

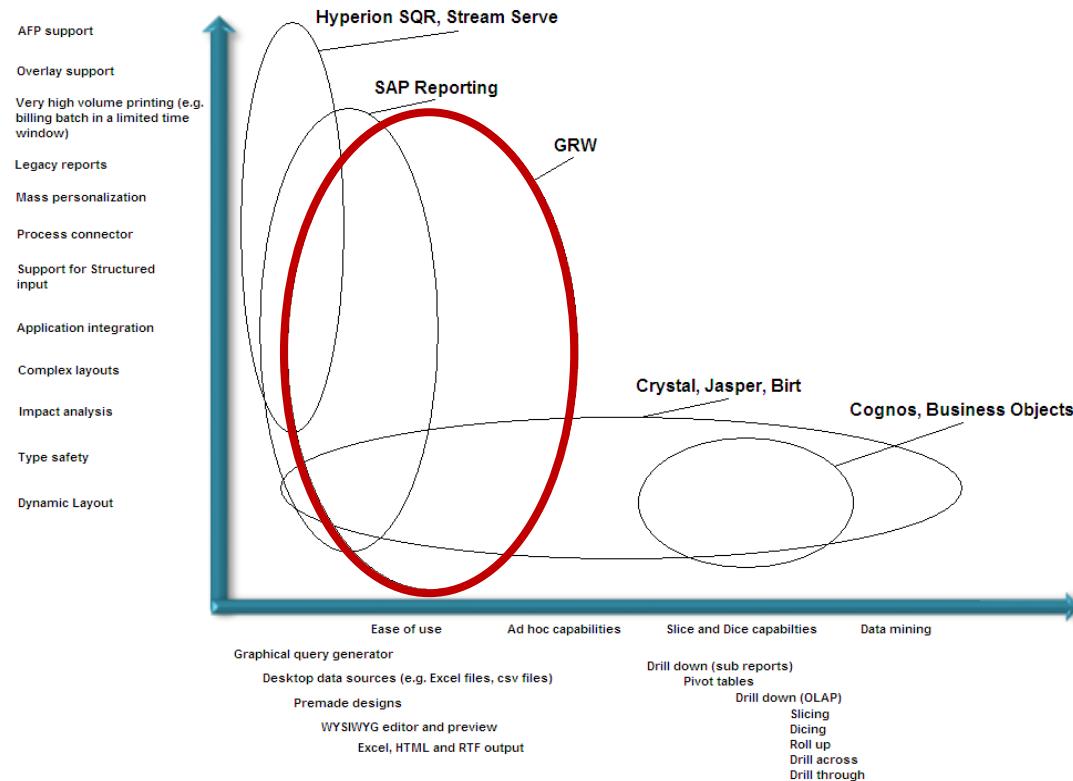


Genero[®]
report writer

PRODUCT OVERVIEW

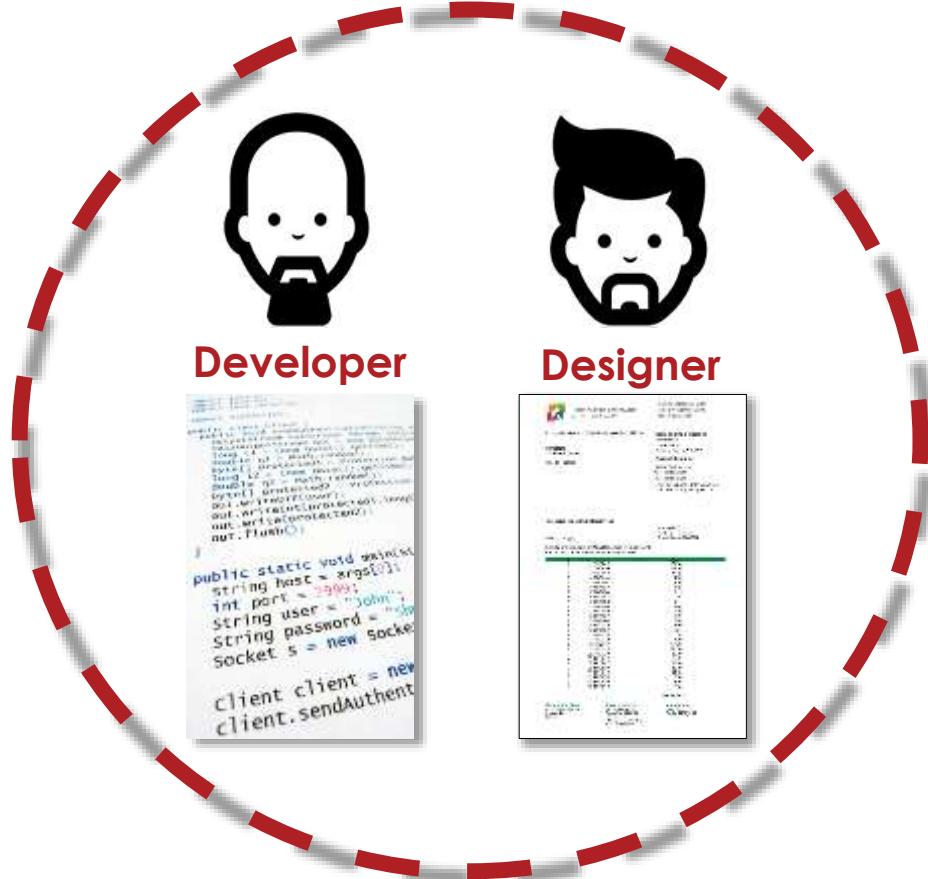
March 2015



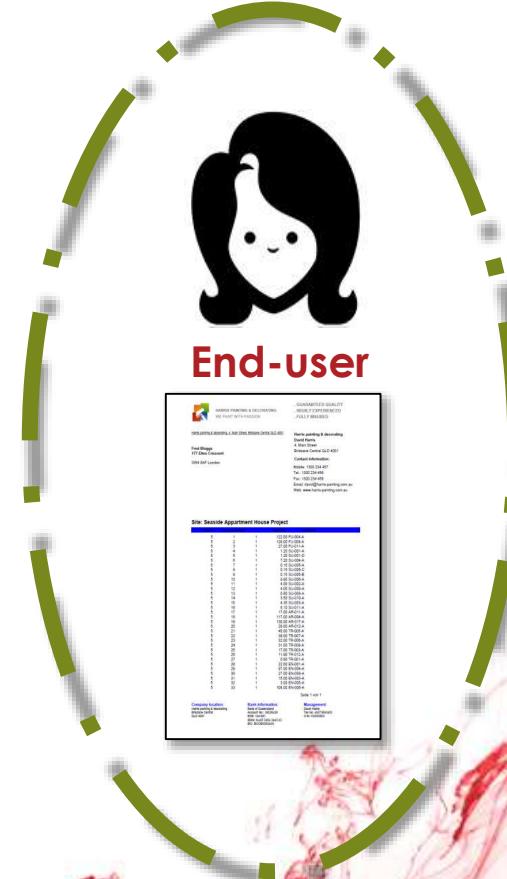




