CREATING A LIST REPORT:

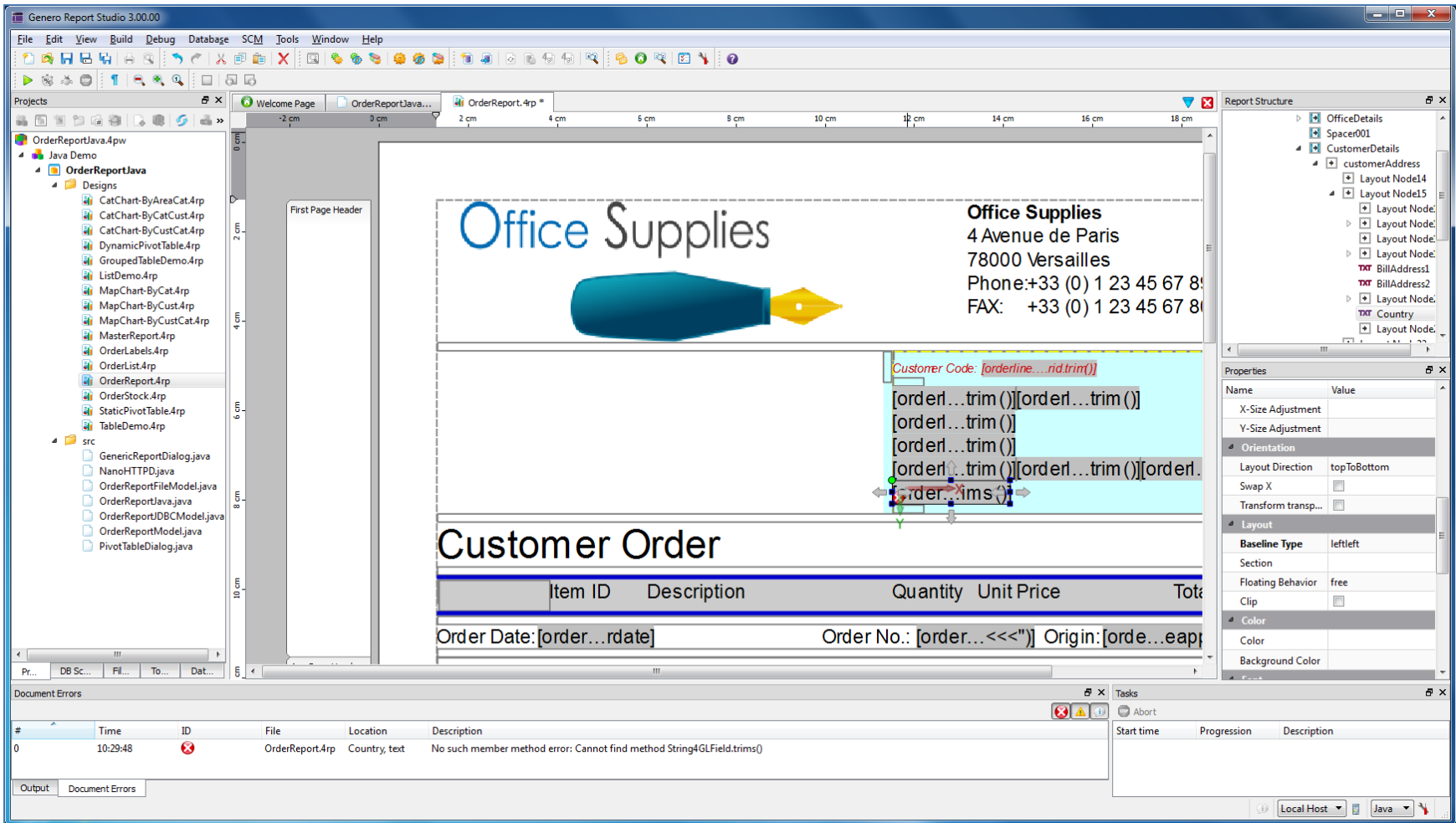## AN INTRODUCTION TO THE GENERO REPORT DESIGNER

Using Genero Report Writer

GRS 3.00

After this instruction, you will be able to:

- Create a report using Genero Report Designer

- Associate a data schema (.xsd) with a report

- Organize the structure of a report

- Use the List Report template when creating a report

- GRD is the tool to edit .4rp files from within Genero Report Studio
  - From the project view
    - double-click a .4rp
    - right-click a .4rp and select Open .4rp report
    - right-click an application, library, or virtual folder node and select New File >> Reports >> Empty Report (.4rp)
    - Right-click an application, library, or virtual folder node and select New File >> Reports >> List Report (.4rp)
  - From the top-menu
    - File >> New >> Reports >> (select blank or from a template)
    - File >> Open >> (select a .4rp file)

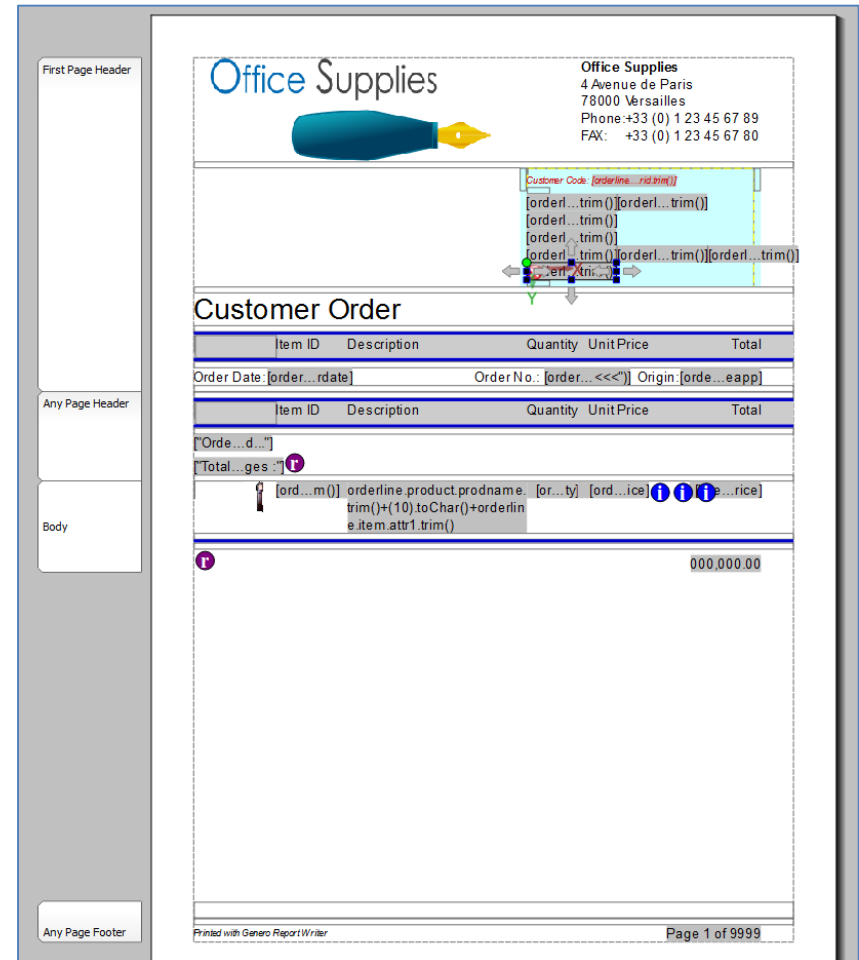- Main work area surrounded by dockable views

- Near WYSIWYG view of a report
  - Doesn't repeat repeated detail items
  - Order is page header, detail, page footer.

