following attribute: <i>Type</i> : Defines the type of interest applied and is optional. Example: Compound interest, annual interest, daily interest, etc.

10.0 Examples

Following are some of the examples of xCRL.

10.1 Business Contact Relationships (Person2Person)

[Primary Customer]

Ram V. Kumar
C/o PrivacyLink Pty. Ltd

BUSINESS CONTACTS:

[Secondary Customers]

1. 123456

Mr.Albert Einstein
C/O PrivacyLink Pty. Ltd
EGIS Building
Level 12, 67 Archer Street
Chatswood, NSW 2067, Australia
Phone: 61-2-94338765(Business)
Fax: 61-2-94338000(Business)
Email: albert@pl.com.au (Business)
albert@albert.com.au (Personal)
Last Contact: 31 May 2002
Last Update: 31 May 2002

2. 123457

Mr.Rodney Freeman
C/O Jack Freedman
Postal Address (effective from Jan1. 2001):
PO Box: 773
Chatswood, NSW 2057
Residential Address:
Level 12, 67 Albert Avenue
Chatswood, NSW 2209, Australia
Old Residential Address (15 Sept. 1999 - 30 Dec. 1999):
SUITE 1A, LEVEL 2, BLOCK 2, RIPPON BUILDING
47 KINGSTON AVENUE NORTH, NORTH RYDE, NSW 2113, AUSTRALIA