DEVELOPMENT



PRODUCTION





➤ Genero Studio (GST)

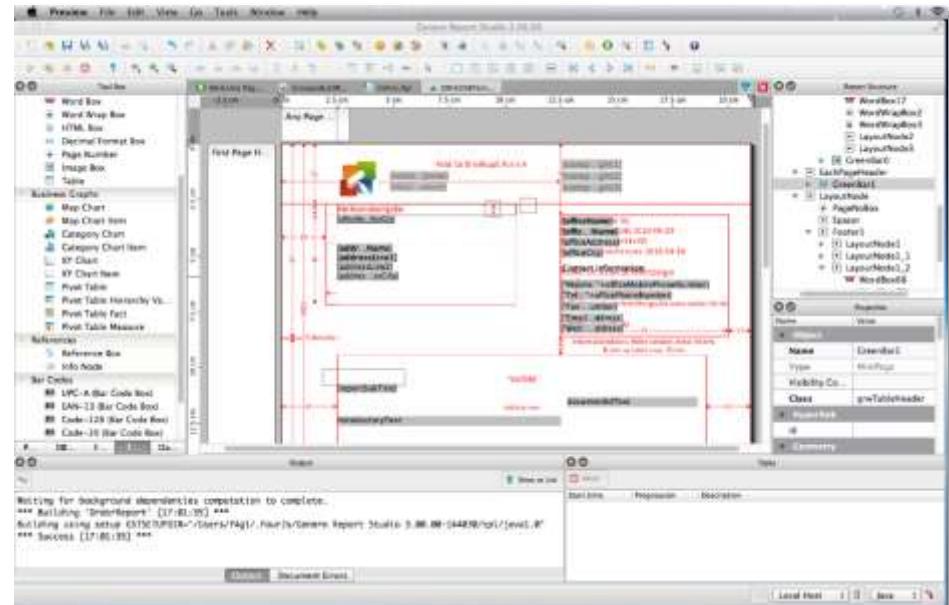
Design report data & graphical layout

➤ Genero Report Designer (GRD)

