Start XMLSpy in Lab

Press the `[Windows]` key + `[R]` to call out the [Run] dialogue box. Enter the following command (*as shown in Figure 1*).

`Y:\Win32\xmlspy44\XMLSpy44.lnk`

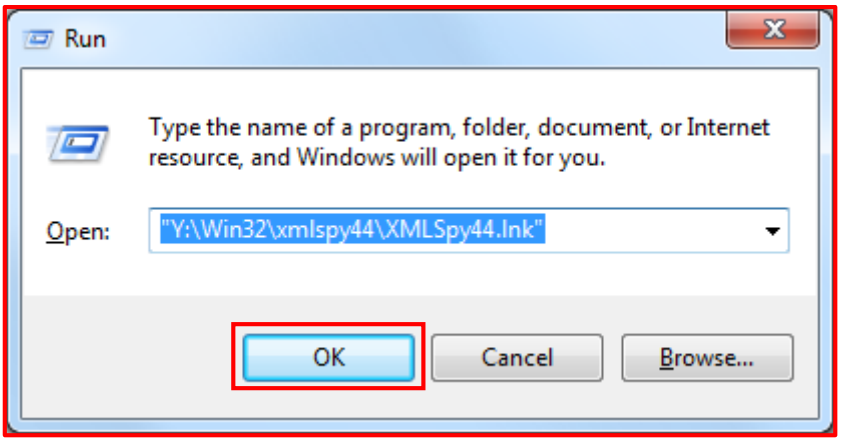


Figure 1 – Command to start XMLSpy

Click `[OK]`.

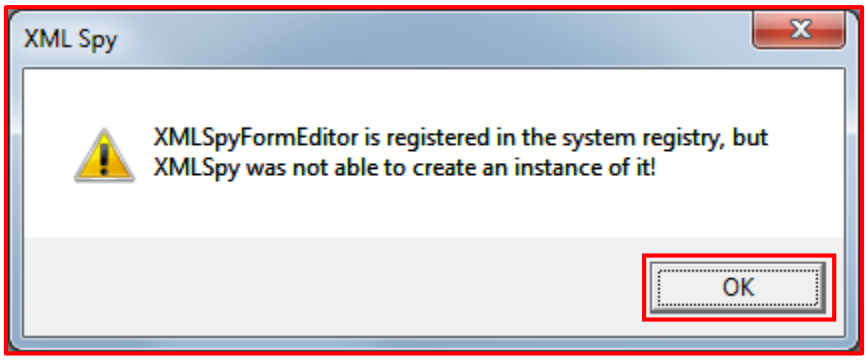


Figure 2 - Answer [OK] to close the window

Click `[Cancel]`.

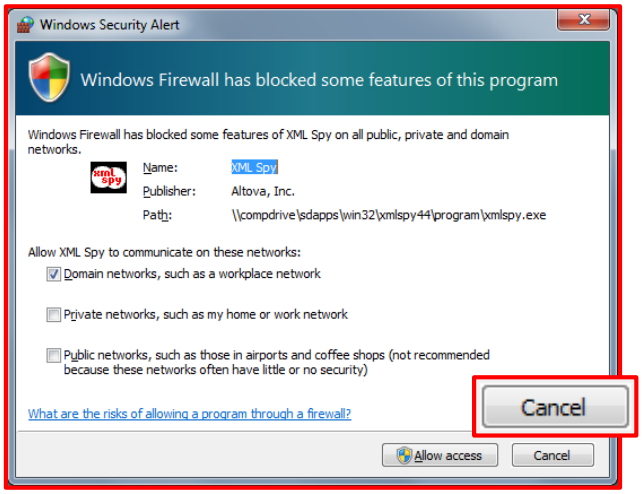


Figure 3 - Answer [Cancel]

Once the application, the User Interface looks like the following (*Figure 4*).

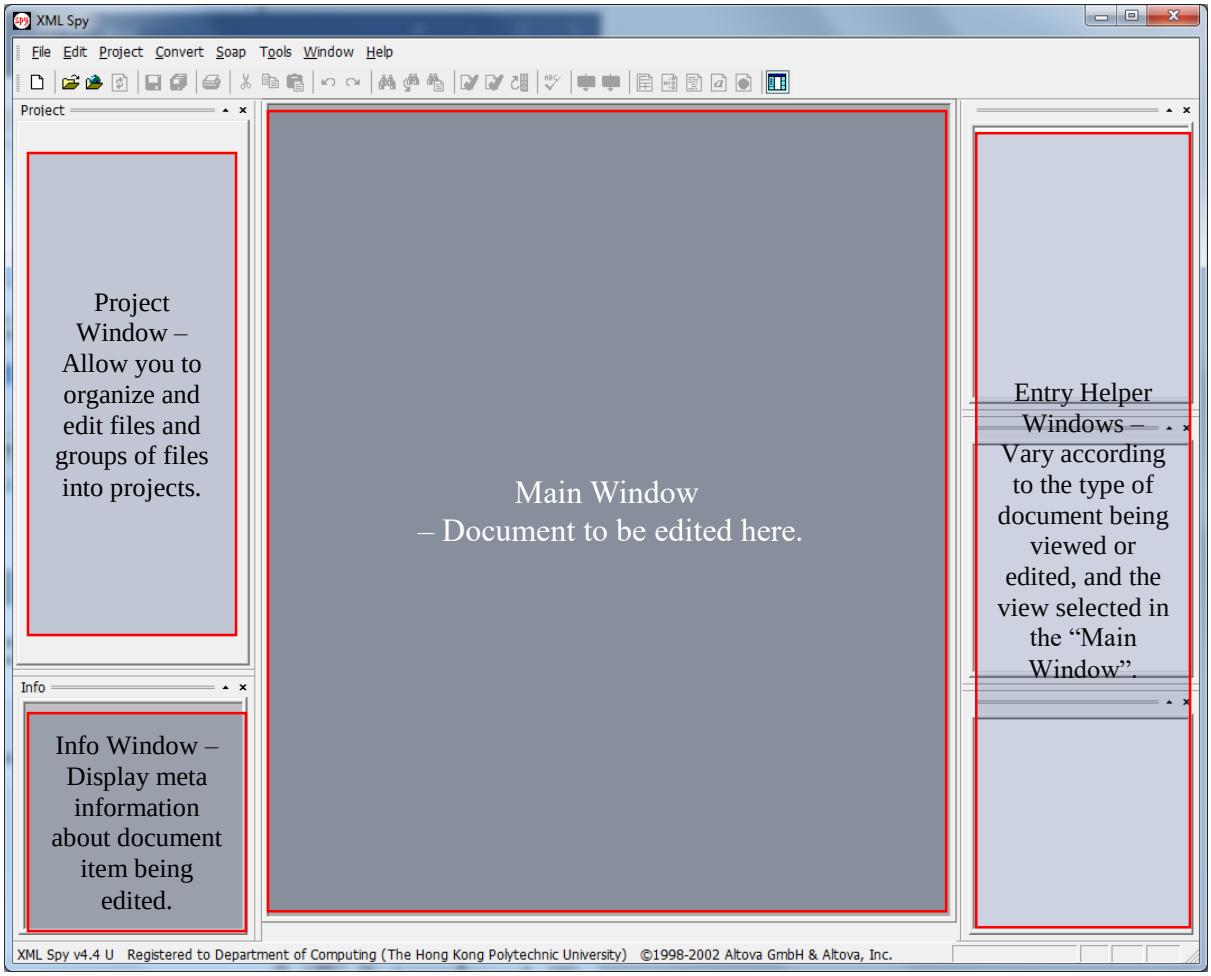


Figure 4 - XML Spy User Interface

Create New XML Schema File

From menu bar, click `[File]` → `[New...]`

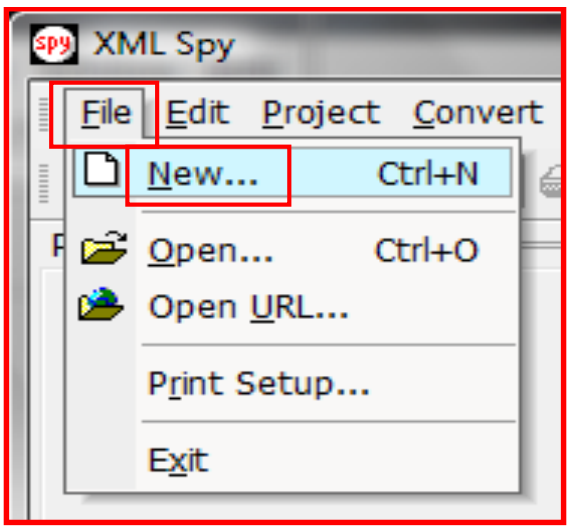


Figure 5 - New XML Schema File

Choose `[xsd W3C XML Schema]` → `[OK]` from the `[Create new document]` window.

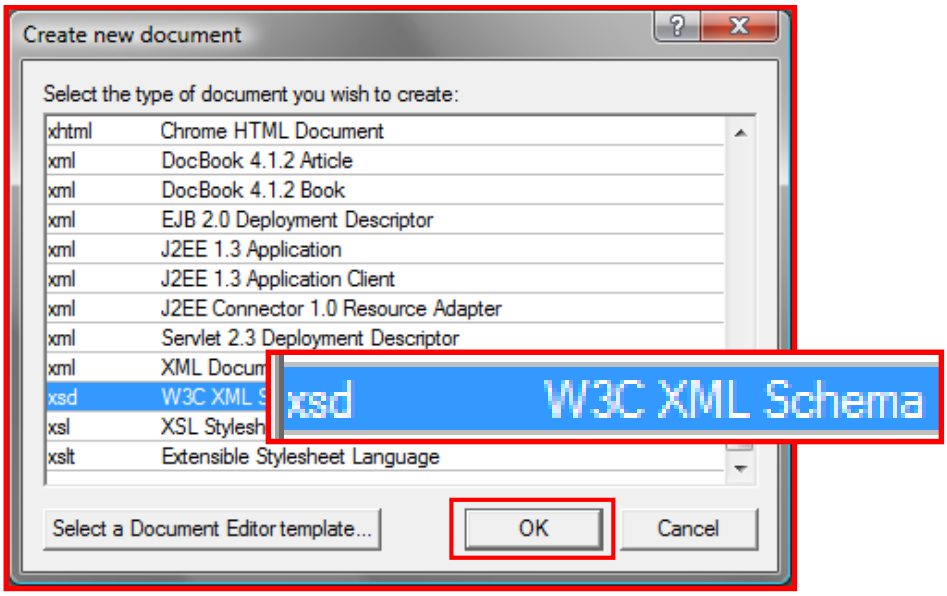


Figure 6 - Create New Document - XSD

The first thing is to define the `[Root]`, simply input `[Company]` for the name of element and enter `[Root Element]` in the `[ann:]` box as Figure 7.

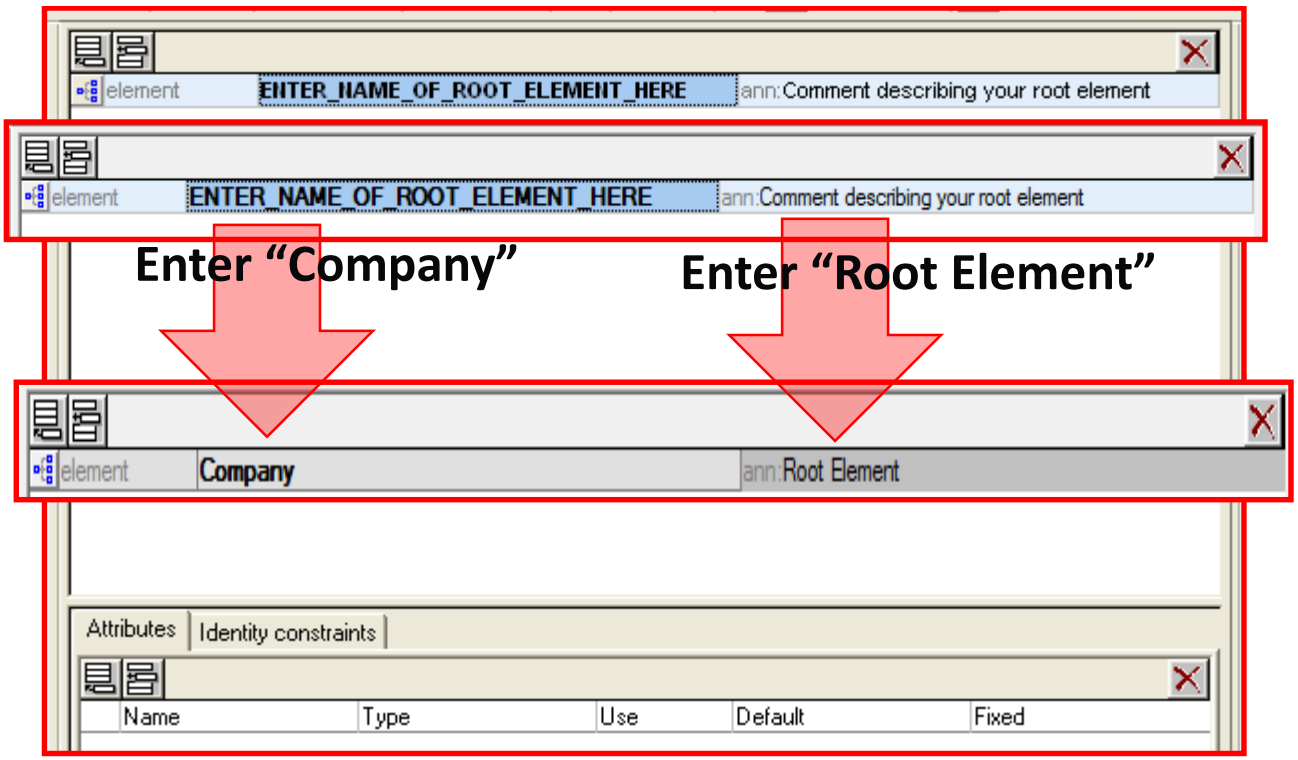


Figure 7 - Define the XML Root

Save the document under the folder `[comp5323]` with the name `[AddressFirst]`. Click `[File]` → `[Save]`.