Account Manager
Insurance Dept.
MasterSoft International
Tel: 02-94128333
Fax: 02-94134275
Email: msi@msi.com.au

```
<xCRL>
  <RelationshipRecord>
    <!-- PRIMARY CUSTOMER -->
    <Customer PartyType="Person">
      <NameDetails>
        <PersonName>
          <Title>Mr</Title>
          <FirstName NameType="GivenName">Ram</FirstName>
          <MiddleName Type="Initial">V</MiddleName>
          <LastName NameType="SurName">Kumar</LastName>
        </PersonName>
        <DependencyName PartyType="Organisation" DependencyType="C/O">
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            <OrganisationName>PrivacyLink</OrganisationName>
            <OrganisationType>Pty.Ltd</OrganisationType>
          </OrganisationNameDetails>
        </DependencyName>
      </NameDetails>
    </Customer>
    <!-- RELATIONSHIP WITH OTHER CUSTOMERS -->
    <InRelationshipWith RelationshipType="Person-Person">
      <!-- SECONDARY CUSTOMER -->
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        <NameDetails>
          <PersonName>
            <Title>Mr</Title>
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            <LastName NameType="SurName">Einstein</LastName>
          </PersonName>
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                </Thoroughfare>
                <PostalCode>
                  <PostalCodeNumber>2067</PostalCodeNumber>
                </PostalCode>
              </Locality>
            </AdministrativeArea>
          </Country>
        </AddressDetails>
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    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
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      <AreaCode>2</AreaCode>
      <Number>94338765</Number>
    </ContactNumber>
    <ContactNumber Type="Fax" ContactNature="Business">
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      <AreaCode>2</AreaCode>
      <Number>94338000</Number>
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  </ContactNumbers>
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    <EmailAddress Type="Business">albert@pl.com.au</EmailAddress>
    <EmailAddress
Type="Personal">albert@albert.com.au</EmailAddress>
  </EmailAddresses>
</PersonInfo>
</Customer>
<RelationshipInformation>
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</RelationshipInformation>
<ContactHistory>
  <ContactDetails>
    <ContactDate>
      <Day>31</Day>
      <Month>May</Month>
      <Year>2002</Year>
    </ContactDate>
    <ContactTime TimeType="24 Hours">13:00</ContactTime>
  </ContactDetails>
</ContactHistory>
<UpdateHistory>
  <UpdateDetails>
    <UpdateDate>
      <Date>31 May 2002</Date>
    </UpdateDate>
  </UpdateDetails>
</UpdateHistory>
</InRelationshipWith>
<InRelationshipWith RelationshipType="Person-Person">
  <!-- SECONDARY CUSTOMER -->
  <Customer>
    <CustomerID>123457</CustomerID>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>Mr.Rodney Freeman</NameLine>
      </PersonName>
      <DependencyName>
        <OrganisationNameDetails>
          <NameLine>C/O Jack Freeman</NameLine>
        </OrganisationNameDetails>
      </DependencyName>
    </NameDetails>
    <AddressDetails AddressType="postal"
      CurrentStatus="valid" ValidFromDate="1 Jan 2000">
      <Address>
        PO Box: 773
        Chatswood, NSW 2057
      </Address>
    </AddressDetails>
```

```
<AddressDetails AddressType="residential" CurrentStatus="living">
  <AddressLines>
    <AddressLine>Level 12, 67 Albert Avenue</AddressLine>
    <AddressLine>Chatswood</AddressLine>
    <AddressLine>NSW 2209</AddressLine>
    <AddressLine>Australia</AddressLine>
  </AddressLines>
</AddressDetails>
<AddressDetails AddressType="residential" CurrentStatus="moved"
  ValidFromDate="15 September 1995"
  ValidToDate="30 December 1999">
  <Country>
    <CountryName>Australia</CountryName>
    <AdministrativeArea Type="State">
      <AdministrativeAreaName>NSW</AdministrativeAreaName>
      <Locality>
        <LocalityName>NORTH RYDE</LocalityName>
        <Thoroughfare>
          <ThoroughfareNumber>47</ThoroughfareNumber>
          <ThoroughfareName>KINGSTON</ThoroughfareName>
          <ThoroughfareTrailingType>
            AVENUE
          </ThoroughfareTrailingType>
          <ThoroughfarePostDirection>
            NORTH
          </ThoroughfarePostDirection>
          <Premise Type="BUILDING">
            <PremiseName TypeOccurrence="After">RIPPON
            </PremiseName>
            <SubPremise Type="BLOCK">
              <SubPremiseNumber>2</SubPremiseNumber>
              <SubPremise Type="LEVEL">
                <SubPremiseNumber>2</SubPremiseNumber>
                <SubPremise Type="SUITE">
                  <SubPremiseNumber>1</SubPremiseNumber>
                  <SubPremiseNumberSuffix>A
                  </SubPremiseNumberSuffix>
                </SubPremise>
              </SubPremise>
            </SubPremise>
          </SubPremise>
          </Premise>
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        <PostalCode>
          <PostalCodeNumber>2113</PostalCodeNumber>
        </PostalCode>
      </Locality>
    </AdministrativeArea>
  </Country>
</AddressDetails>
<PersonInfo>
  <ContactNumbers>
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      <Number>02-94128333</Number>
    </ContactNumber>
    <ContactNumber Type="Fax">
      <Number>02-94134175</Number>
    </ContactNumber>
  </ContactNumbers>
  <EmailAddresses>
    <EmailAddress>msi@msi.com.au</EmailAddress>
  </EmailAddresses>
  <Occupations>
```



```
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  <Position>
    <PositionTitle>Account Manager</PositionTitle>
  </Position>
  <Department>
    <DepartmentName>Insurance</DepartmentName>
  </Department>
  <NameOfOrganisation>
    <OrganisationNameDetails>
      <OrganisationName>
        MasterSoft International
      </OrganisationName>
    </OrganisationNameDetails>
  </NameOfOrganisation>
</Occupation>
</Occupations>
</PersonInfo>
</Customer>
<RelationshipInformation>
  <RelationshipNature>BUSINESS CONTACT</RelationshipNature>
</RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

10.2 Personal Relationship (Person2Person)

Mrs. Mary Johnson and Mr.Patrick Johnson
23 Archer Street, Chatswood, NSW 2067

```
<xCRL>
  <RelationshipRecord>
    <!-- PRIMARY CUSTOMER -->
    <Customer PartyType="Person">
      <NameDetails>
        <PersonName>
          <Title>Mrs</Title>
          <FirstName>Mary</FirstName>
          <LastName>Johnson</LastName>
        </PersonName>
      </NameDetails>
    </Customer>
    <InRelationshipWith RelationshipType="Person-Person">
      <!-- SECONDARY CUSTOMER -->
      <Customer PartyType="Person">
        <NameDetails>
          <PersonName>
            <NameLine>Mr.Patrick Johnson</NameLine>
          </PersonName>
        </NameDetails>
      </Customer>
      <RelationshipInformation>
        <PrimaryCustomerRelationshipTitle>
          WIFE
        </PrimaryCustomerRelationshipTitle>
        <SecondaryCustomerRelationshipTitle>
          HUSBAND
        </SecondaryCustomerRelationshipTitle>
      </RelationshipInformation>
    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
```