- Report objects can be selected, dragged, dropped, resized in this view

- Uses data schema file to show

  - What is coming from the Java code

    - The grouping structure (REPORT triggers)
    - The variables (data objects)

- Drag and drop from here into main workspace or report structure view

  - Default object type based on data type

Data View

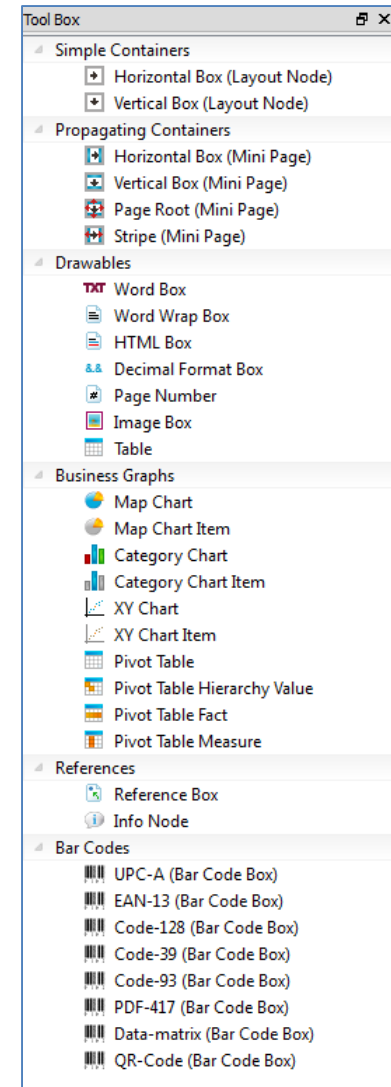| Name	Type	Sample Data
OrderReport-report_all_orders.xsd - Report0		
Report		
FirstPageHeader		
controlBlock.title	STRING	foobar
controlBlock.drawAs	STRING	foobar
controlBlock.dimensionsDisplaySelection	STRING	foobar
controlBlock.measuresDisplaySelection	STRING	foobar
controlBlock.outputOrder	STRING	foobar
controlBlock.topN	INTEGER	42
controlBlock.displayFactRows	BOOLEAN	1
controlBlock.displayRecurringValues	BOOLEAN	1
controlBlock.computeAggregatesOnInnermostDimension	BOOLEAN	1
controlBlock.computeTotal	BOOLEAN	1
controlBlock.computeCount	BOOLEAN	1
controlBlock.computeDistinctCount	BOOLEAN	1
controlBlock.computeAverage	BOOLEAN	1
controlBlock.computeMinimum	BOOLEAN	1
controlBlock.computeMaximum	BOOLEAN	1
Group userid		
Group orderid		
Group linenum		
OnEveryRow		
orderline.orders.orderid	INTEGER	42
orderline.orders.userid	CHAR(80)	foobar
orderline.orders.orderdate	DATE	2010-09-20
orderline.orders.shipfirstname	CHAR(80)	foobar
orderline.orders.shiplastname	CHAR(80)	foobar
orderline.orders.shipaddr1	CHAR(80)	foobar
orderline.orders.shipaddr2	CHAR(80)	foobar
orderline.orders.shipcity	CHAR(80)	foobar
orderline.orders.shipstate	CHAR(80)	foobar
orderline.orders.shipzip	CHAR(20)	foobar
orderline.orders.shipcountry	CHAR(3)	foo
orderline.orders.billfirstname	CHAR(80)	foobar
orderline.orders.billlastname	CHAR(80)	foobar
orderline.orders.billaddr1	CHAR(80)	foobar
orderline.orders.billaddr2	CHAR(80)	foobar
orderline.orders.billcity	CHAR(80)	foobar
orderline.orders.billstate	CHAR(80)	foobar
orderline.orders.billzip	CHAR(20)	foobar
orderline.orders.billcountry	CHAR(3)	foo
orderline.orders.totalprice	DECIMAL(10,2)	42.00
orderline.orders.creditcard	CHAR(80)	foobar
orderline.orders.exprdate	CHAR(7)	foobar
orderline.orders.cardtype	CHAR(80)	foobar

- Change Sample Data to improve preview

- ⬇ changes sort order of variables

- ▦ ▤ ▦ ▦ ▦ ✎
  - changes default properties values given to variables when drag and dropped (width, caption or value)
 - 'Key' option: Create element based on the document context

- Drag and drop report objects onto report

- Once report object is on report, you can alter the properties (including which data value is displayed)

- Tool Box organized into logical groups

- Frequently used objects at top

Tool Box

- Simple Containers
  - Horizontal Box (Layout Node)
  - Vertical Box (Layout Node)
- Propagating Containers
  - Horizontal Box (Mini Page)
  - Vertical Box (Mini Page)
  - Page Root (Mini Page)
  - Stripe (Mini Page)
- Drawables
  - Word Box
  - Word Wrap Box
  - HTML Box
  - Decimal Format Box
  - Page Number
  - Image Box
  - Table
- Business Graphs
  - Map Chart
  - Map Chart Item
  - Category Chart
  - Category Chart Item
  - XY Chart
  - XY Chart Item
  - Pivot Table
  - Pivot Table Hierarchy Value
  - Pivot Table Fact
  - Pivot Table Measure
- References
  - Reference Box
  - Info Node
- Bar Codes
  - UPC-A (Bar Code Box)
  - EAN-13 (Bar Code Box)
  - Code-128 (Bar Code Box)
  - Code-39 (Bar Code Box)
  - Code-93 (Bar Code Box)
  - PDF-417 (Bar Code Box)
  - Data-matrix (Bar Code Box)
  - QR-Code (Bar Code Box)

- Red dots (called report triggers) reflect structure of the data model in Java source