Then, go back to the XMLSpy to define the `[Namespace]`.

Define Namespace

From menu bar, click `[Schema design]` → `[Schema settings]`. Check `[Target namespace:]` and enter `[http://my.company.com/namespace]` in the box. Click `[OK]` to close the window.

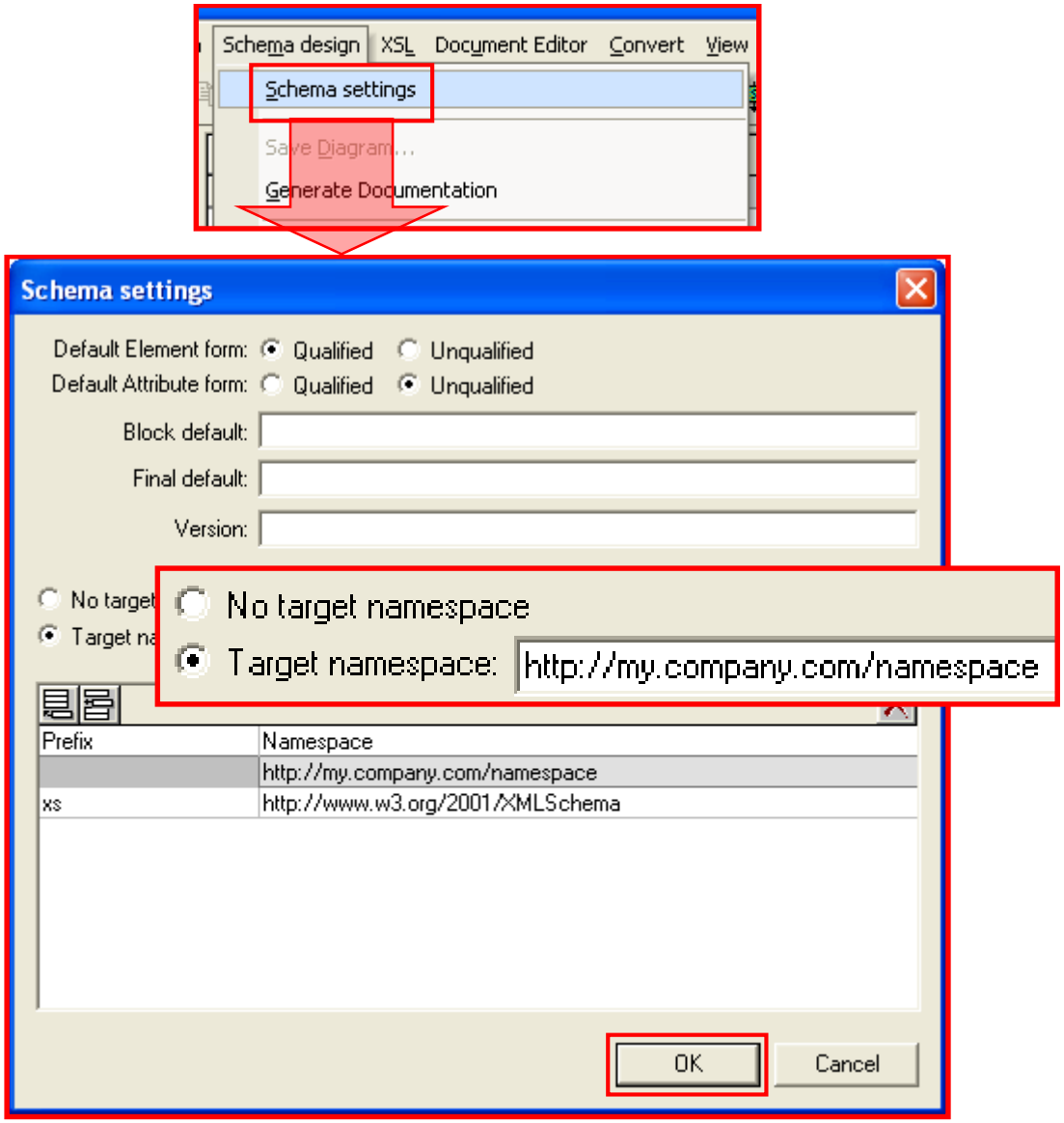


Figure 8 - Define Namespace

To change the view to a graphic interface, click the `[Display Diagram]` icon of the `[Company]` element, see Figure 9.

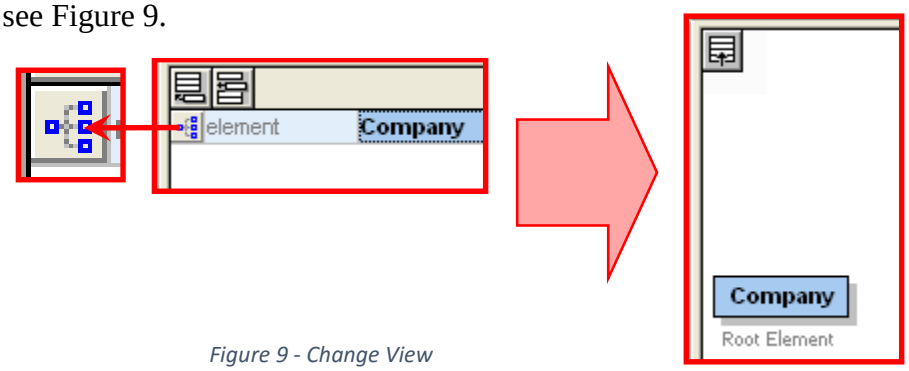


Figure 9 - Change View

Add Child Sequences and Child Elements

To add a sequence, place the mouse point over the root element `[Company]` and right click the mouse. From the sub-menu, choose `[Add child]` → `[Sequence]`

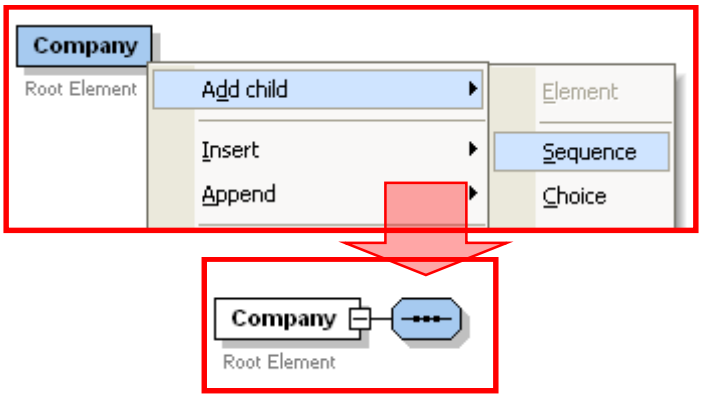


Figure 10 - Add Child Sequence

Then, right click the `[Sequence]` and choose `[Add child]` → `[Element]`. Name this element `[Address]`.

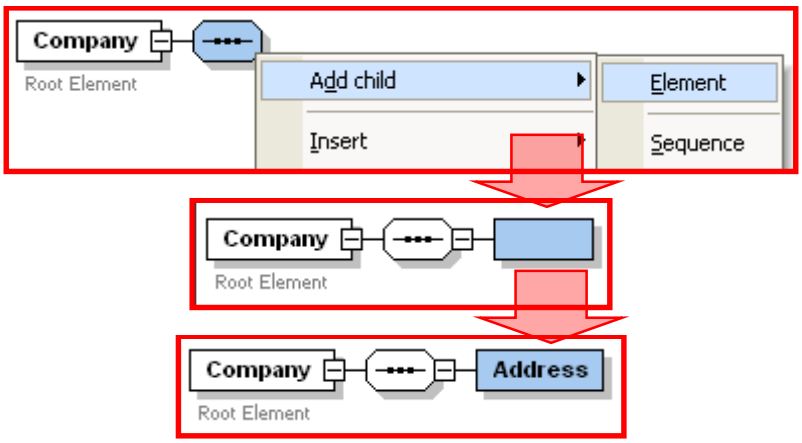


Figure 11 - Add Child Element – [Address]

Task 1 – Add a child `[Person]`

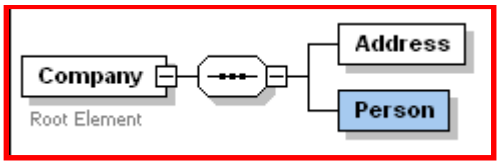


Figure 12 - Add Child - [Person]

Set Occurrence of an Element

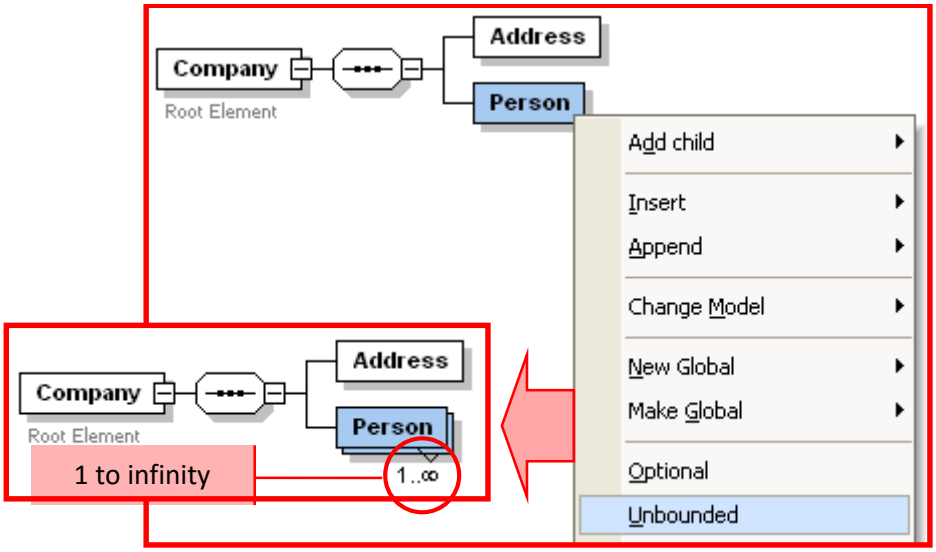


Figure 13 - Define the occurrence of an element

Add Additional Levels

Simply right click on selected element and choose `[Add child]` → `[Sequence]` as shown below.

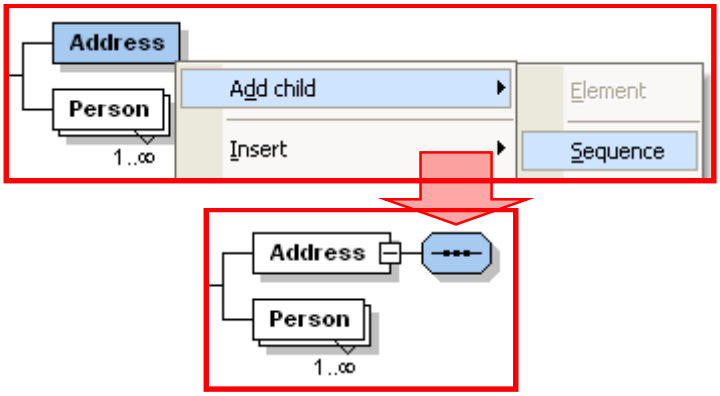


Figure 14 - Add additional child sequence

Right click on new added sequence and choose `[Add child]` → `[Element]`. Name this element as `[Name]`.

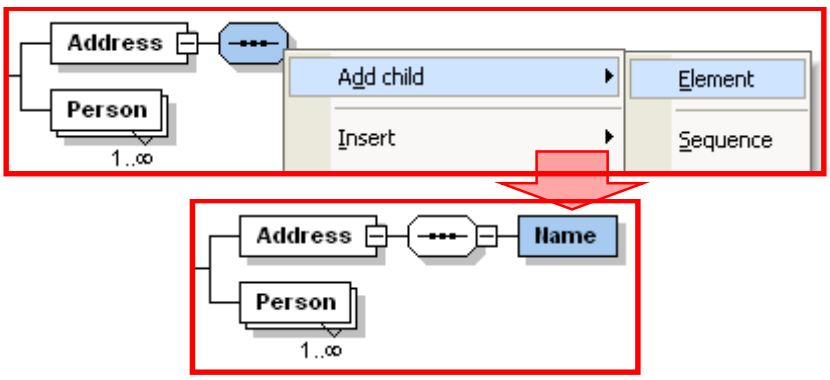


Figure 15 - Add additional child element

View Schema in Text Mode

From menu bar, `[View]` → `[Text view]` then the document is now in text mode.