```
        </SecondaryCustomerRelationshipTitle>
        <CommonEntities>
            <AddressDetails AddressType="Postal">
                <Address>23 Archer Street, Chatswood, NSW 2067</Address>
            </AddressDetails>
        </CommonEntities>
    </RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

10.3 Trustee-Beneficiary Relationship (Person2Person)

Mrs.Mary Johnson & Mr.Patrick Johnson

PO Box: 123, Chatswood, NSW 2067

"IN TRUST FOR"

Mr.John Johnson

14 St.Johns Crescent, St.Mary's, NSW 2760

```
<xCRL>
  <RelationshipRecord>
    <!-- PRIMARY CUSTOMERS -->
    <Customer PartyType="Person">
      <NameDetails>
        <PersonName>
          <Title>Mrs</Title>
          <FirstName>Mary</FirstName>
          <LastName>Johnson</LastName>
        </PersonName>
      </NameDetails>
      <InRelationshipWith RelationshipType="Person-Person">
        <Customer PartyType="Person">
          <NameDetails>
            <PersonName>
              <NameLine>Mr.Patrick Johnson</NameLine>
            </PersonName>
          </NameDetails>
        </Customer>
        <RelationshipInformation>
          <PrimaryCustomerRelationshipTitle>
            WIFE
          </PrimaryCustomerRelationshipTitle>
          <SecondaryCustomerRelationshipTitle>
            HUSBAND
          </SecondaryCustomerRelationshipTitle>
          <CommonEntities>
            <AddressDetails AddressType="Postal">
              <Address>PO Box: 123, Chatswood, NSW 2067</Address>
            </AddressDetails>
          </CommonEntities>
        </RelationshipInformation>
      </InRelationshipWith>
    </Customer>
    <!-- THE RELATIONSHIP -->
    <InRelationshipWith RelationshipType="Persons(Joint) - Person">
      <!-- SECONDARY CUSTOMER -->
      <Customer PartyType="Person">
        <NameDetails>
          <PersonName>
            <NameLine>Mr.John Johnson</NameLine>
          </PersonName>
        </NameDetails>
        <AddressDetails>
          <Address>14 St.Johns Crescent, St.Mary's, NSW 2760</Address>
        </AddressDetails>
      </Customer>
      <RelationshipInformation>
        <RelationshipTitle>IN TRUST FOR</RelationshipTitle>
        <PrimaryCustomerRelationshipTitle>
          TRUSTEES
        </PrimaryCustomerRelationshipTitle>
      </RelationshipInformation>
    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
```

```
        </PrimaryCustomerRelationshipTitle>
        <SecondaryCustomerRelationshipTitle>
            BENEFICIARY
        </SecondaryCustomerRelationshipTitle>
    </RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

10.4 Person to Business Relationship (Person2Organisation)

Mrs. Mary Johnson
PO Box:123, Chatswood, NSW 2067
AND Mr.Patrick Johnson
23 Archer Street, Chatswood, NSW 2067
"IN TRUST FOR"
Mr.John Johnson
14 St.Johns Crescent, St.Mary's, NSW 2760
"DOING BUSINESS AS"
JOHNSON and WESSON Pty. Ltd
PO Box: 2000, Sydney 2000

```
<xCRL>
  <RelationshipRecord>
    <!-- PRIMARY CUSTOMERS -->
    <Customer PartyType="Person">
      <NameDetails>
        <PersonName>
          <Title>Mrs</Title>
          <FirstName>Mary</FirstName>
          <LastName>Johnson</LastName>
        </PersonName>
      </NameDetails>
      <AddressDetails>
        <Address>PO Box:123, Chatswood, NSW 2067</Address>
      </AddressDetails>
      <InRelationshipWith RelationshipType="Person-Person">
        <Customer PartyType="Person">
          <NameDetails>
            <PersonName>
              <NameLine>Mr.Patrick Johnson</NameLine>
            </PersonName>
          </NameDetails>
          <AddressDetails>
            <Address>23 Archer Street, Chatswood, NSW 2067</Address>
          </AddressDetails>
        </Customer>
        <RelationshipInformation>
          <RelationshipNature>FRIENDS</RelationshipNature>
        </RelationshipInformation>
      </InRelationshipWith>
    </Customer>
    <!-- THE RELATIONSHIP -->
    <InRelationshipWith RelationshipType="Persons(Joint) - Person">
      <!-- SECONDARY CUSTOMER -->
      <Customer PartyType="Person">
        <NameDetails>
          <PersonName>
            <NameLine>Mr.John Johnson</NameLine>
          </PersonName>
        </NameDetails>
      </Customer>
    </InRelationshipWith>
  </RelationshipRecord>
</xCRL>
```