- Branch nodes control how their child nodes are laid out

- Report objects can be selected, dragged, dropped in the Report Structure

- Reflects the XML structure of the .4rp file
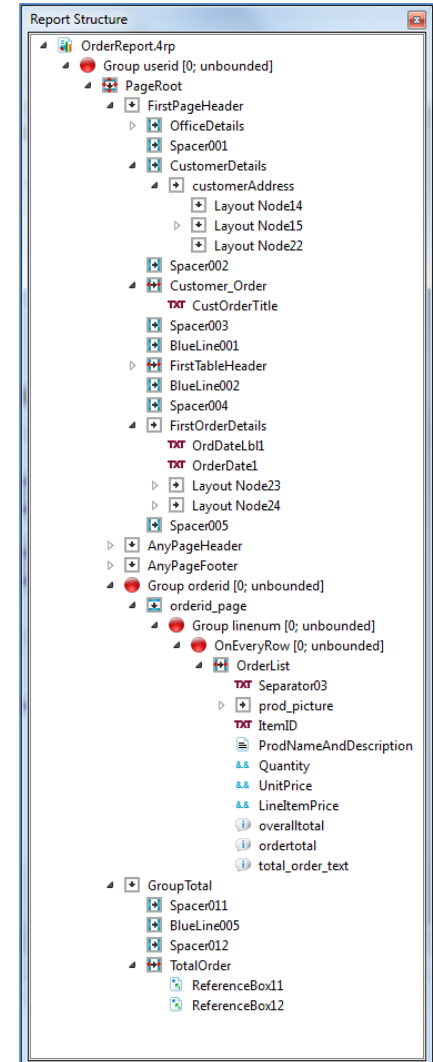
- View and edit the properties of the selected report item

- Bold name indicates non-default value

- Icons
  - Select using appropriate wizard
  - Reset to default value
  - Enter an expression

- Groups are collapsible

- Specify the default paper settings

- Used in design of report

- Values can be overridden by API calls in Java source

- Key feature
  - Note the standard list of page sizes
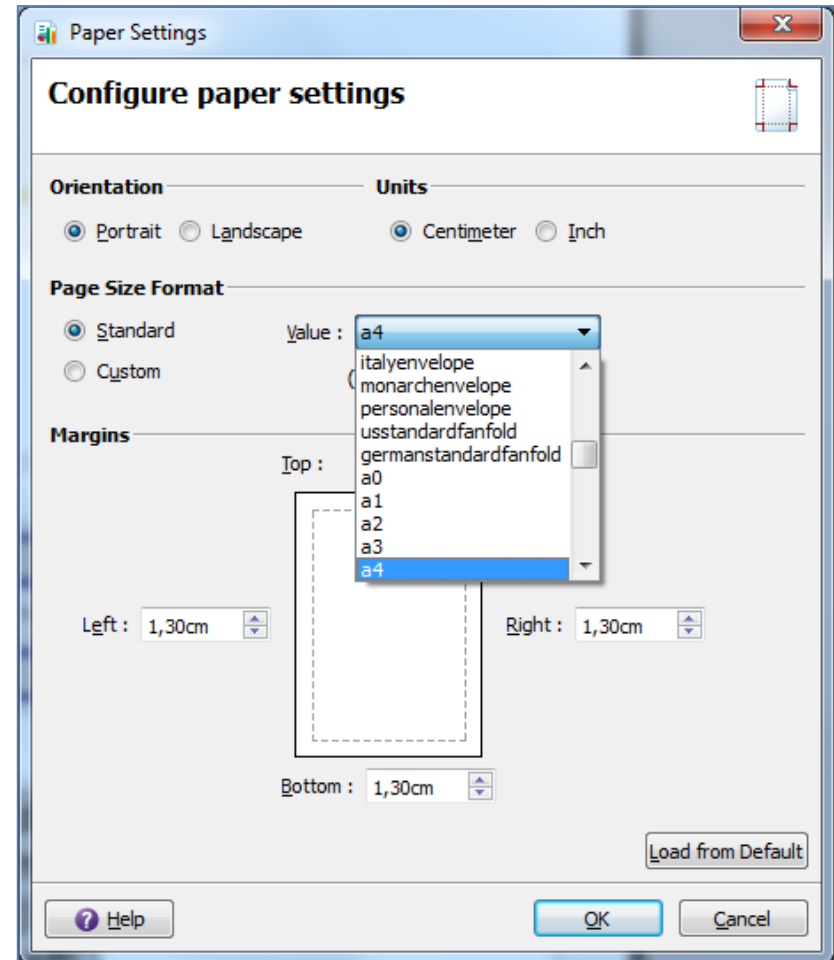
- Specify the default output settings

- Values can be overridden by API calls in Java source

- With image
  - Select type (e.g. jpg, bmp, png)
  - Select resolution
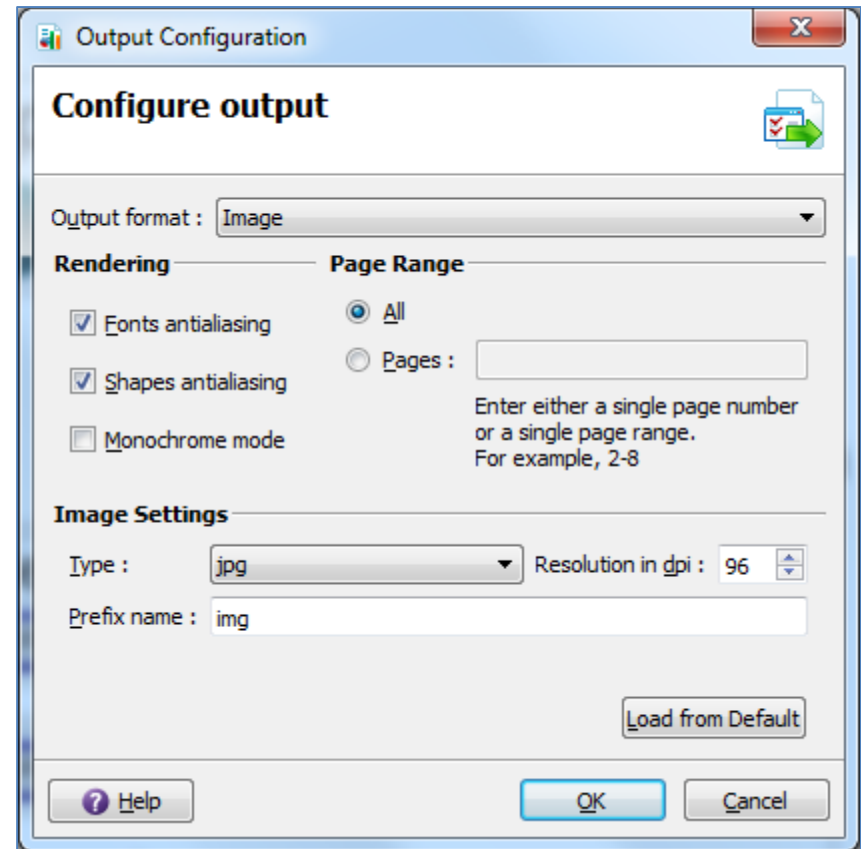
Placing Objects (absolute vs. relative)