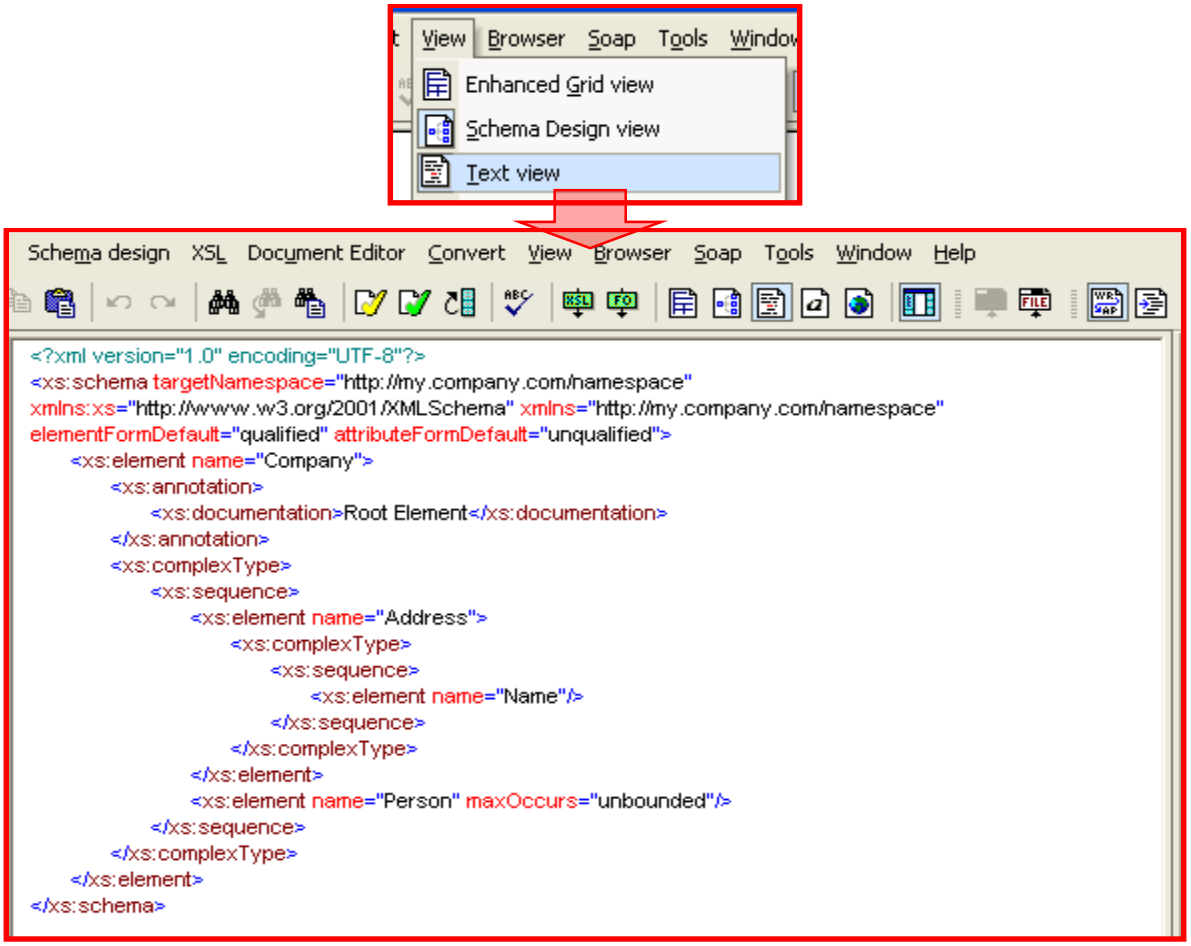


Figure 16 - Schema in text mode

To go back to the design mode, select `[View]` → `[Schema Design View]`.

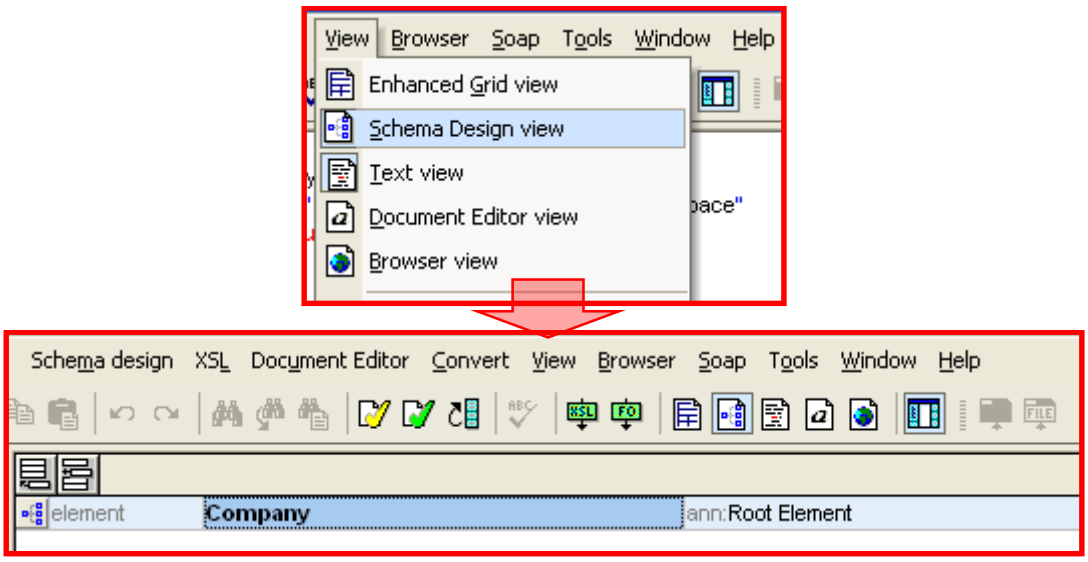


Figure 17 - Schema in design mode

Define Element Type

To specify a type of an element, first highlight the element which would be defined. Then, in the `[Details]` box, there is a row named `[type]`. Click open the combo box and choose `[xs:string]` from the list.

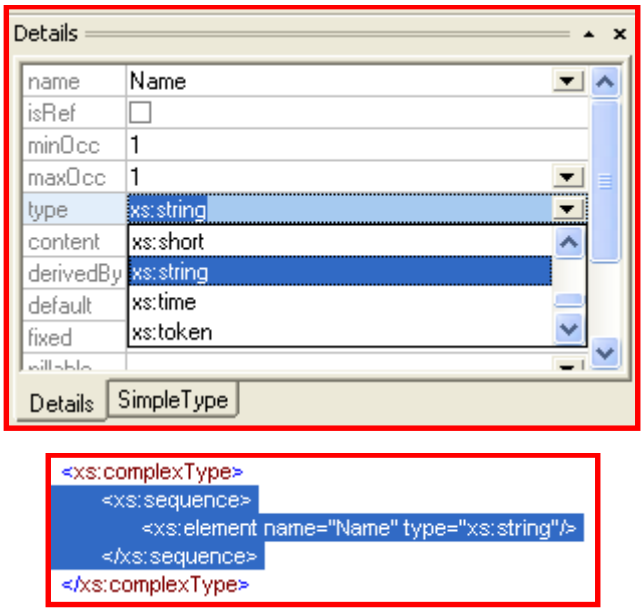


Figure 18 - Define element type and check it in Text Mode

Add Element with Drag-and-Drop

Highlight the element, say `[Name]` to be copied, hold down the `[Ctrl]` key. Then `drag-and-drop` the element box with the mouse pointer. Element `[Name]` is duplicated. Repeat it one more time and then rename the two duplicated elements as `[Street]` and `[City]`.

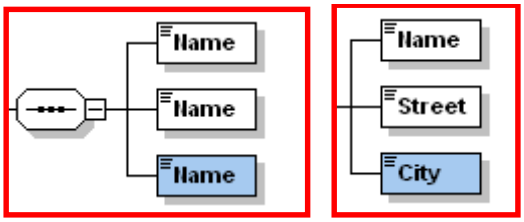


Figure 19 - Copy element with Drag-and-Drop

Configure Content Model View

From `[Schema design]` → `[View config]`.

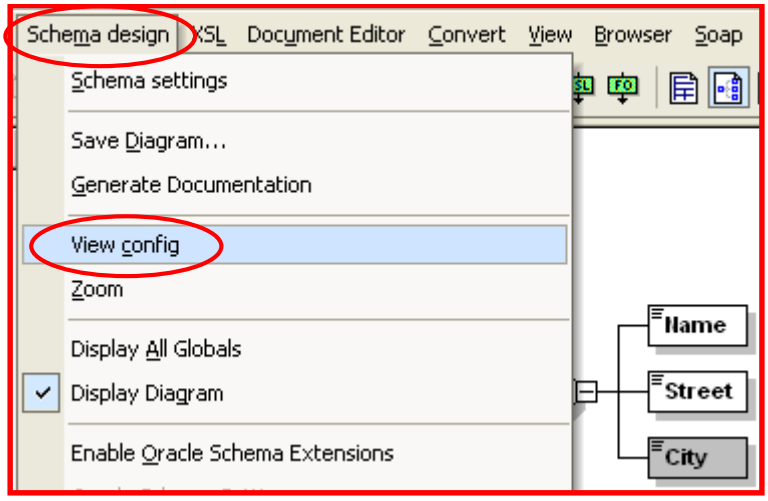


Figure 20 - Configure Content Model View

Click `[Append]` icon and then select `[Type]` from the drop down list.

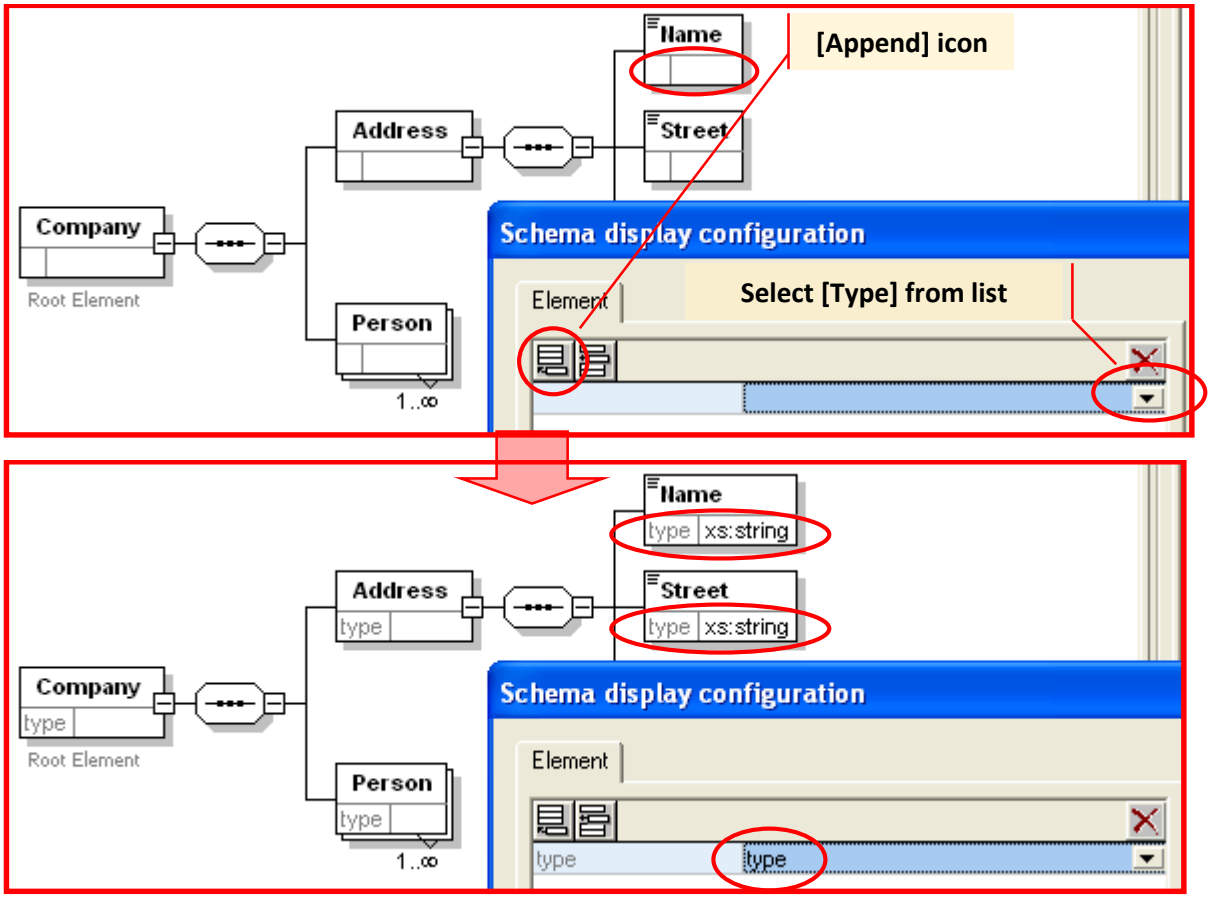


Figure 21 - Configure Content Model View

For those elements have been defined the element type, the element type is shown in the box.

Task 2 – Complete the schema with the following settings.

Add five more elements under `[Person]` as Figure 22.

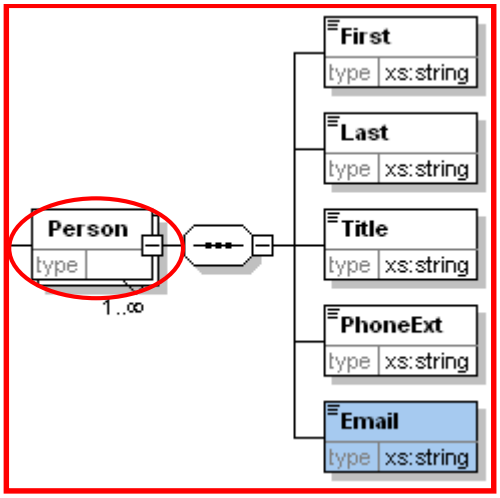


Figure 22 - Elements under [Person]

Make change of the occurrence of `[Title]`. Set the minimum occurrence to `[0]`. Simply right click on `[Title]` and choose `[Optional]`. The change is done.