Standalone designer for end-users & developers

➤ Genero Runtime Engine (GRE)

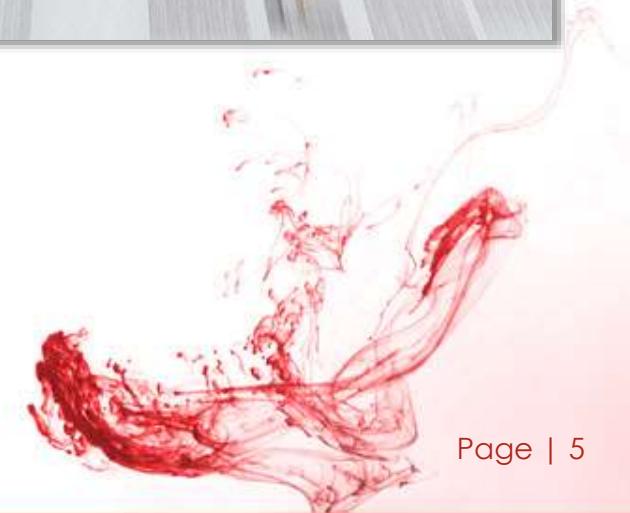
Execute report via runtime system (DVM)

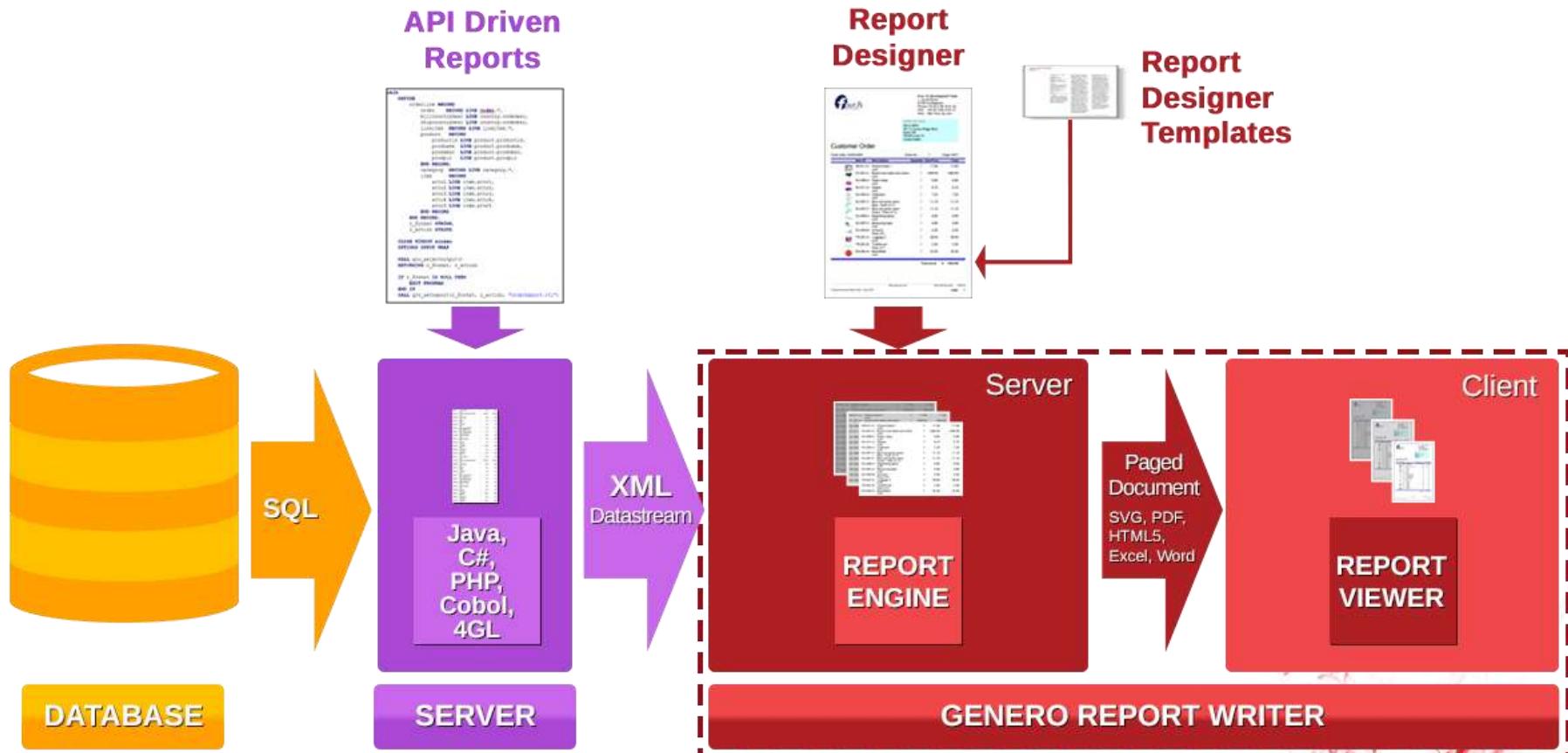


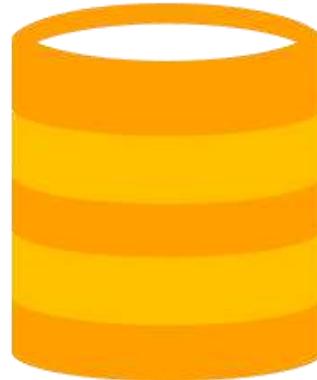


Key features

- Enterprise reports
- Streaming architecture
- Scalable
- Dynamic layouting
- API driven
- Template driven
- Maintainable







DATABASE



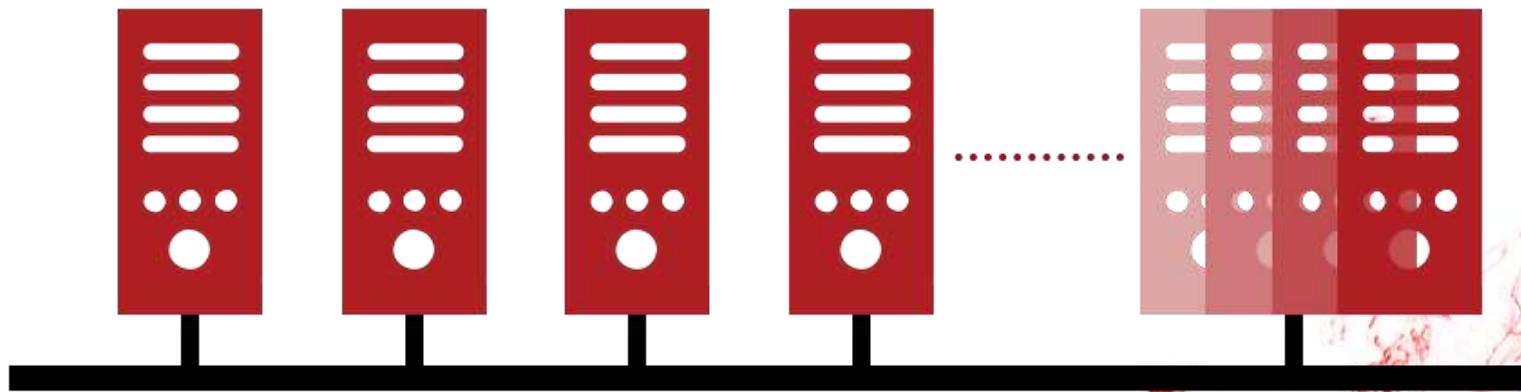
LANGUAGE



REPORT ENGINE



REPORT VIEWER





➤ Streaming architecture

- Immediate results
 - No temp tables
 - Real-time data
- Fast throughput
 - Simultaneous execution of multiple selects
 - Fast merging of multiple data sources
- Very large reports
 - Reduced resource consumption
 - Uses less disk space
 - Less memory
 - Optimised report management





➤ Dynamic layouting

- One report fits all
- Adapts to different:
 - Fonts
 - Field values
 - International languages
 - Paper sizes and orientation

The figure displays three screenshots of a "Customer Order" report from "Four Js Development Tools".

Screenshot 1: A standard landscape-oriented report showing a list of items with small icons. The header includes the company logo and address: "Four Js Development Tools, 1, rue de Berne, 67350 Schiltach, Phone: +33 (0) 3 88 18 61 20". The report lists items like "FU-005-A Filing cabinets", "FU-005-A Globe", "AR-014-A Picture frame 4", and "EN-004-A Chess game".

Item ID	Description	Quantity	Unit Price
FU-005-A	Filing cabinets	1.0	17.0
FU-005-A	Globe	1.0	22.0
AR-014-A	Picture frame 4	1.0	73.0
EN-004-A	Chess game	1.0	97.0

Screenshot 2: A portrait-oriented report with a more detailed layout. It includes a header with the company logo and address, and a table of contents or navigation menu on the right side. The main content area shows the same list of items as Screenshot 1.