```
        </PersonName>
    </NameDetails>
    <AddressDetails>
        <Address>14 St.Johns Crescent, St.Mary's, NSW 2760</Address>
    </AddressDetails>
    <InRelationshipWith RelationshipType="Person - Organisation">
        <!-- SECONDARY CUSTOMER'S RELATIONSHIP WITH ANOTHER CUSTOMER -->
        <Customer PartyType="Organisation">
            <NameDetails>
                <OrganisationNameDetails>
                    <OrganisationName>JOHNSON and WESSON</OrganisationName>
                    <OrganisationType>Pty.Ltd</OrganisationType>
                </OrganisationNameDetails>
            </NameDetails>
            <AddressDetails>
                <Address>PO Box: 2000, Sydney 2000</Address>
            </AddressDetails>
        </Customer>
        <RelationshipInformation>
            <RelationshipTitle>DOING BUSINESS AS</RelationshipTitle>
            <PrimaryCustomerRelationshipTitle>
                OWNER
            </PrimaryCustomerRelationshipTitle>
            <SecondaryCustomerRelationshipTitle>
                COMPANY
            </SecondaryCustomerRelationshipTitle>
        </RelationshipInformation>
    </InRelationshipWith>
</Customer>
<RelationshipInformation>
    <RelationshipTitle>IN TRUST FOR</RelationshipTitle>
    <PrimaryCustomerRelationshipTitle>
        TRUSTEES
    </PrimaryCustomerRelationshipTitle>
    <SecondaryCustomerRelationshipTitle>
        BENEFICIARY
    </SecondaryCustomerRelationshipTitle>
</RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

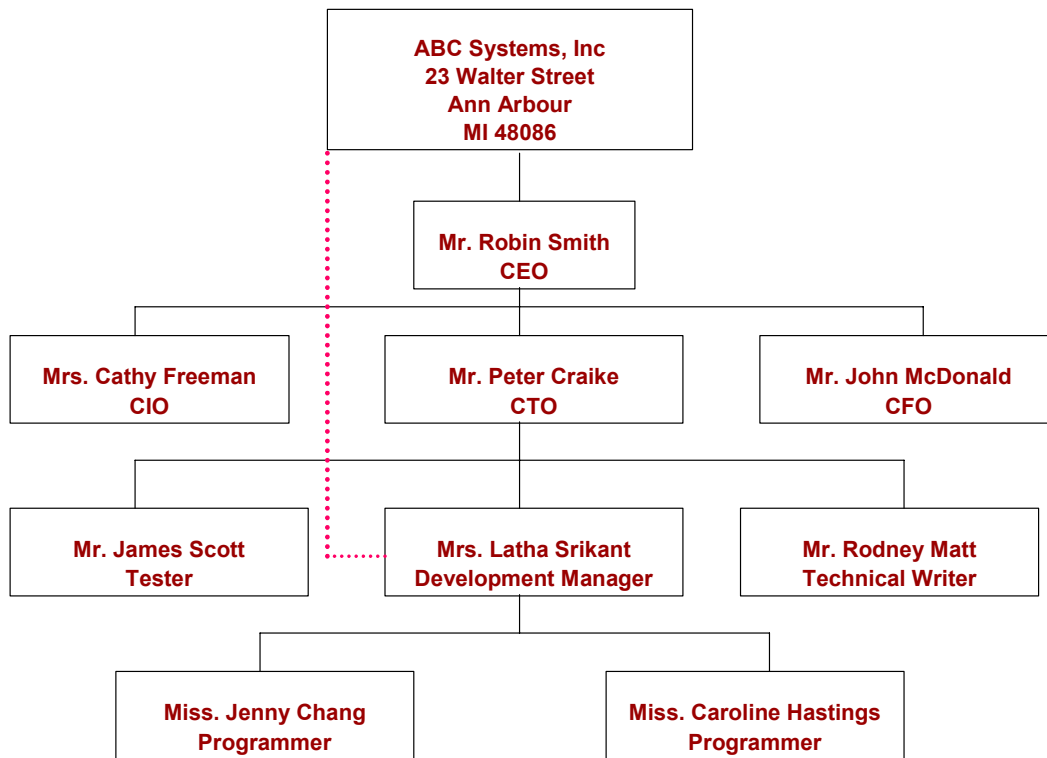
10.5 Organisation 2 Organisation Relationship