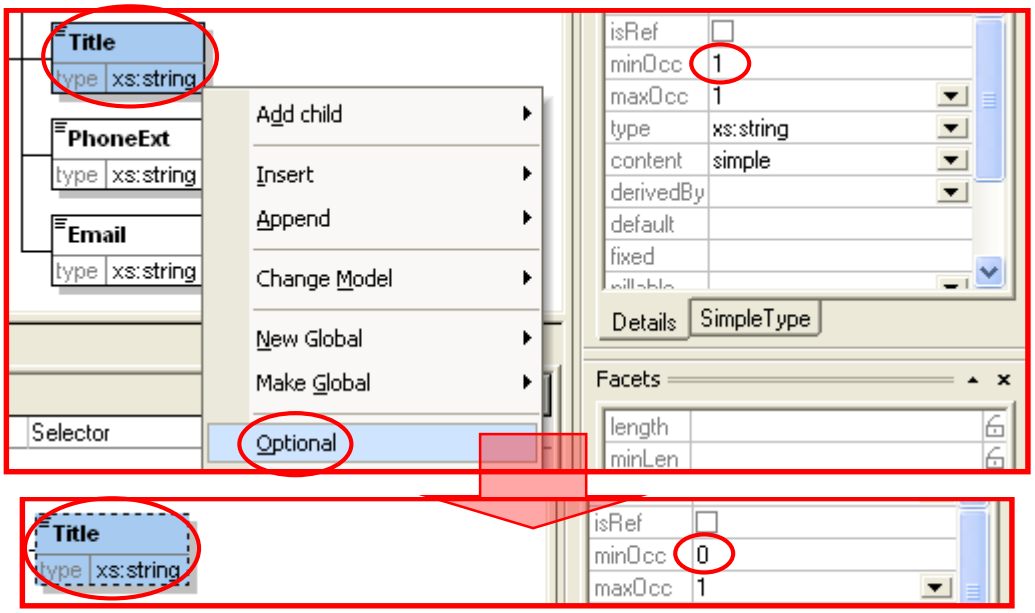


Figure 23 - Change the occurrence

Set type of `[PhoneExt]` to `[xs:integer]`. See Figure 24.

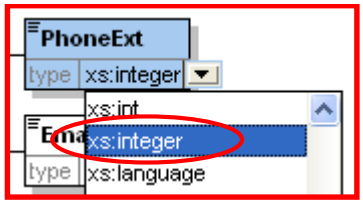


Figure 24 - Change element type of PhoneExt

In addition, set the maximum value of the element to `[99]`. On the right hand side, in `[Facets]` box, enter `[99]` in `[maxIncl]` box.

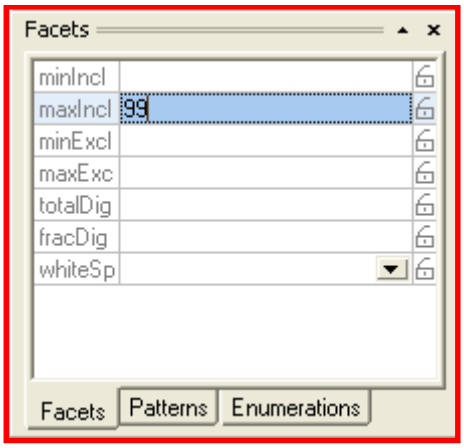


Figure 25 - Set maximum value

Complex Type

To create a complex type in XML, it is simply to go to the element which would be used as the new defined element type. Here, `[Address]` would be used. Right click on `[Address]`, select `[Make Global]` → `[Complex type]`. Then, the graph is modified automatically, see Figure 26.

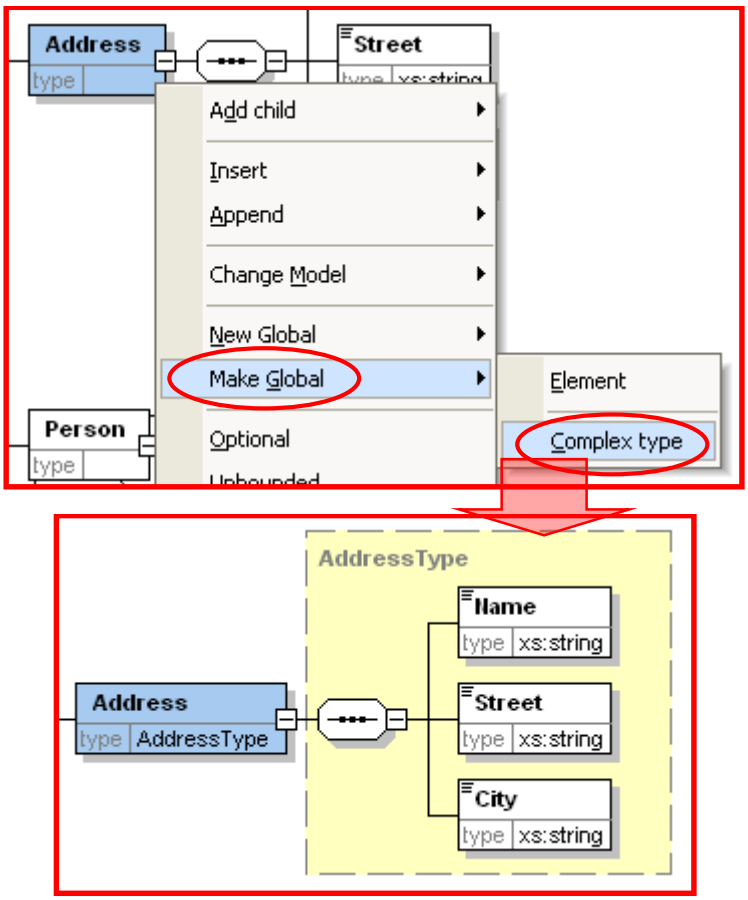


Figure 26 - Create Complex Type

From Schema design view, a new row of `[complexType]` is added (as shown in Figure 27).

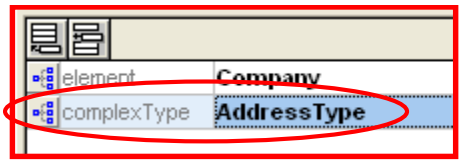


Figure 27 - New complex type row added

Create US-Address

Click `[Append]` icon, select `[Complex Type]` and name it `[US-Address]`.

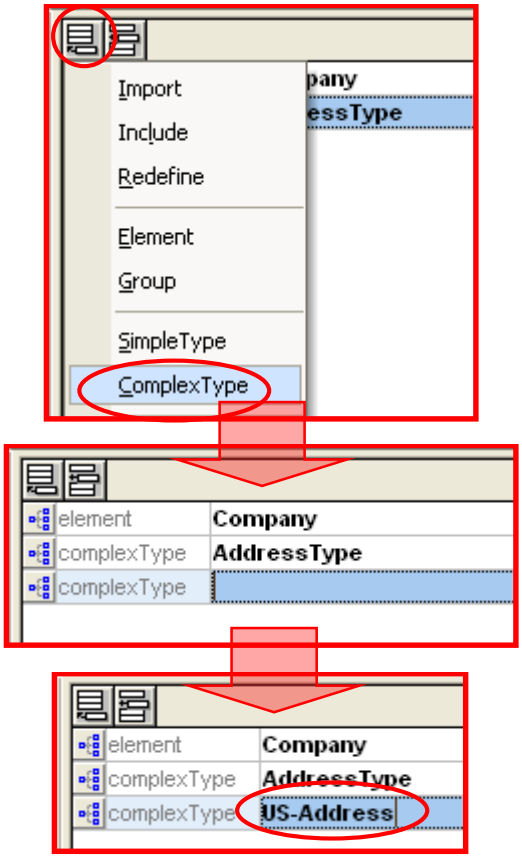


Figure 28 - Add [US-Address]

In `[Details]` box, choose `[AddressType]` for the row `[base]`.

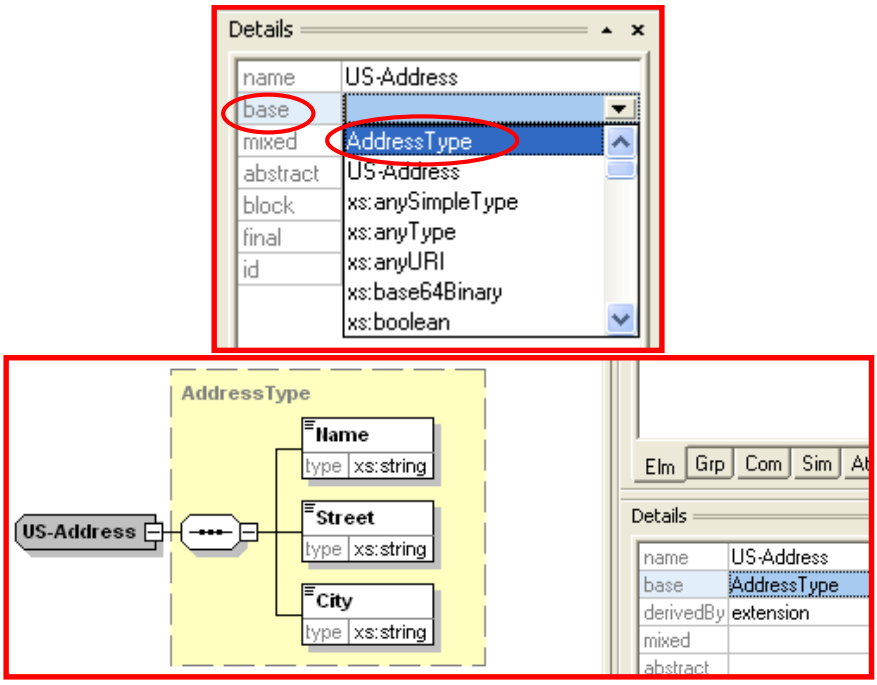


Figure 29 - Use [AddressType] for [US-Address]

Add more elements for `[US-Address]`. First to add a sequence and then add an element, `[Zip]` and set the `[type]` to `[xs:positiveInteger]`.

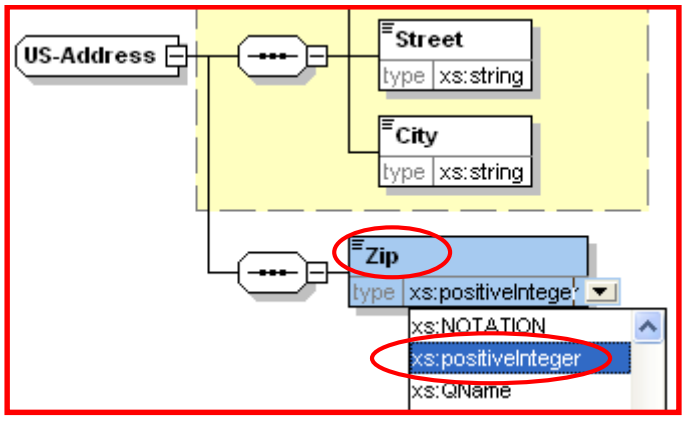


Figure 30 - Add element [Zip]

Create Simple Type

From Schema Design view, click `[Append]` icon, choose `[Simple Type]` and name it `[US-State]`.

In `[Details]` box, set `[restr]` to `[xs:string]`.

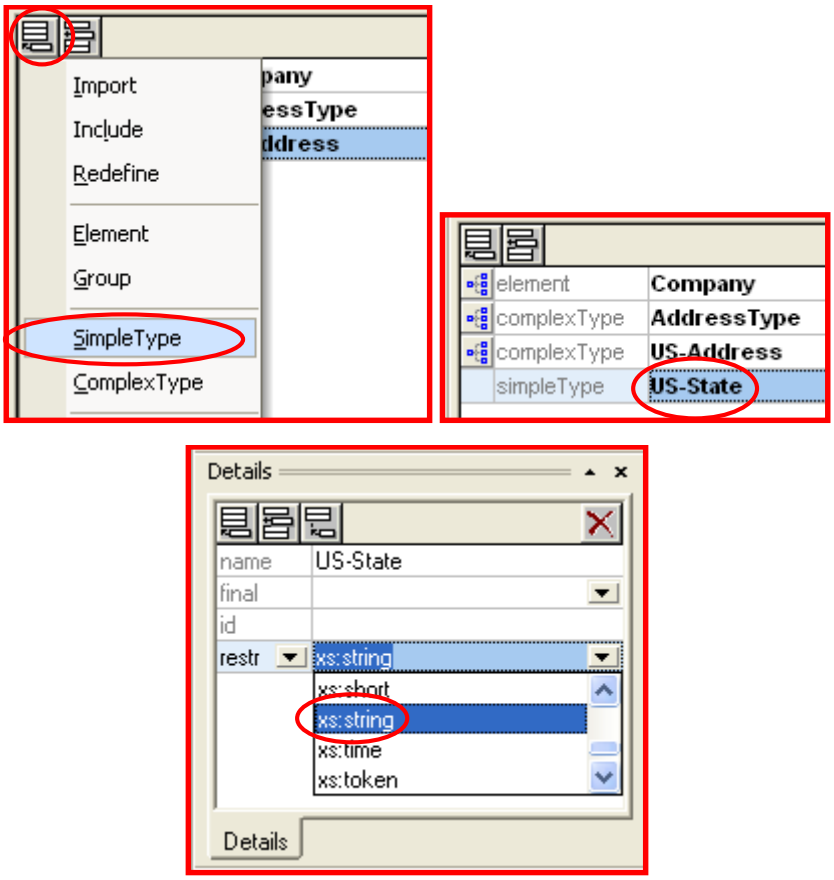


Figure 31 - Add Global Simple Type [US-State]

Go back to `[US-Address]`, add a new element `[State]` and use `[US-State]` as the element type as shown in Figure 32.