Item ID	Description	Quantity	Unit Price
FU-005-A	Filing cabinets	1.0	17.0
FU-005-A	Globe	1.0	22.0
AR-014-A	Picture frame 4	1.0	73.0
EN-004-A	Chess game	1.0	97.0

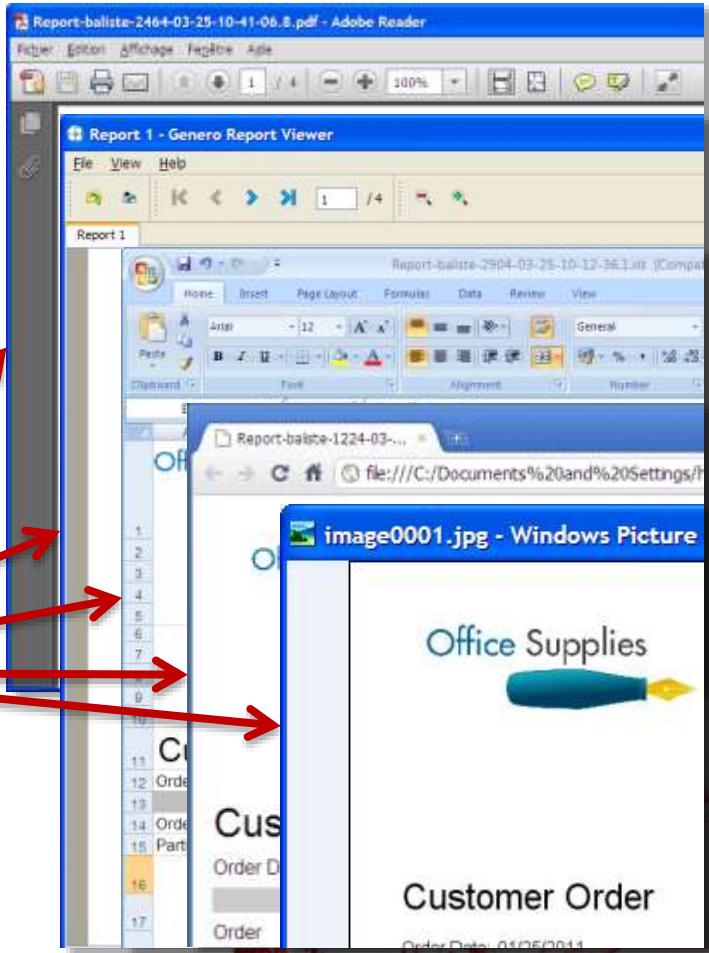
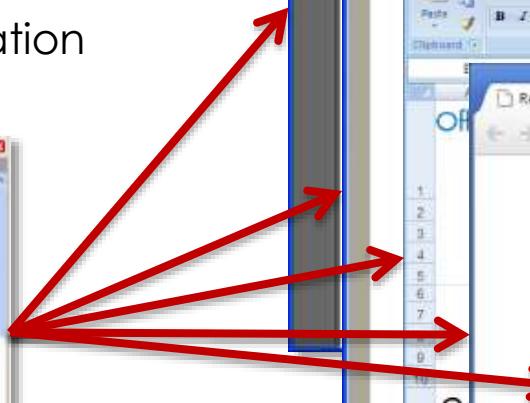
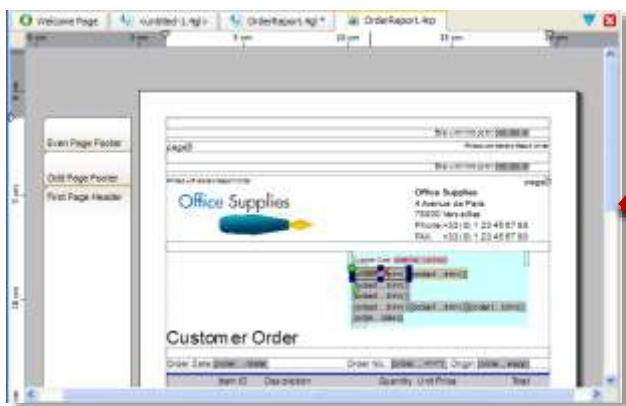
Screenshot 3: A landscape-oriented report with a different layout. It includes a header with the company logo and address, and a large table on the right side showing a breakdown of costs. The table has columns for "Item ID", "Description", "Quantity", "Unit Price", and "Total". The total value "1680.15" is highlighted with a red box and labeled "Listen(6401)".