- Absolute positioning (specific layouting) ← **Drag-n-Drop**
  - X,Y co-ordinate defined.
  - Object positioned relative to parent object
  - Siblings don't influence position
- Relative positioning (dynamic layouting) ← **CTRL + Drag-n-Drop**
  - X,Y co-ordinates not defined.
  - Object positioned relative to siblings
  - Elder Sibling sizes influences position
  - Sibling order influences position
  - Position of parent object influences position of an object's eldest sibling.
- Mixed
  - One of X,Y co-ordinate defined.
  - Layouter positions defined co-ordinate relative to parent, other co-ordinate relative to siblings
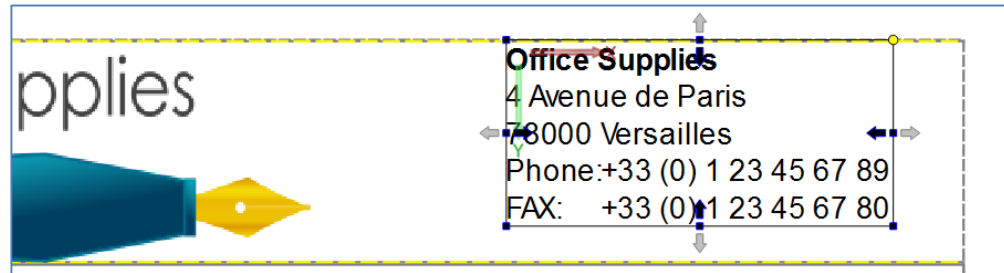
- **Black rectangle, blue squares = selected object**
  - Drag anywhere within rectangle to move object
  - Click within rectangle to change number of blue squares
    - If 8 squares, resize can stretch
    - If 4 squares, resize is proportional
  - Use blue squares to resize object

- **Coloured Circle = Attachment Point**
  - Red = absolute position (position defined relative to parent)
  - Green = relative position (positioned relative to siblings)
  - Yellow/Blue = one co-ordinate is absolute, other is relative
  - Drag circle to change attachment point
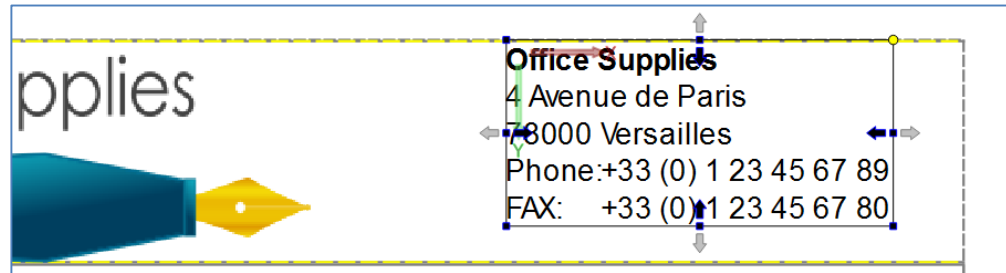
- # Yellow Rectangle = Parent Object
  - ## Dashed, slowly moving
  - ## Moves in the layout direction
  - ## Open at the far side of the layout direction
- # X/Y arrows indicate layout direction
  - ## Child objects added in direction of green Y arrow
  - ## X is 90 degrees from Y, clockwise or anti-clockwise
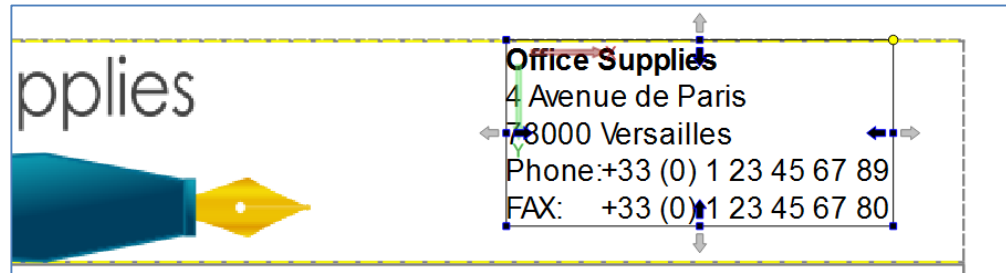
- # Arrow-shaped controls
  - ## At the center of the sides of the selected object
  - ## View and modify the sizing policy
  - ## Pointing inward
    - ### shrinking sizing policy
  - ## Pointing outward
    - ### maximizing policy
  - ## Click on an arrow to toggle its value

- ## Design view
  - Can change sizing and positioning attributes
  - Can change object type
  - Can select ancestors of selected item
  - Can place a trigger within the report structure
  - Can avoid trigger update warnings

- ## Structure View
  - Can change object type
  - Can rename object
  - Can place a trigger within the report structure
  - Can avoid trigger update warnings
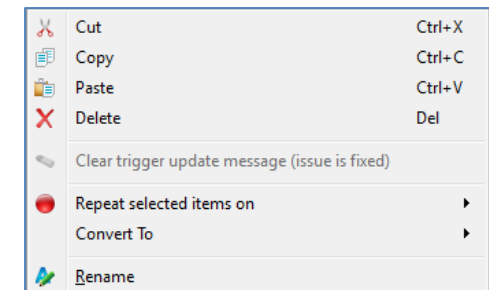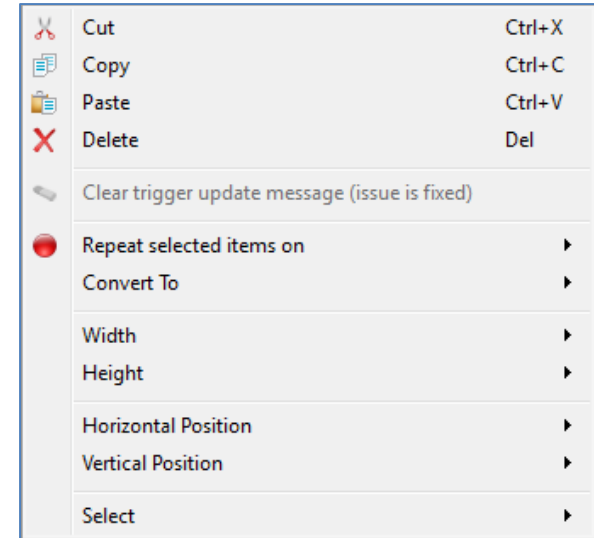
- Drop an object onto another object adds it as a child of that object

- Drag -and-drop while holding down the CTRL key for dynamic layouting (relative positioning)
  - A red line will appear indicating where object will be placed

- Drag-and-drop without holding down the CTRL key for specific layouting (absolute positioning)
  - Small blue lines appear and give you 'stickiness' to aid in aligning relative to existing objects

- Drag-and-drop into Structure View
  - Drop an object onto another object will add it as the last child of that object using dynamic layouting
- Drag-and-drop within Structure view (once object has been added)
  - Drop an object onto another object will add it as the last child of that object
  - Hold the Alt Key when dropping to position as parent of selected object
  - Drag and drop *between* objects within structure view to change its position within sibling order / structure

- Select a report object in either the Main Work Space or the Report Structure.
  - This object will become the parent.
- From the Data View or Tool Box, double-click a data or report object
  - The object becomes the last child of the selected parent object
  - The object is placed using dynamic layouting

- Hold Ctrl key to select multiple objects
- Report objects can be copied from one report to another
  - Remember to change variable names if different between source and destination report
- Be careful deleting a report object
  - ALL child objects will also be deleted

- Drag
  - From Data View
    - Certain properties (such as text and width) are pre-populated as determined by selected icon