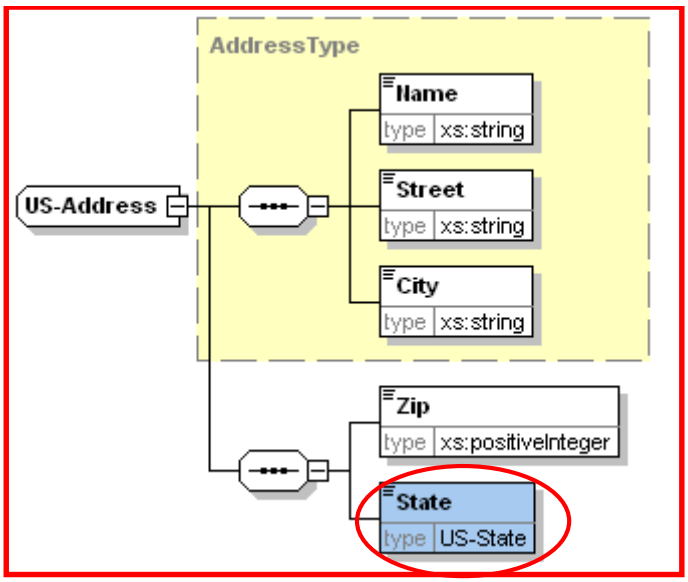


Figure 32 - Add [State] in [US-Address]

Task 3 – Create a `[Complex Type]` and name it `[UK-Address]`, see Figure 33.

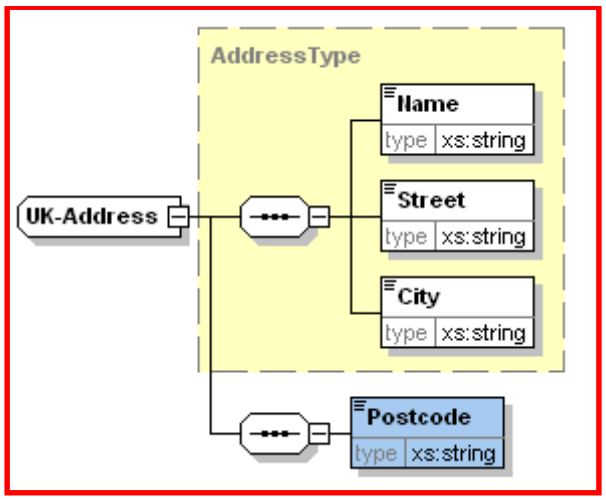


Figure 33 - UK-Address

Reference Global Element

Right click element `[Person]` → `[Make Global]` → `[Element]`.

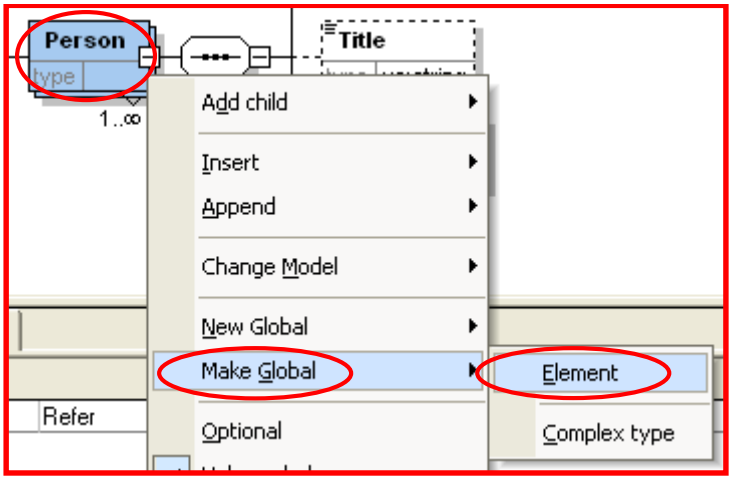


Figure 34 - Make global element

Check element `[Person]`, there is a small arrow added. It indicates that the element now references the globally declared `[Person]` element. Go to the schema design view, a new row of element is added which is `[Person]`. In addition, it is also added to the `[Components]` box.

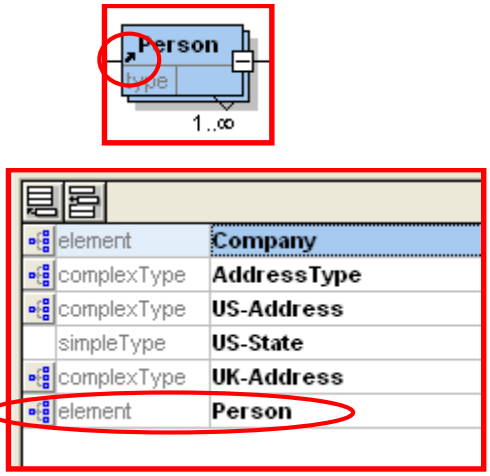
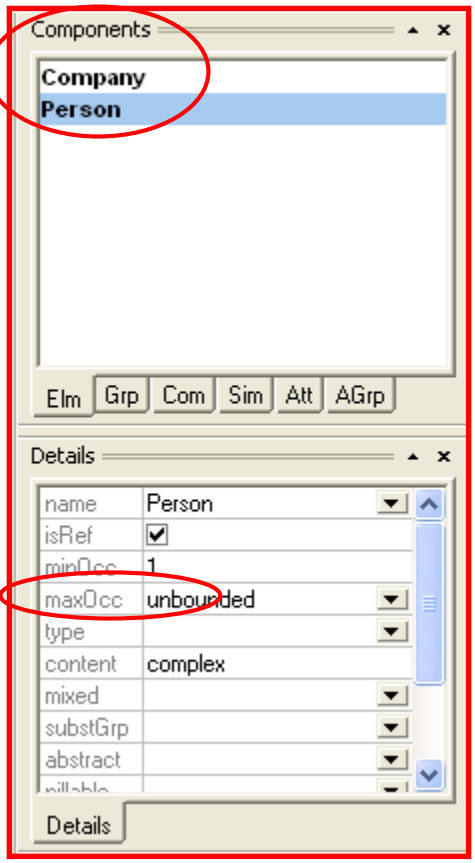


Figure 35 - Reference element [Person]



Create Attributes and Attribute Enumerations

Highlight `[Person]`. Choose `[Attributes]` tag and click `[Append]` → `[Attribute]`.

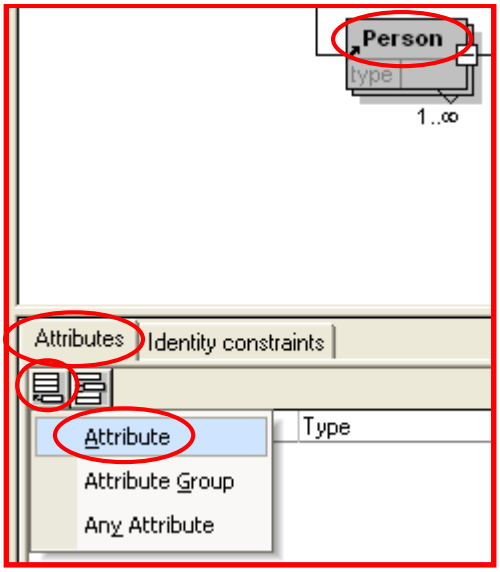


Figure 36 - Create Attribute

Name the attribute, `[Manager]`,

set `[Type]` to `[xs:boolean]`

and `[Use]` to `[required]`.

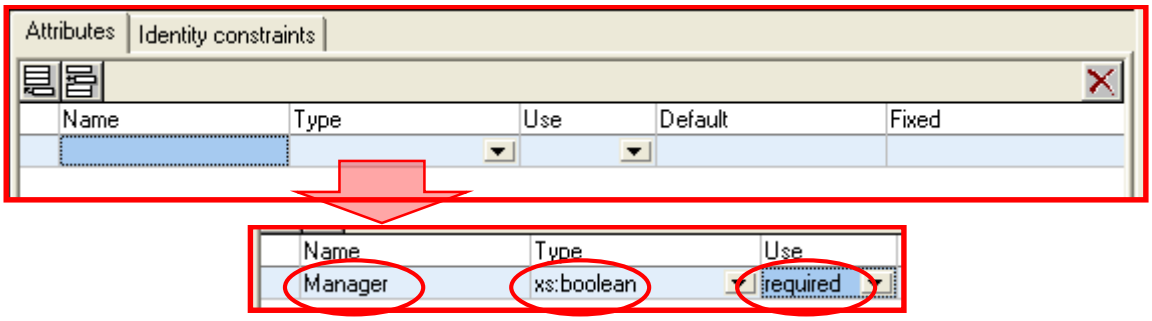


Figure 37 - Create attribute [Manager]

Repeat steps to create attribute `[Programmer]`. Then add one more attribute `[Degree]`. For `[Degree]`, set `[Type]` to `[xs:string]`. For `[Use]`, go to `[Facets]` box and set values `[BA]`, `[MA]` and `[PhD]` in `[Enumerations]` tag.

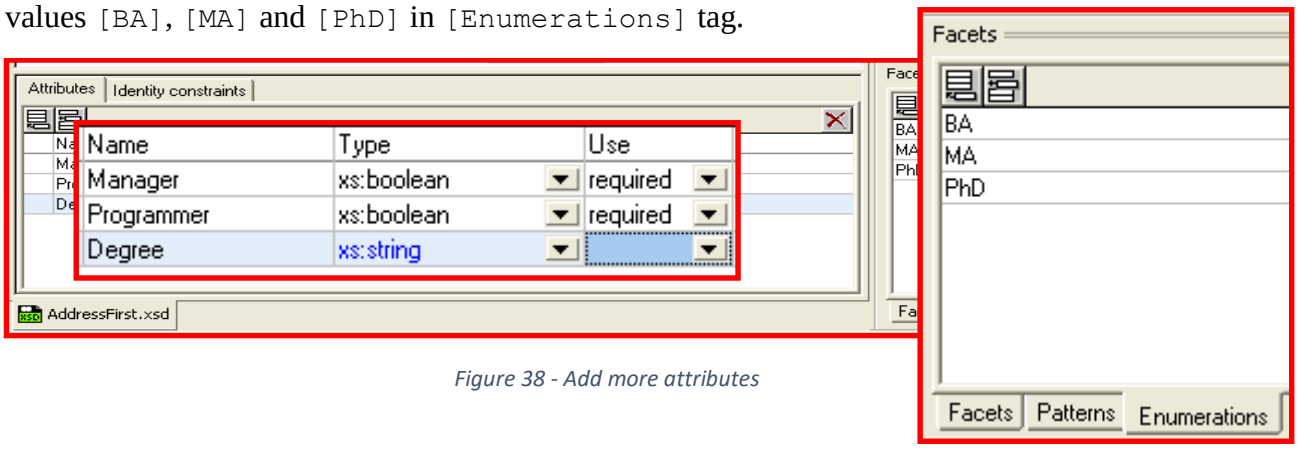


Figure 38 - Add more attributes

Time to save the work done. Take a look to see whether or not the following appears in your schema design.

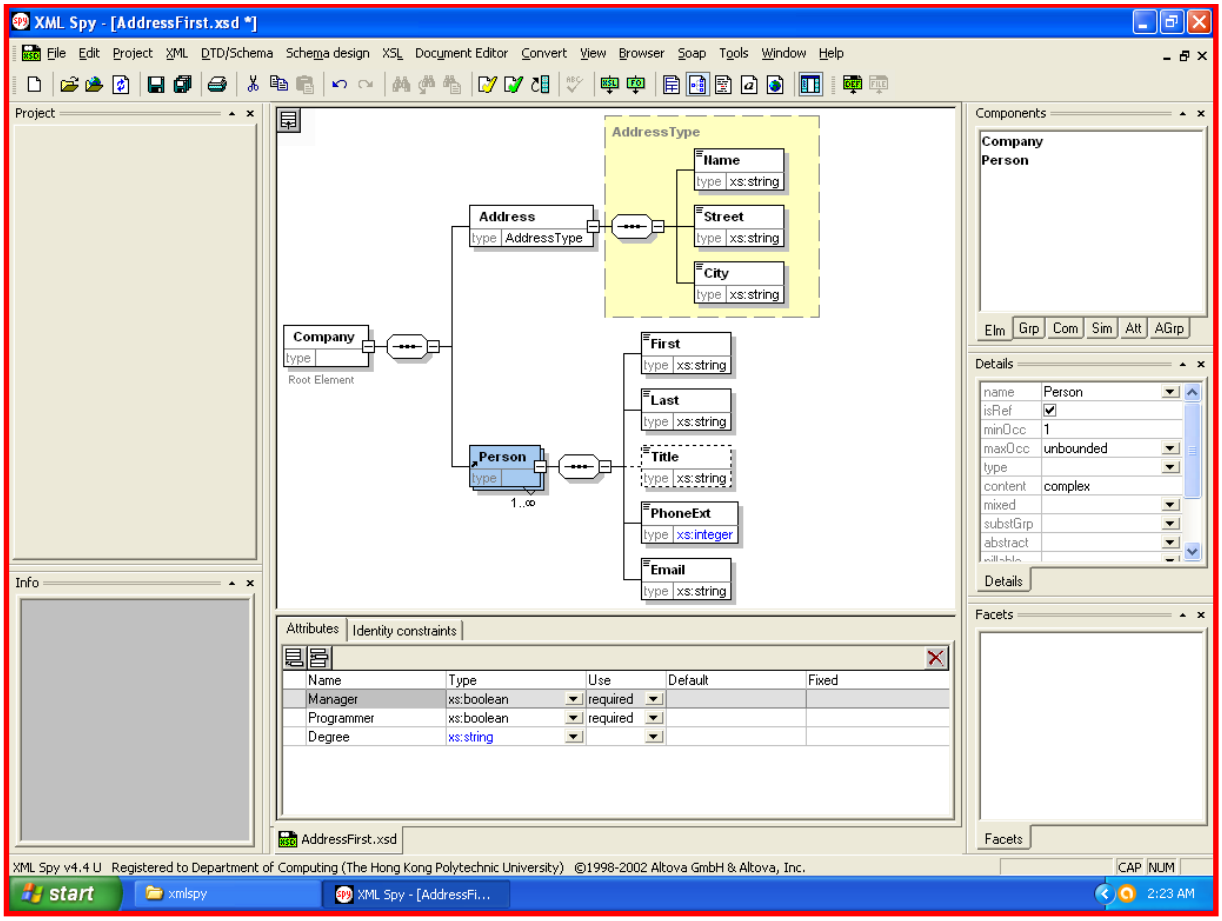


Figure 39 - Schema Design of FirstAddress

Schema Documentation

XMLSpy generates documentation automatically. From menu bar `[Schema design]` → `[Generate Documentation]`, here a `[HTML]` document would be generated. A dialogue box appears, check `[HTML]` for `[Output format]`. For the rest, they are the options that would be included in the document. They can be unchecked if they are not needed in the document. Simply save it as `[FirstAddress.html]`.