Richardson & Wrench Pty. Ltd
PO Box: 123, Willoughby, NSW 2064
"TRADING AS"
Capital One Estate Pty. Ltd
23 Capital Street, Sydney, NSW 2000

```
<xCRL>
    <RelationshipRecord>
        <!-- PRIMARY CUSTOMER -->
        <Customer PartyType="Organisation">
            <NameDetails>
                <OrganisationNameDetails>
                    <OrganisationName>Richardson and Wrench</OrganisationName>
                    <OrganisationType>Pty. Ltd</OrganisationType>
                </OrganisationNameDetails>
            </NameDetails>
```

```
<AddressDetails>
  <Address>PO Box: 123, Willoughby, NSW 2064</Address>
</AddressDetails>
</Customer>
<!-- THE RELATIONSHIP -->
<InRelationshipWith RelationshipType="Organisation-Organisation">
  <Customer PartyType="Organisation">
    <NameDetails>
      <OrganisationNameDetails>
        <OrganisationName>Capital One Estate</OrganisationName>
        <OrganisationType>Pty. Ltd</OrganisationType>
      </OrganisationNameDetails>
    </NameDetails>
    <AddressDetails>
      <Address>23 Capital Street, Sydney, NSW 2000</Address>
    </AddressDetails>
  </Customer>
  <RelationshipInformation>
    <RelationshipTitle>TRADING AS</RelationshipTitle>
    <RelationshipNature>Legal</RelationshipNature>
  </RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

10.6 Organisation Structure (Person2Person and Organisation2Person) Relationships



In the organisation structure above, the Development Manager also reports to the CEO (shown in dotted line).

```

<xCRL>
  <RelationshipRecord>
    <Customer PartyType="Organisation">
      <NameDetails>
        <OrganisationNameDetails>
          <NameLine>ABC Systems, Inc</NameLine>
        </OrganisationNameDetails>
      </NameDetails>
      <AddressDetails>
        <AddressLines>
          <AddressLine Type="Line 1">23 Walter Street</AddressLine>
          <AddressLine Type="Line 2">Ann Arbour</AddressLine>
          <AddressLine Type="Line 3">MI 48086</AddressLine>
        </AddressLines>
      </AddressDetails>
    </Customer>
    <InRelationshipWith RelationshipType="Organisation-Person">
      <Customer PartyType="Person">
        <NameDetails NameDetailsKey="123">
          <PersonName>
            <NameLine>Mr. Robin Smith</NameLine>
          </PersonName>
          <Function>CEO</Function>
        </NameDetails>
      </Customer>
    </InRelationshipWith>
  </RelationshipRecord>

```