    - Object type determined by data-type
    - Automatic mode determined by the 'key' option
  - From Tool Box
    - Have to edit properties
    - Have to select correct object type

- Drop
  - Into Main Window
    - By default specific layouting (absolute positioning)
    - To define dynamic layouting (relative positioning) press CTRL key while dropping
  - Into Structure View
    - Relative positioning by default
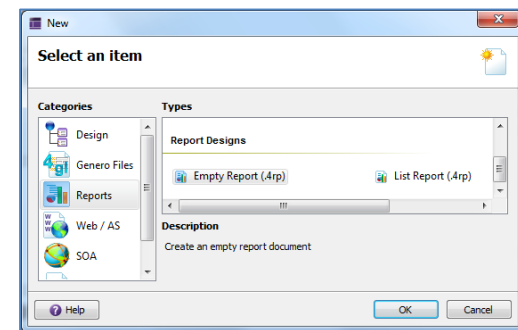   - Edit X and Y properties to define absolute positioning

- ## Work Area / Structure View
  - Use drag-and-drop

- ## Properties View
  - Select object in Work Area or Structure View
  - Edit X and Y properties
    - To make an object relative, click default icon (to remove X and Y values)
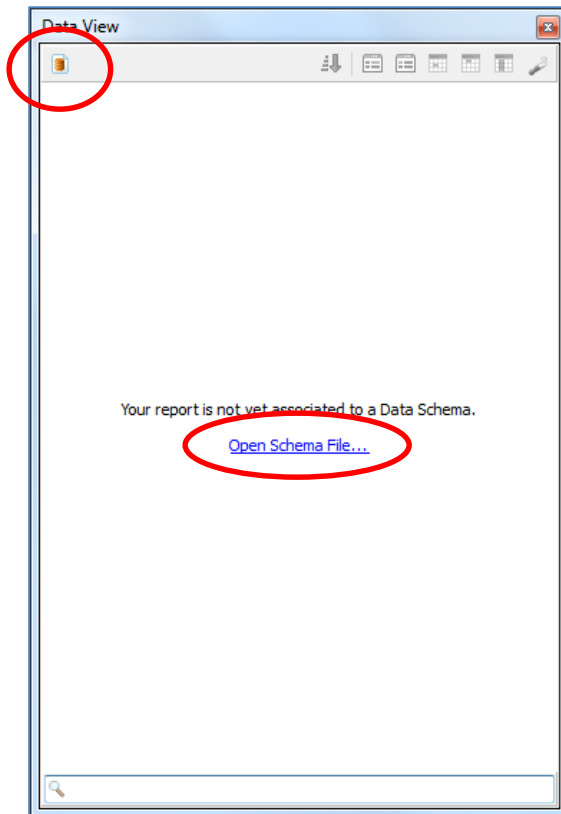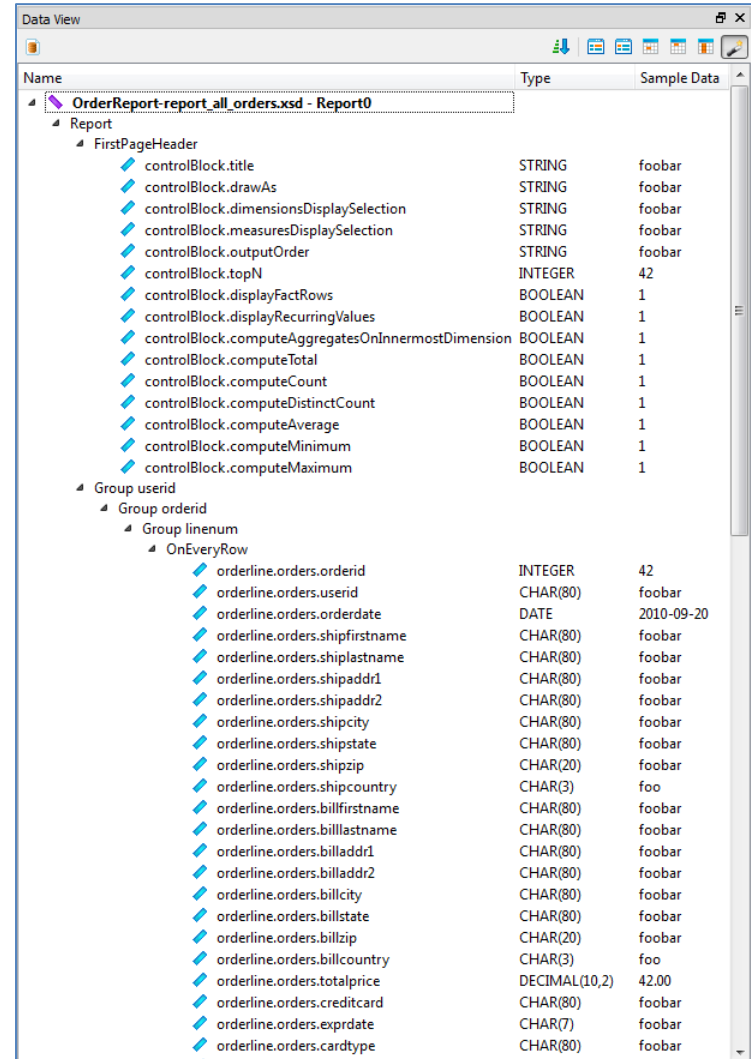   - To make an object absolute, define X and Y properties

- Write the Java report application to create the XML datastream

- Create the .xsd file for use by the designer
  - schemagen <filename>.java
  - In Genero Report Studio add 'Post Compile command'


```
Post Compile commands :   schemagen "$(InputDir)/$(InputBaseName).java"
                          $(move)  "$(InputDir)/schema1.xsd" "$(InputDir)/$(InputBaseName).xsd"
```