Item ID	Description	Quantity	Unit Price	Total
FU-005-A	Filing cabinets	1.0	17.0	17.0
FU-005-A	Globe	1.0	22.0	22.0
AR-014-A	Picture frame 4	1.0	73.0	73.0
EN-004-A	Chess game	1.0	97.0	97.0
Total:				1680.15



➤ Dynamic layouting

- One report fits all
- Adapts to different:
 - Fonts
 - Field values
 - International languages
 - Paper sizes and orientation





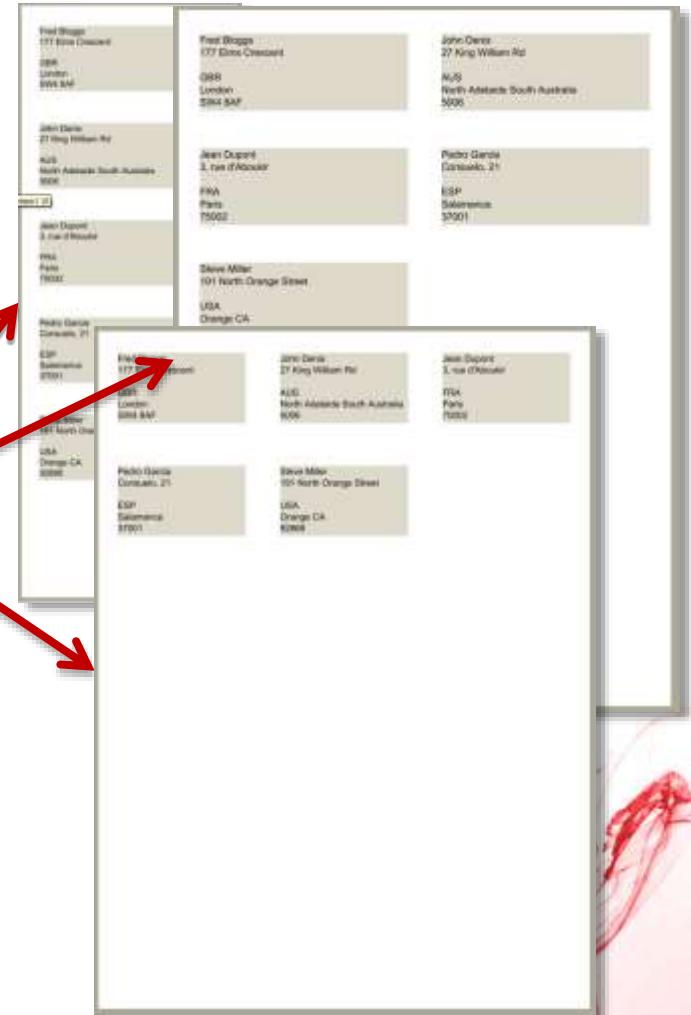
➤ Dynamic layouting

- One label fits all
- Layout can be set at runtime

```
[orderline.orders.ship..._rs.shiplast.name.trim()];  
[orderline.orders.shipaddr1.trim()];  
[orderline.orders.shipaddr2.trim()];  
[orderline.orders.shipcountry.trim()];  
[orderline.orders.shipc..._ders.shipstate.trim()];  
[orderline.orders.shipzp.trim()]
```

Name: label

X-Max: 1000



➤ API driven

➤ Java

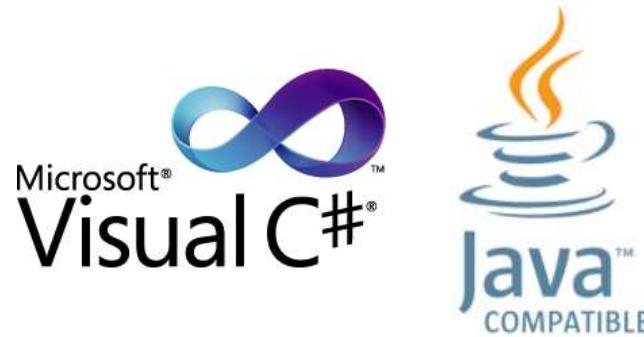
- Supports J2SEE & J2EE,
- Supports JAXB,
(Schema generation and marshalling)