```
</NameDetails>
<InRelationshipWith RelationshipType="Person-Person">
  <Customer>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>Mrs. Cathy Freeman</NameLine>
      </PersonName>
      <Function>CIO</Function>
    </NameDetails>
  </Customer>
  <RelationshipInformation>
    <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
    <RelationshipNature>REPORTING TO CEO</RelationshipNature>
  </RelationshipInformation>
</InRelationshipWith>
<InRelationshipWith RelationshipType="Person-Person">
  <Customer>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>Mr. John McDonald</NameLine>
      </PersonName>
      <Function>CFO</Function>
    </NameDetails>
  </Customer>
  <RelationshipInformation>
    <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
    <RelationshipNature>REPORTING TO CEO</RelationshipNature>
  </RelationshipInformation>
</InRelationshipWith>
<InRelationshipWith RelationshipType="Person-Person">
  <Customer>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>Mr. Peter Craike</NameLine>
      </PersonName>
      <Function>CTO</Function>
    </NameDetails>
  <InRelationshipWith RelationshipType="Person-Person">
    <Customer>
      <NameDetails PartyType="Person">
        <PersonName>
          <NameLine>Mr. Rodney Matt</NameLine>
        </PersonName>
        <Function>Technical Writer</Function>
      </NameDetails>
    </Customer>
    <RelationshipInformation>
      <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
      <RelationshipNature>REPORTING TO CTO</RelationshipNature>
    </RelationshipInformation>
  </InRelationshipWith>
  <InRelationshipWith RelationshipType="Person-Person">
    <Customer>
      <NameDetails PartyType="Person">
        <PersonName>
          <NameLine>Mr. James Scott</NameLine>
        </PersonName>
        <Function>Tester</Function>
      </NameDetails>
    </Customer>
    <RelationshipInformation>
      <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
```



```
<RelationshipNature>REPORTING TO CTO</RelationshipNature>
</RelationshipInformation>
</InRelationshipWith>
<InRelationshipWith RelationshipType="Person-Person">
  <Customer>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>Mrs. Latha Srikant</NameLine>
      </PersonName>
      <Function>Development Manager</Function>
    </NameDetails>
    <InRelationshipWith RelationshipType="Person-Person">
      <Customer>
        <NameDetails PartyType="Person">
          <PersonName NameDetailsKeyRef="123">
            </PersonName>
          </NameDetails>
        </Customer>
        <RelationshipInformation>
          <RelationshipTitle>SUBORDINATE-BOSS
          </RelationshipTitle>
          <RelationshipNature>
            Indirect reporting to CEO
          </RelationshipNature>
        </RelationshipInformation>
      </InRelationshipWith>
    </Customer>
    <InRelationshipWith RelationshipType="Person-Person">
      <Customer>
        <NameDetails PartyType="Person">
          <PersonName>
            <NameLine>Miss. Jenny Chang</NameLine>
          </PersonName>
          <Function>Programmer</Function>
        </NameDetails>
      </Customer>
      <RelationshipInformation>
        <RelationshipTitle>BOSS-SUBORDINATE
        </RelationshipTitle>
        <RelationshipNature>
          REPORTING TO Development Manager
        </RelationshipNature>
      </RelationshipInformation>
    </InRelationshipWith>
    <InRelationshipWith RelationshipType="Person-Person">
      <Customer>
        <NameDetails PartyType="Person">
          <PersonName>
            <NameLine>Miss. Carlyne Hastings</NameLine>
          </PersonName>
          <Function>Programmer</Function>
        </NameDetails>
      </Customer>
      <RelationshipInformation>
        <RelationshipTitle>BOSS-SUBORDINATE
        </RelationshipTitle>
        <RelationshipNature>
          REPORTING TO Development Manager
        </RelationshipNature>
      </RelationshipInformation>
    </InRelationshipWith>
  </Customer>
</InRelationshipWith>
```

```

    <RelationshipInformation>
      <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
      <RelationshipNature>REPORTING TO CTO</RelationshipNature>
    </RelationshipInformation>
  </InRelationshipWith>
</Customer>
<RelationshipInformation>
  <RelationshipTitle>BOSS-SUBORDINATE</RelationshipTitle>
  <RelationshipNature>REPORTING TO CEO</RelationshipNature>
</RelationshipInformation>
</InRelationshipWith>
</Customer>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

10.7 Group-Member-Group Relationships

Golf Club of Turramurra

20 Warner Avenue, Turramurra, NSW 2074

Phone: 02-94400044

Fax: 02-94400045

Members: Chris Perkins, 2 Adams St, Turramurra
Ram Kumar and Shantha Devi, 10 Adams Street, Turramurra
David Griffin, 3, Adams Street, Turramurra

MEMBER OF:

Golf Club of North Shore

PO Box:2000, Hornsby, NSW 2078

Phone: 02-94321234

Fax: 02-94321235

```
<xCRL>
<!--GOLF CLUB OF TURRAMURRA -->
  <RelationshipRecord>
    <Customer PartyType="Golf Club">
      <NameDetails>
        <OrganisationNameDetails>
          <OrganisationName>Golf Club of Turramurra</OrganisationName>
        </OrganisationNameDetails>
      </NameDetails>
      <AddressDetails>
        <Address>20 Warner Avenue, Turramurra, NSW 2074</Address>
      </AddressDetails>
      <OrganisationInfo>
        <ContactNumbers>
          <ContactNumber Type="Telephone">
            <Number>02-94400044</Number>
          </ContactNumber>
          <ContactNumber Type="Telephone">
            <Number>02-94400045</Number>
          </ContactNumber>
        </ContactNumbers>
      </OrganisationInfo>
    </Customer>
    <!-- MEMBERS -->
    <InRelationshipWith RelationshipType="Organisation-Person">
      <Customer>
        <NameDetails PartyType="Person">
          <PersonName>
            <NameLine>Chris Perkins</NameLine>
          </PersonName>
        </NameDetails>
        <AddressDetails>
          <Address>2 Adams St, Turramurra</Address>
        </AddressDetails>
      </Customer>
      <RelationshipInformation>
        <RelationshipTitle>PARENT-MEMBER</RelationshipTitle>
        <RelationshipNature>MEMBERS</RelationshipNature>
      </RelationshipInformation>
    </InRelationshipWith>
    <InRelationshipWith RelationshipType="Organisation-Persons">
      <Customer PartyType="Person">
```

```
<NameDetails>
  <PersonName>
    <NameLine>Ram Kumar</NameLine>
  </PersonName>
</NameDetails>
<InRelationshipWith RelationshipType="Person-Person">
  <Customer PartyType="Person">
    <NameDetails>
      <PersonName>
        <NameLine>Shantha Devi</NameLine>
      </PersonName>
    </NameDetails>
  </Customer>
  <RelationshipInformation>
    <PrimaryCustomerRelationshipTitle>
      HUSBAND
    </PrimaryCustomerRelationshipTitle>
    <SecondaryCustomerRelationshipTitle>
      WIFE
    </SecondaryCustomerRelationshipTitle>
    <CommonEntities>
      <AddressDetails>
        <Address>10 Adams Street, Turramurra</Address>
      </AddressDetails>
    </CommonEntities>
  </RelationshipInformation>
</InRelationshipWith>
</Customer>
<RelationshipInformation>
  <RelationshipTitle>PARENT-MEMBER</RelationshipTitle>
  <RelationshipNature>MEMBERS</RelationshipNature>
</RelationshipInformation>
</InRelationshipWith>
<InRelationshipWith RelationshipType="Person-Organisation">
  <Customer>
    <NameDetails PartyType="Person">
      <PersonName>
        <NameLine>David Griffins</NameLine>
      </PersonName>
    </NameDetails>
    <AddressDetails>
      <Address>3 Adams St, Turramurra</Address>
    </AddressDetails>
  </Customer>
  <RelationshipInformation>
    <RelationshipTitle>PARENT-MEMBER</RelationshipTitle>
    <RelationshipNature>MEMBERS</RelationshipNature>
  </RelationshipInformation>
</InRelationshipWith>
  <!--MEMBER OF -->
<InRelationshipWith RelationshipType="Organisation-Organisation">
  <Customer PartyType="Golf Club">
    <NameDetails>
      <NameLine>Golf Club of North Shore</NameLine>
    </NameDetails>
    <AddressDetails>
      <Address>PO Box:2000, Hornsby, NSW 2078</Address>
    </AddressDetails>
    <OrganisationInfo>
      <ContactNumbers>
        <ContactNumber Type="Telephone">
          <Number>02-94321234</Number>
```

```
        </ContactNumber>
        <ContactNumber Type="Telephone">
          <Number>02-94321235</Number>
        </ContactNumber>
      </ContactNumbers>
    </OrganisationInfo>
  </Customer>
  <RelationshipInformation>
    <RelationshipTitle>MEMBER-PARENT</RelationshipTitle>
    <RelationshipNature>MEMBER</RelationshipNature>
  </RelationshipInformation>
</InRelationshipWith>
</RelationshipRecord>
</xCRL>
```

11.0 References

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