- File >> New >> Reports
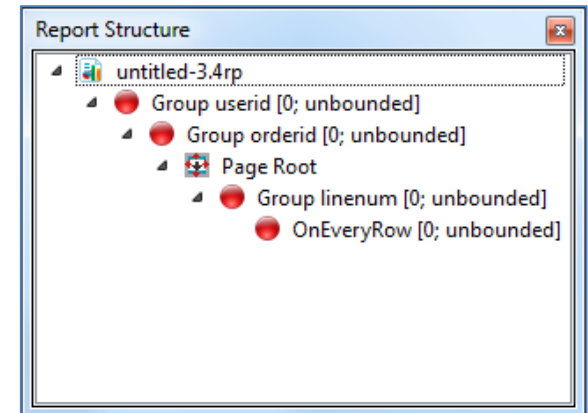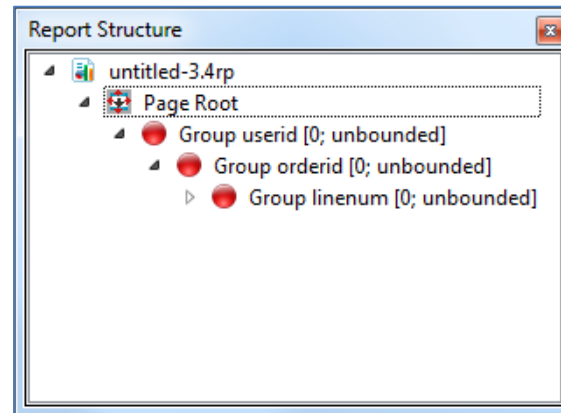 - Create an empty report
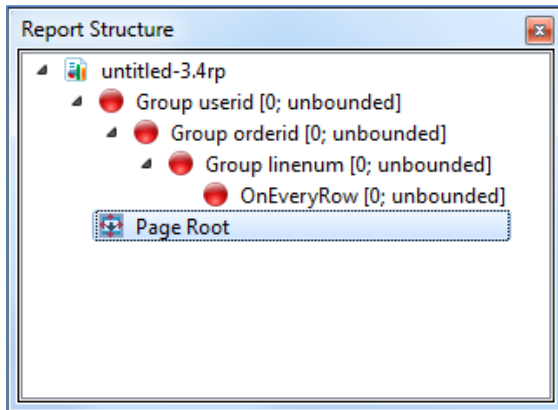 - Choose a report template
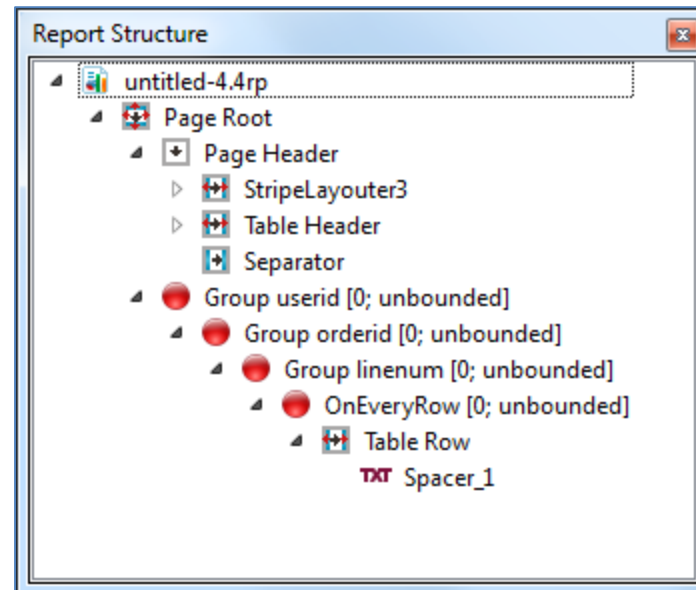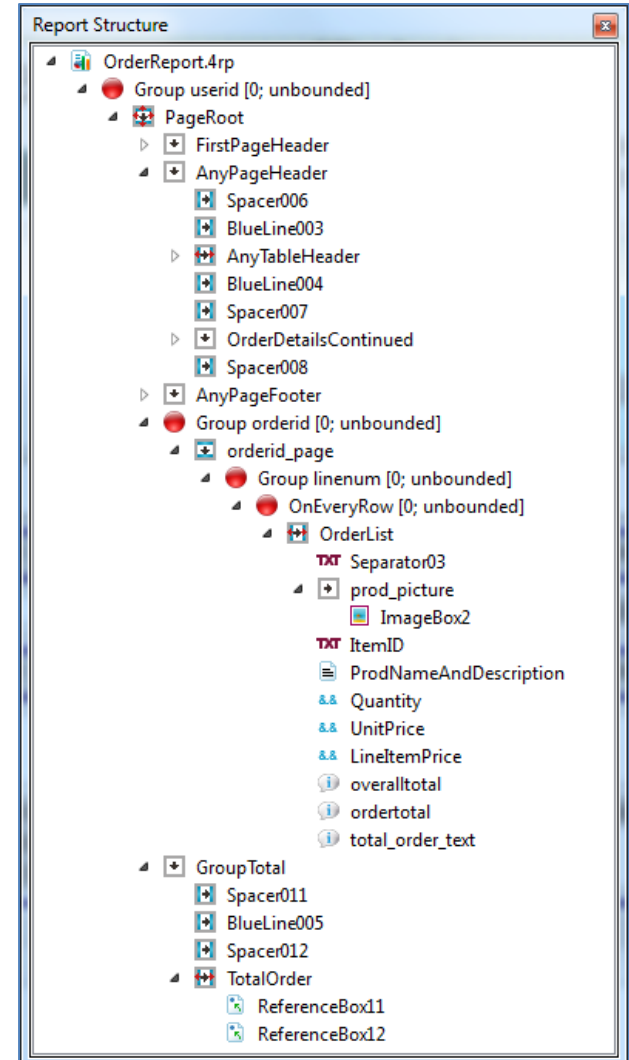
- Select .xsd file from Data View

- Position Page Root as child of group (report trigger) where you want to start a new page

- Position Page Root as child of group (report trigger) where you want to start a new page
  - Page Root positioned at the top by default
- Typically position Table Row as child of OnEveryRow

- Add simple or propagating containers

  – To the PageRoot

  – To selected Group (report trigger) nodes

  – To the OnEveryRow node

- Add report objects to the layout nodes

Report Structure

- OrderReport.4rp
  - Group userid [0; unbounded]
    - PageRoot
      - FirstPageHeader
      - AnyPageHeader
        - Spacer006
        - BlueLine003
        - AnyTableHeader
        - BlueLine004
        - Spacer007
        - OrderDetailsContinued
        - Spacer008
      - AnyPageFooter
  - Group orderid [0; unbounded]
    - orderid_page
      - Group linenum [0; unbounded]
        - OnEveryRow [0; unbounded]
          - OrderList
            - TXT Separator03
            - prod_picture
              - ImageBox2
            - TXT ItemID
            - ProdNameAndDescription
            - Quantity
            - UnitPrice
            - LineItemPrice
            - overalltotal
            - ordertotal
            - total_order_text
      - GroupTotal
        - Spacer011
        - BlueLine005
        - Spacer012
        - TotalOrder
          - ReferenceBox11
          - ReferenceBox12

– Report triggers (red dots) equal the equivalent Data Model in Java source code

- Children of a Trigger repeated until the value of the trigger changes
- Elder sibling of a Trigger – headings
- Younger sibling of a Trigger – totals