➤ .Net

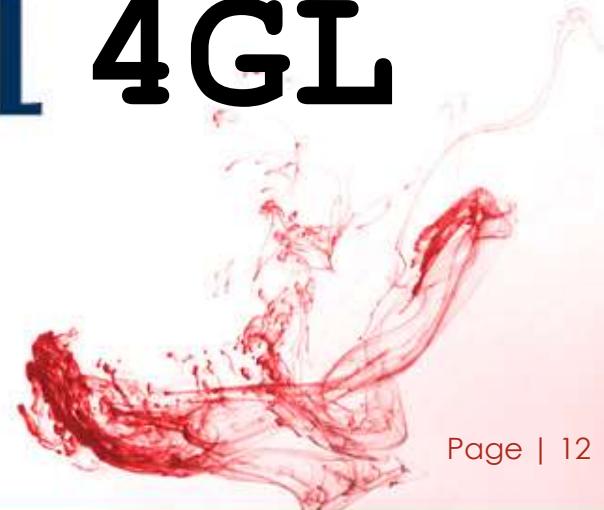
- Supports Xsd.exe/XmlSerializer,
(schema generation and marshalling)

➤ PHP

- BAM data source generation.



COBOL 4GL





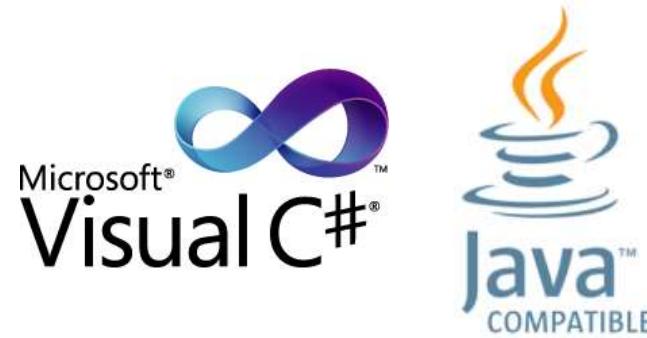
➤ API driven

➤ 4GL

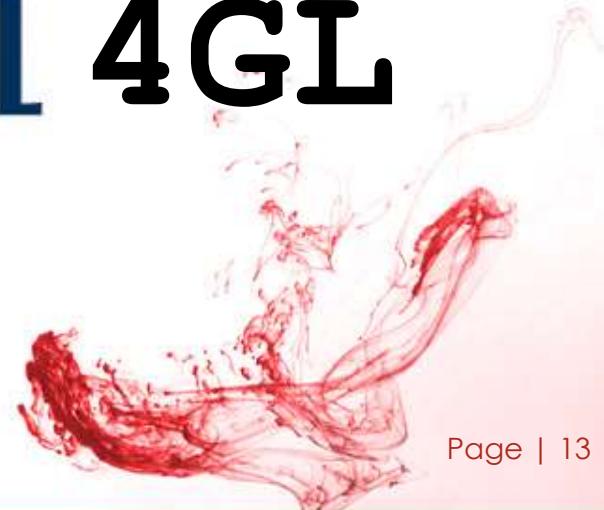
- Compatibility mode,
- Supports rdd/xsd,
(via fglcomp – build rdd)
- Marshalling via REPORT object.

➤ Cobol

- Compatibility mode,
- BAM data source generation.