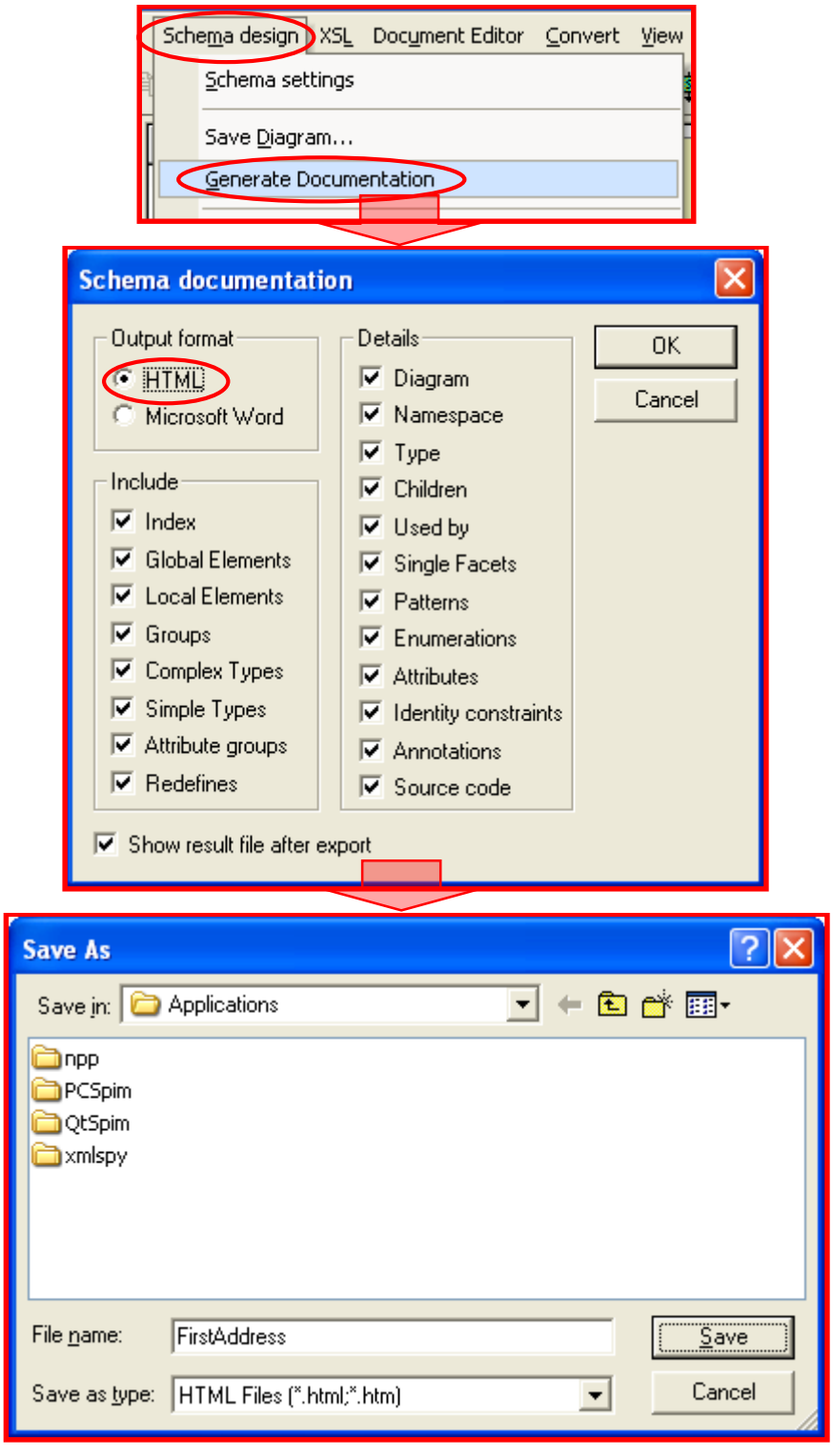


Figure 40 - Generate a HTML document

Take a look at the generated document `[FirstAddress.html]`, see below.

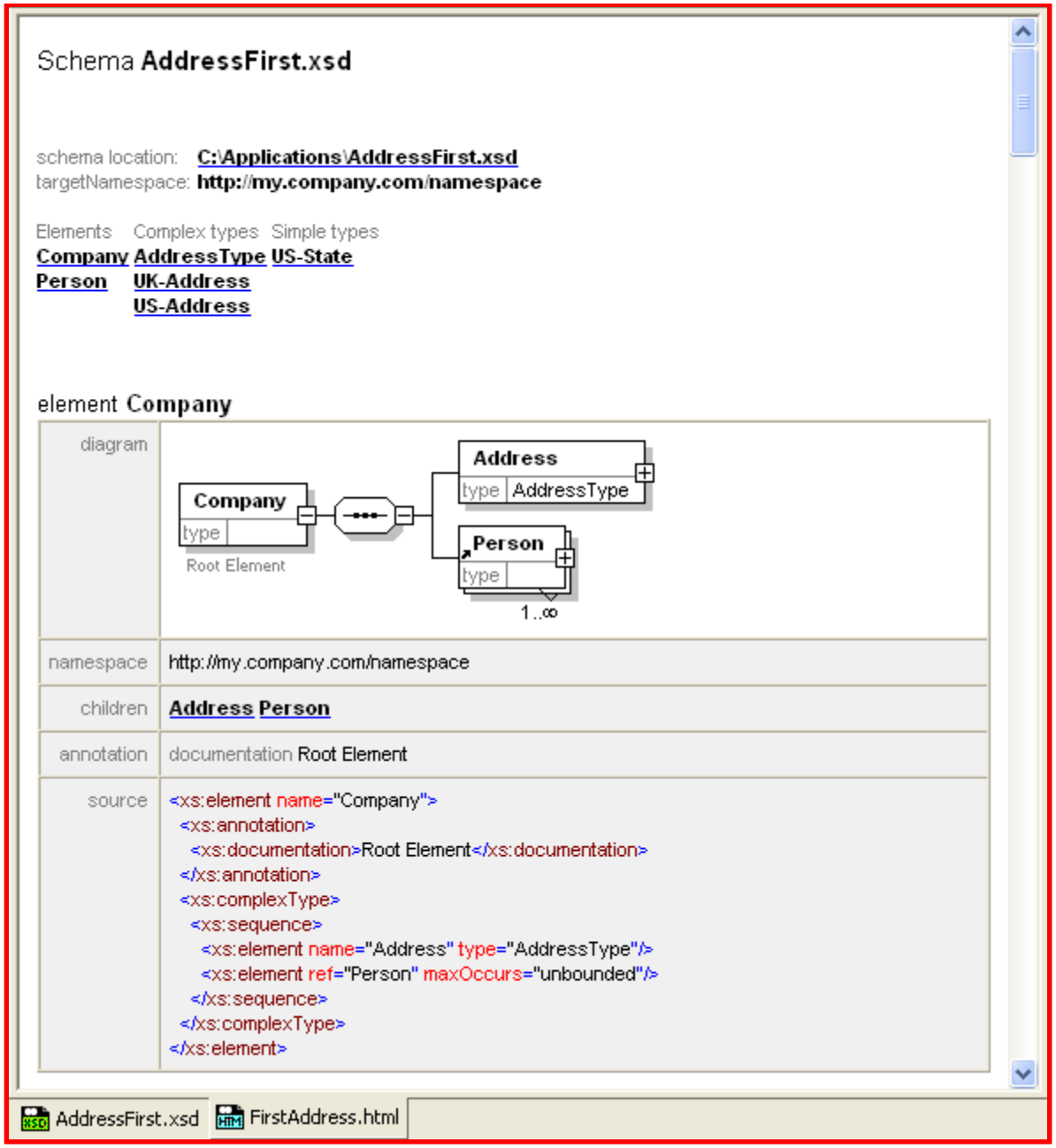


Figure 41 - FirstAddress.html document

Create XML File

Create an XML document based on the schema `[AddressFirst.xsd]` just created. Click `[File]` → `[New]` → `[XML Document]` and then `[OK]`.

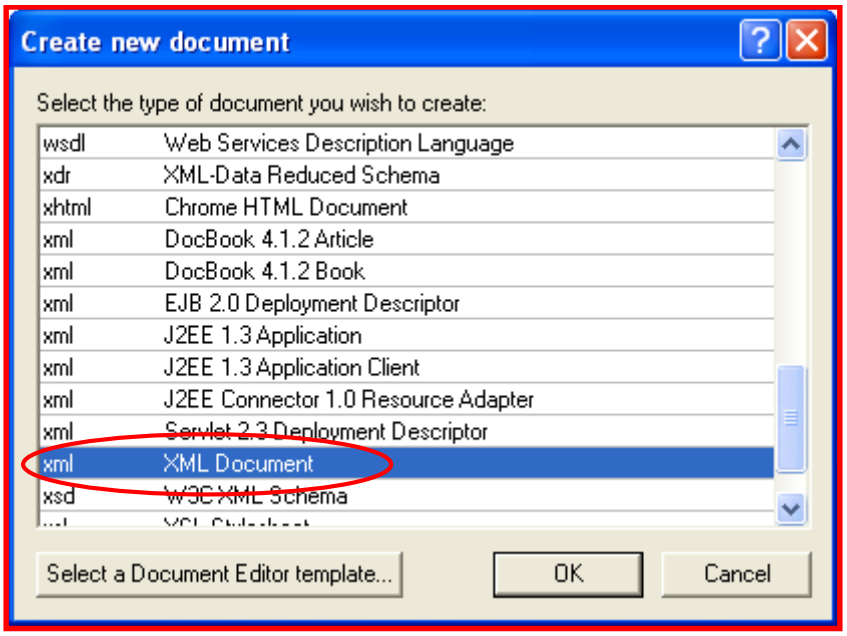


Figure 42 - Create XML Document

Check `[Schema]` → `[OK]`. Then, locate the schema file `[AddressFirst.xsd]` which has just saved.

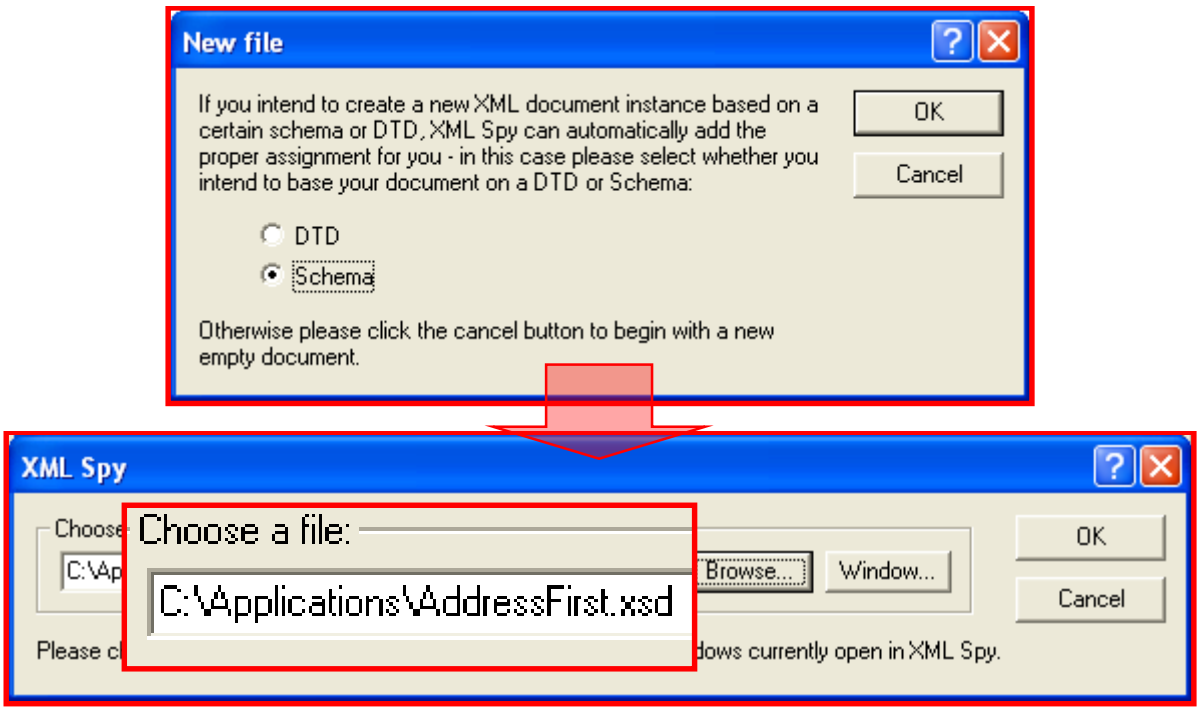


Figure 43 - Locate the schema file

The new XML document may look like the following.