– Pay attention to property 'section'
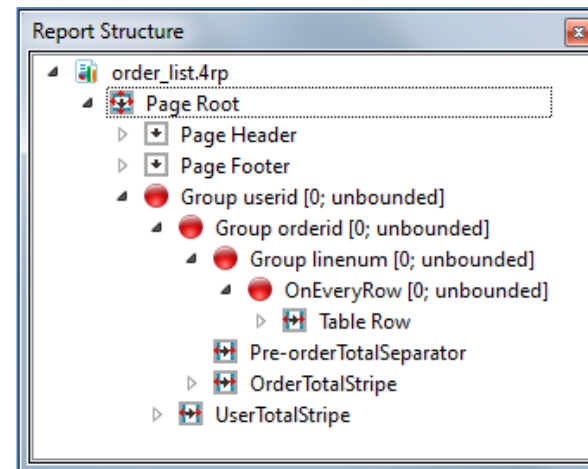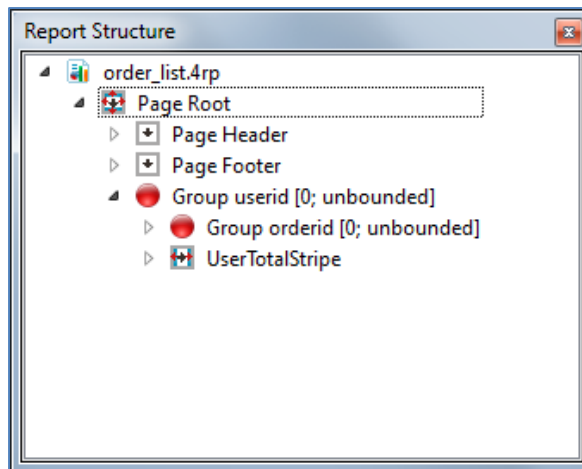
- Icon to toggle name and sample views
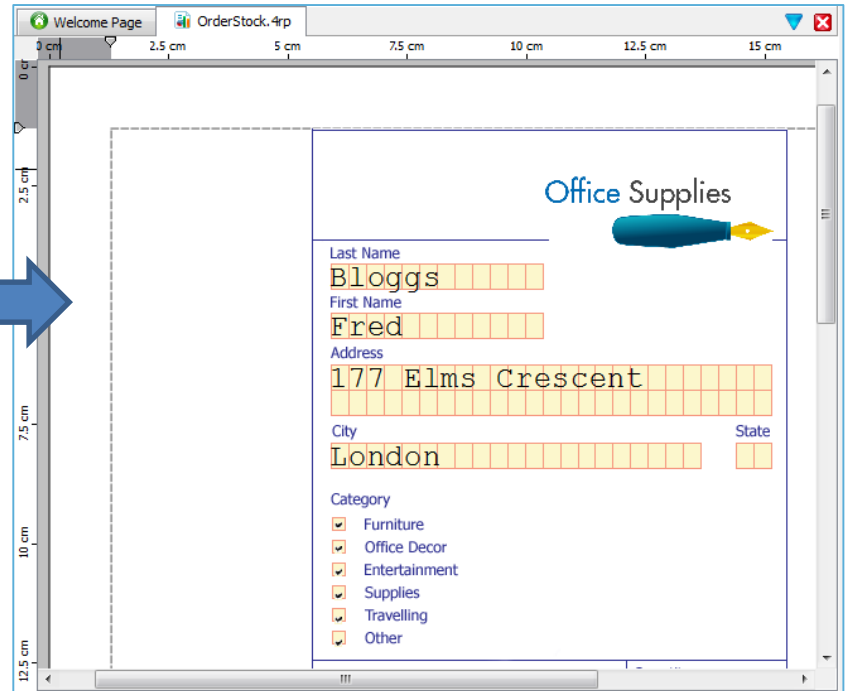
- Icons to zoom in and out and reset
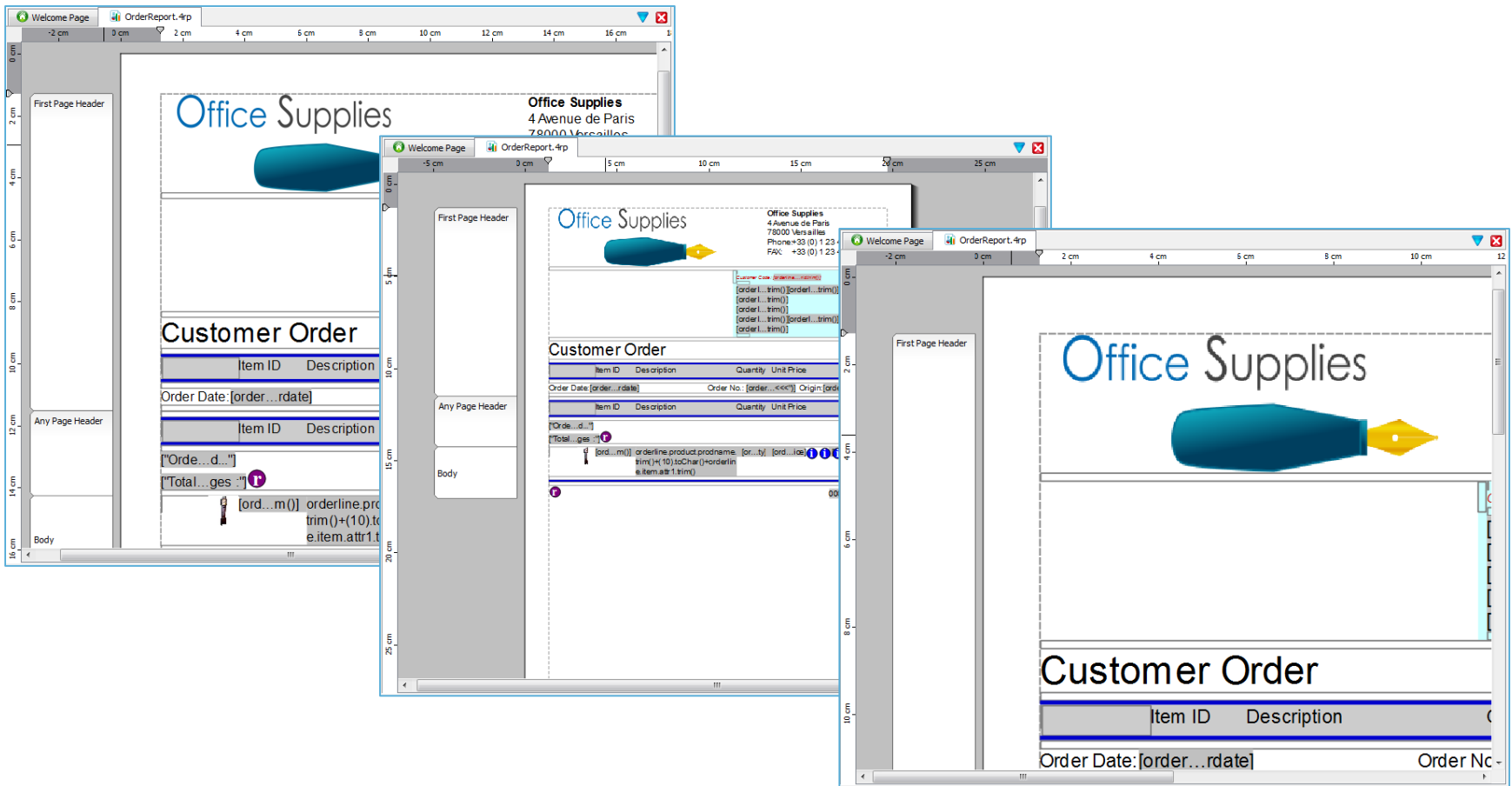
- # Layout Node
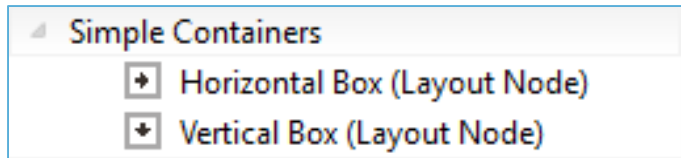
  - ## A rectangular area of space to which you can add child objects

  - ## Will attempt to render on one page. If not enough space, a new page is started

  - ## Horizontal Box

    - ### Child objects added left to right

  - ## Vertical Box

    - ### Child objects added top to bottom

Simple Containers
- Horizontal Box (Layout Node)
- Vertical Box (Layout Node)
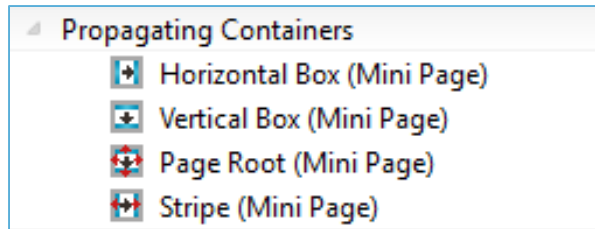
- Propagating Containers (1)
    - Forces contents to be drawn onto one page where possible
    - Where insufficient space, replicates itself with headers/footers
  - Horizontal Box
    - Child objects added left to right
    - Minimum size in both direction
  - Vertical Box
    - Child objects added top to bottom
    - Minimum size in both directions

Propagating Containers
- Horizontal Box (Mini Page)
- Vertical Box (Mini Page)
- Page Root (Mini Page)
- Stripe (Mini Page)

- Propagating Containers (2)
  - Page Root
    - Top object in structure.
    - Size is max in both directions
  - Stripe
    - Size in layout direction is max, size in other direction is min
    - Used as parent object for objects to be positioned relatively e.g. Lines of a report
    - Stripe propagates onto new line when line is full

Drawables
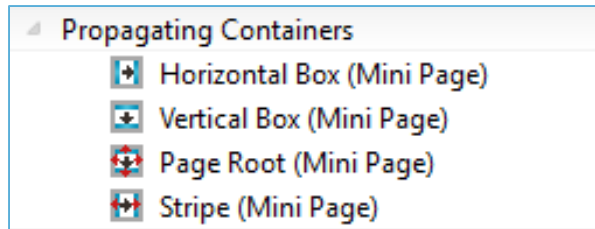- **TXT** Word Box
- Word Wrap Box
- HTML Box
- **&&** Decimal Format Box
- **#** Page Number
- Image Box
- Table

- # Word Box
  - Equivalent to edition field in forms. Text will not wrap onto new line if insufficient space

- # Word Wrap Box
  - Equivalent to multiline edition fields in forms. Used to wrap text onto the next line if insufficient width. Will normally leave Y-size attribute blank so that object grows in size to fit all text.

  - Specific properties
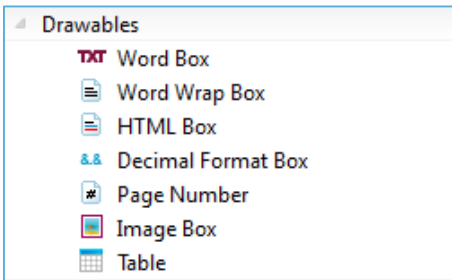
Text	
Text	Office Supplies
Trim Text	
Text Alignment	left
Localize Text	☐

- Text – value to display
- TrimText – remove spaces left, right, both, compress
- TextAlignment – align text to left, right, center
- Localize Text – check if text is to be translated
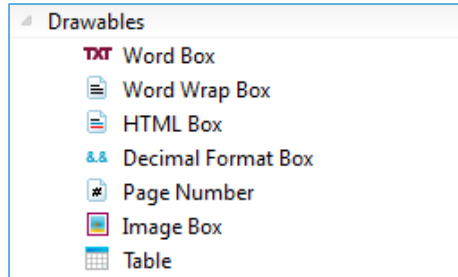
- ## HTML Box
  - Displays an image of an HTML document
  - Use the Location property to specify the file name and path of the document
- ## Decimal Format Box
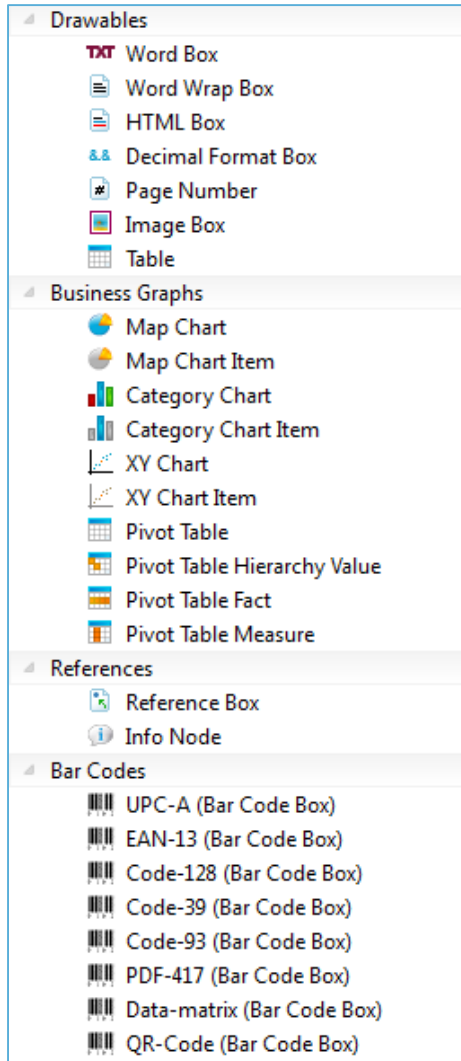 - Used for numbers.
  - – Format
    - Specify a formatting string
    - # display blank if zero
    - & display 0 if zero
    - - display minus sign
    - $ display currency

  - – Value
    - Due to strong typing, different property required than text property. Value must be a number

- Tool Box also contains
  - More Drawables
    - Page Number
    - Image Box
    - Table
  - Business graphs
    - Charts & Pivot Tables
  - References
    - Reference Box
    - Info Node
  - Bar Codes
- These report objects are covered in later modules

Creating a List Report

- Exercise 1
  - Open the **'Sales' project**
  - Generate the XSD data schema
  - Create a new report design (4RP) using the list template
    - Load the XSD data schema
    - Populate the list with fields from the Data View
  - Modify the 'Sales.java' source to run the new report design
  - (optional) Add some new data to the list report (in the 'Sales.java' source and in the design); run it
  - Change paper settings of the report (paper size, orientation, margins); reduce the page height to enable propagating

- Exercise 2
  - Open the **'OrderReportJava' demo project**
  - Run the 'OrderList' report design
  - Move the 'Group Header' element under another trigger
  - Run the report again; check the differences and discuss
  - (optional) Modify the data displayed in the 'Group Header' element to fit to the new design