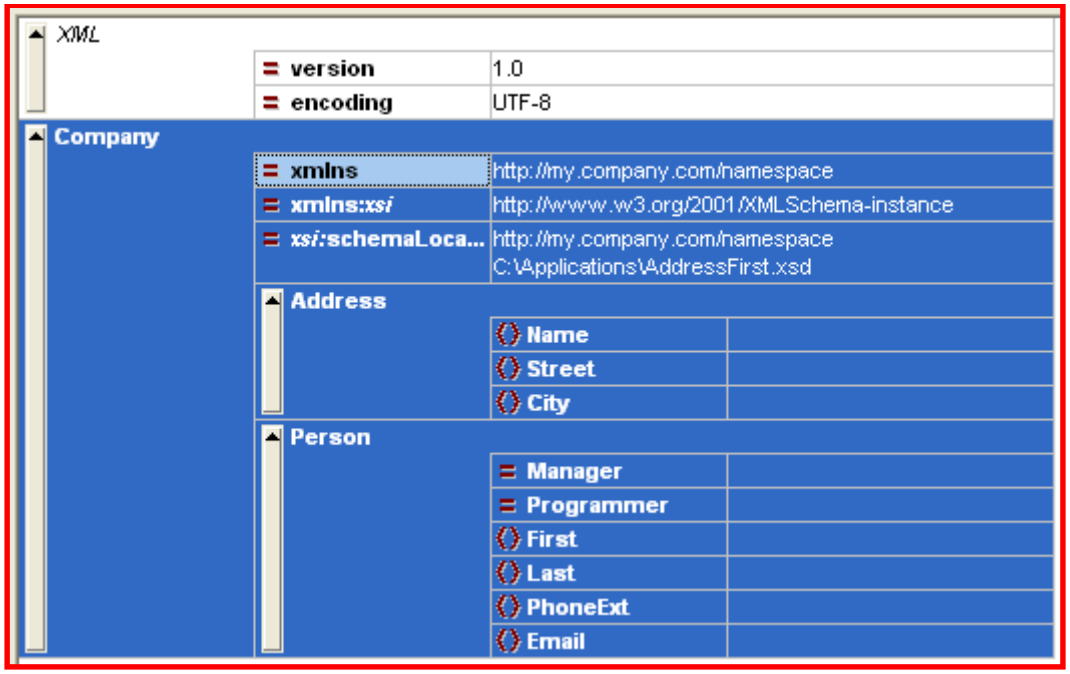


Figure 44 - New XML document

Add Attribute to Existing Document

Right click `[Name]` → `[Insert]` → `[Attribute]`. A new row `[xsi:type]` is added. Enter `[US-Address]` in this row. Also, enter `[US dependency]` for `[Name]`, `[Noble Ave]` for `[Street]` and `[Dallas]` for `[City]`.

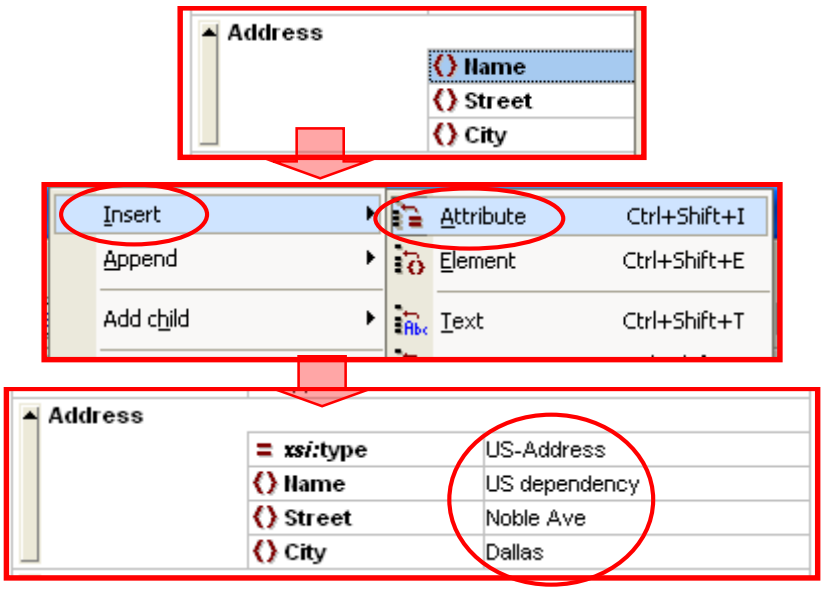


Figure 45 - Create attribute and enter values

In XMLSpy, there are tools to check the correctness of the document. See Figure 46, the two icons are to check the `[well-formed]` and `[valid]` of current XML document.

Figure 46 - Menu bar Icons

Click the icons to check the document

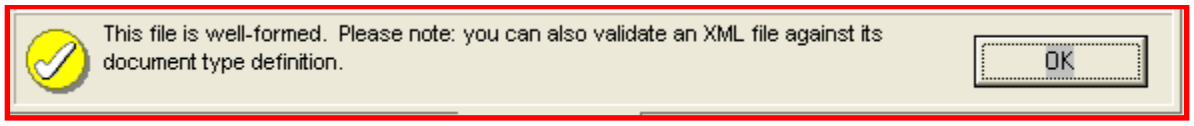


Figure 47 - Document is well-formed

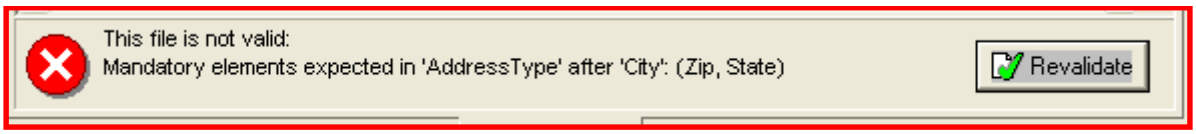


Figure 48 - Document is not valid

As the document is not valid, there is something wrong. Find that in `[Elements]` box, there is an exclamation mark in front of `[Zip]`. Simply double click that element, `[Zip]` is added to the `[Address]`. Then, it is `[State]`. Finally, it may look like Figure 49. Enter `[04812]` for `[Zip]` and `[Texas]` for `[State]`.

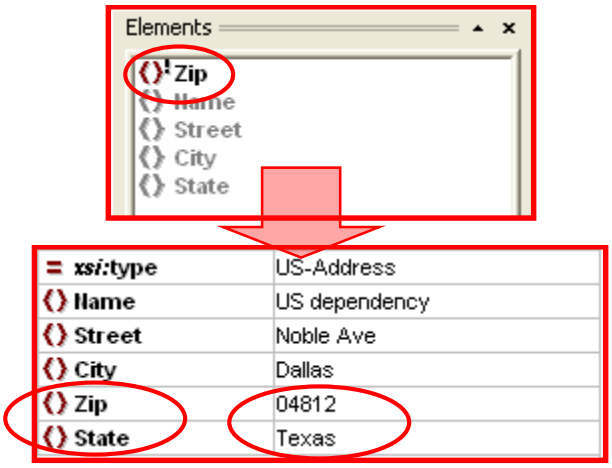


Figure 49 - Complete Address

Enter value in text mode is another function of the XMLSpy. For example, enter a letter `[t]` for `[Manager]`, it automatically appears the options of `[true]` or `[false]` with `[true]` highlighted. Similarly, enter `[f]` for `[Programmer]`, `[false]` is highlighted.

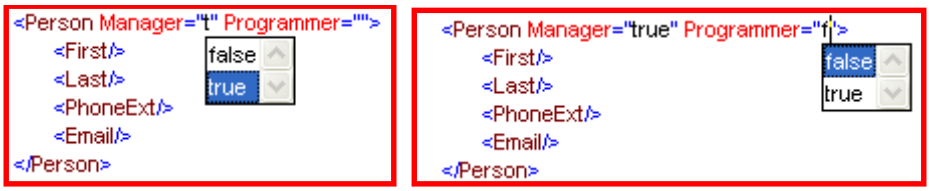


Figure 50 - Enter value in text mode

As [Degree] has no setting under [Use], it does not appear automatically in the text mode. It is simply to press a space in [Person], [Degree] appears. Then type a [b], [BA] is highlighted in the list. Select it.

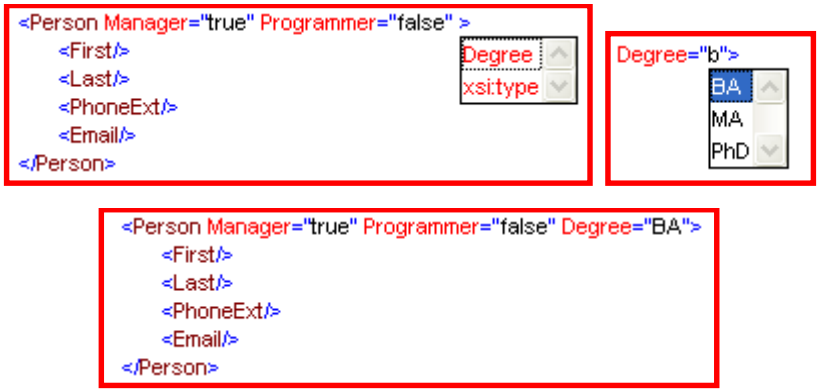
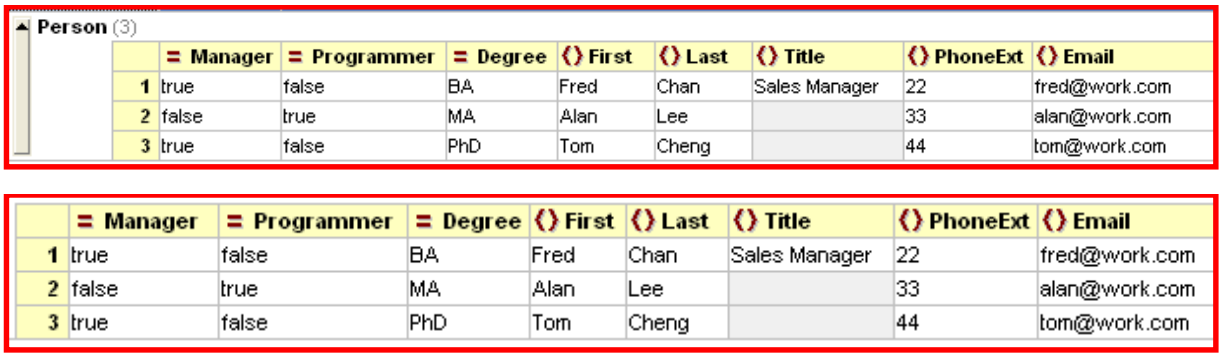


Figure 51 - Insert [Degree] to [Person]

To complete the entry, enter [Fred] for [First], [Chan] for [Last], [22] for [PhoneExt] and [fred@work.com] for [Email].

Figure 52 - Complete the entry of [Person]

Task 4 - Add two more records as follows.



Person (3)

	Manager	Programmer	Degree	First	Last	Title	PhoneExt	Email
1	true	false	BA	Fred	Chan	Sales Manager	22	fred@work.com
2	false	true	MA	Alan	Lee		33	alan@work.com
3	true	false	PhD	Tom	Cheng		44	tom@work.com

Figure 53 - Complete document

Check once again the document to get the following results. Save the document as [Company-org.xml].

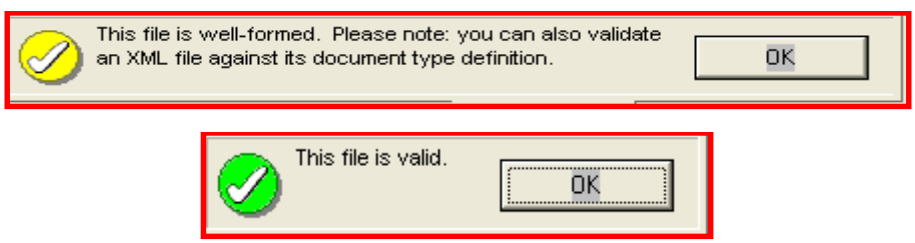


Figure 54 - Document is well-formed and valid

Create XML File from Database File – Microsoft Access

From menu bar, [Convert] → [Create Database Schema] .

Then, check [Microsoft Access database] and click [Choose file] button to locate the database file [DB2schema.mdb]. Click [Open] and then [OK].

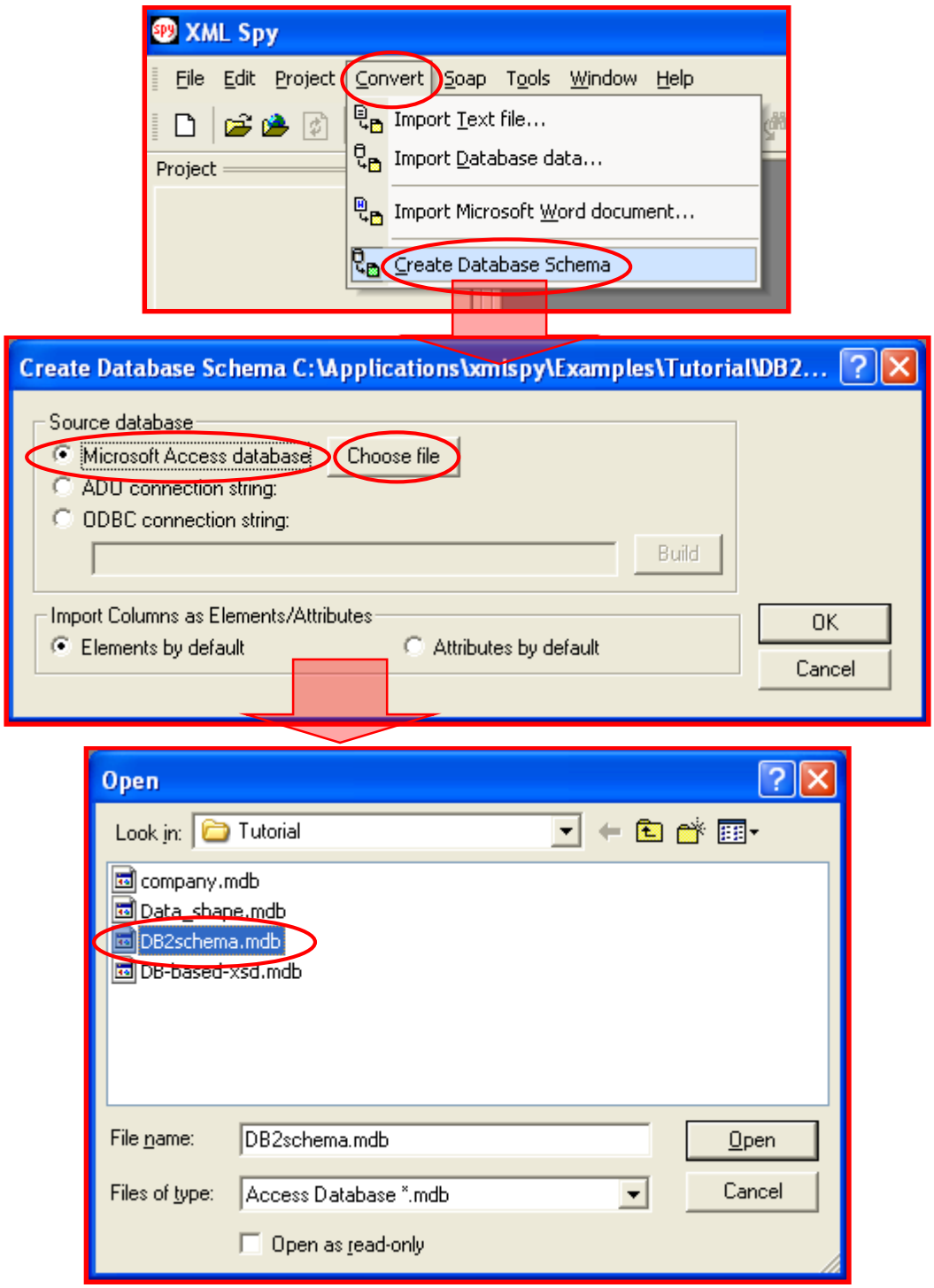


Figure 55 - Import database file as schema

The four tables in `DB2schema.mdb` are now converted to four elements in the XML schema.

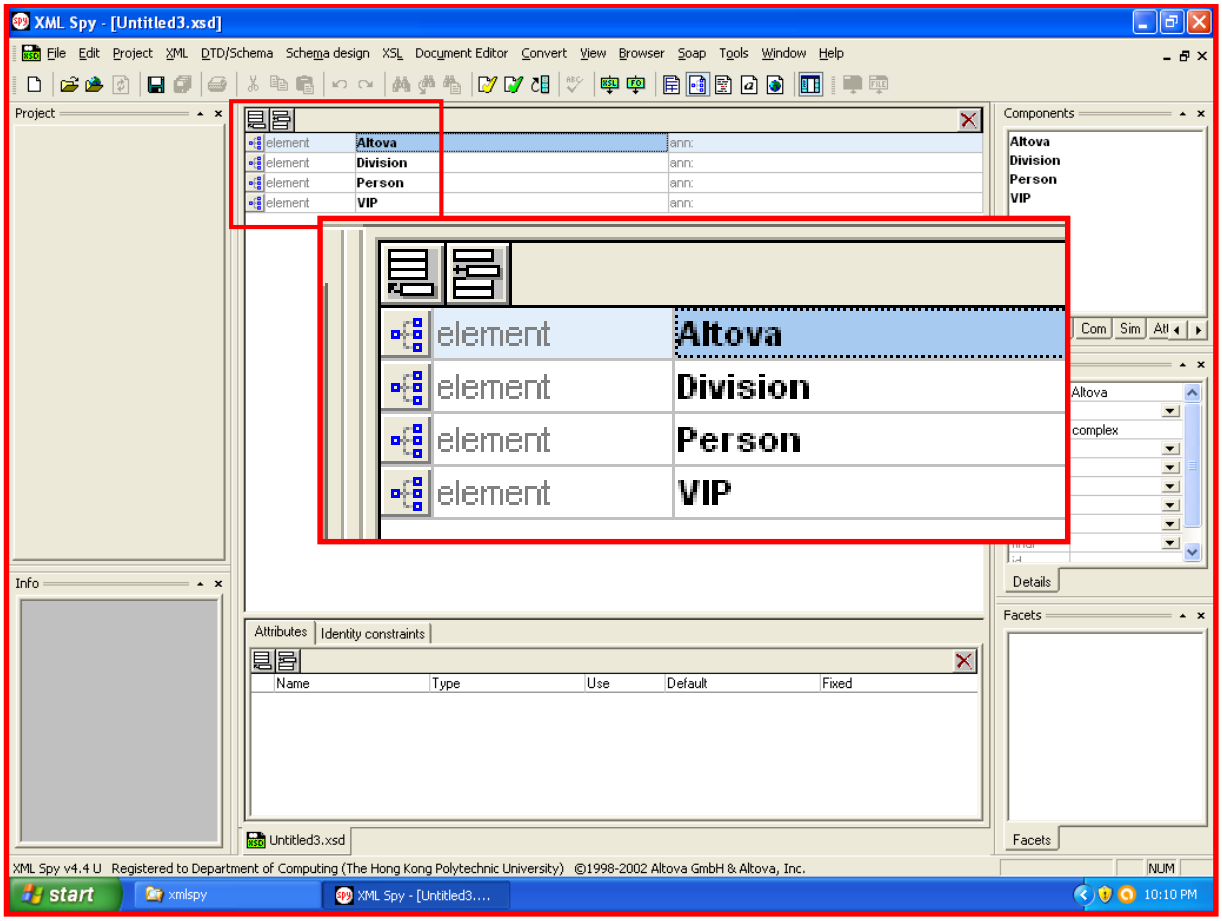


Figure 56 - Imported database

Highlight element `[Division]`.

Change the tag to `[Identity constraints]`.

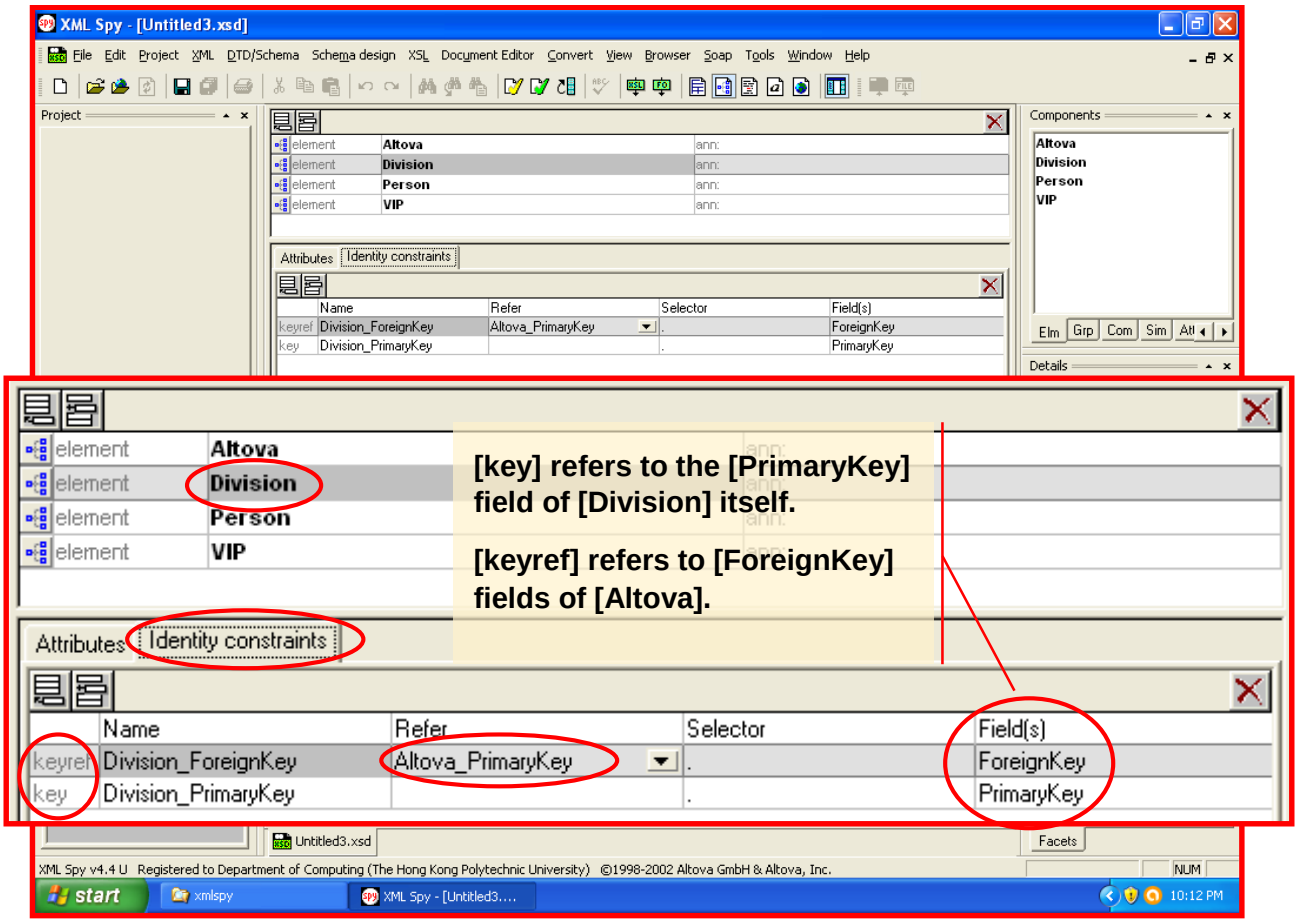


Figure 57 - Content of [Division]

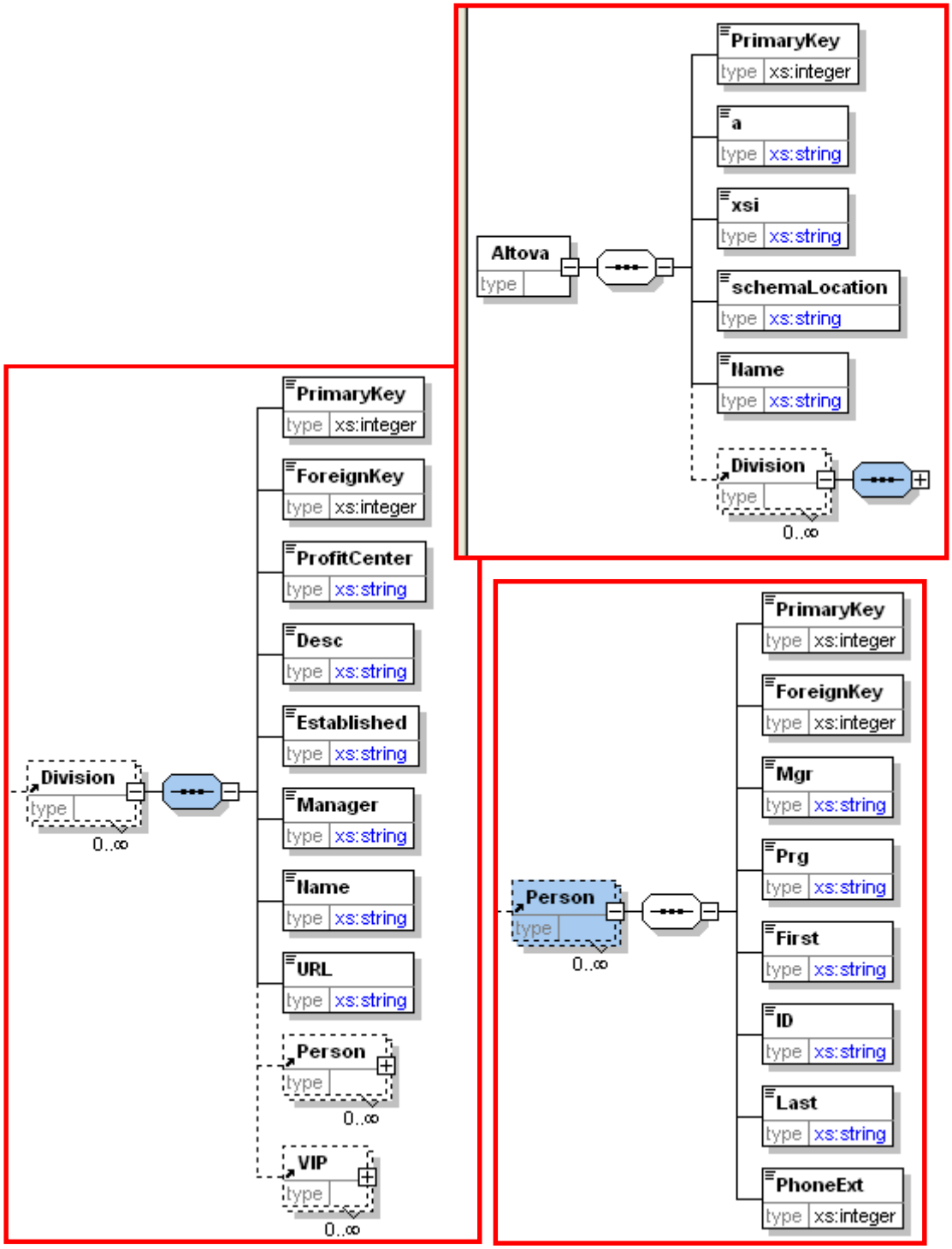


Figure 58 - Navigate the content of element [Altova]

Task 5 – Can you tell how the `[key]` and `[keyref]` being used in the XML schema to replace the primary key and foreign key in the original database?