COBOL 4GL



Cobol and 4GL compatibility modes

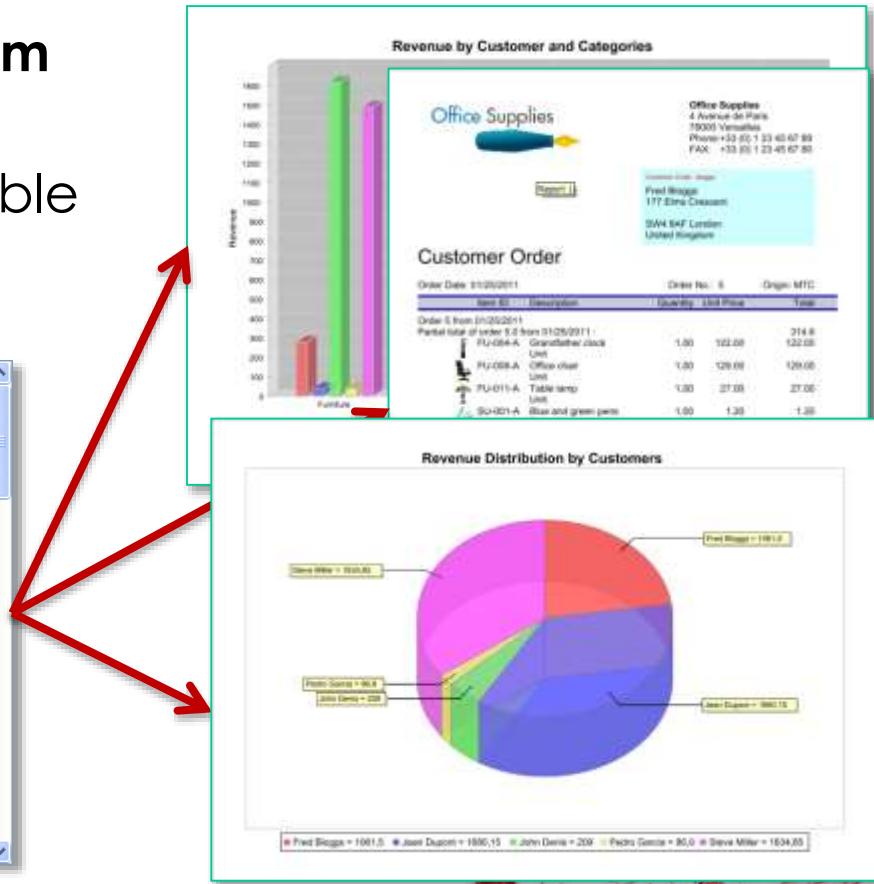
- **Respects existing report code**
 - Same code, new output formats.
- **New output formats**
 - PDF,
 - Browser,
 - MS-Excel® and MS-Word®.
- **Old & new reports co-exist, sharing same output formats**
 - Simplify & reduce existing code,
 - Eases migration, works immediately with existing reports,
 - Migrate priority reports first, embellish the rest later.





- Multiple, simultaneous input data sources
- Multiple output formats from single data source
 - Ex: data rendered as table or chart

Name	Type	Sample Data
OrderReport.rdd - report_all_orders	Report	
	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.shipfirstn...	CHAR(80)	foobar
orderline.orders.shiplastn...	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.shipcou...	CHAR(3)	foo
orderline.orders.billfirstn...	CHAR(80)	foobar
orderline.orders.billlastn...	CHAR(80)	foobar
orderline.orders.billaddr1	CHAR(80)	foobar
orderline.orders.billaddr2	CHAR(80)	foobar

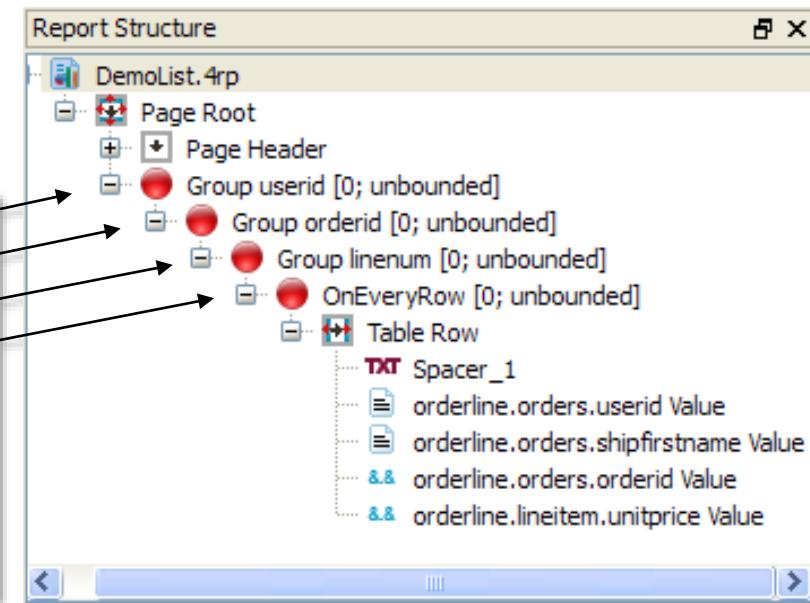




➤ Schema from 4GL code: REPORT

- RDD schema produced by the compiler (fglcomp)
- PRINT, PRINTX variable
- Iterators and conditional handled (FOR, FOREACH, IF...)
- ORDER BY

```
199 REPORT report_all_orders( orderline )
200 DEFINE
201   orderline OrderType,
202   lineitemprice LIKE lineitem.unitprice,
203   overalltotal LIKE orders.totalprice,
204   ordertotal LIKE orders.totalprice
205
206 ORDER EXTERNAL BY orderline.orders.userid, orderline.orders.orderid, orderline.lineitem.linenum
207
208 FORMAT
209   FIRST PAGE HEADER
210     LET overalltotal = 0
211
212 BEFORE GROUP OF orderline.orders.orderid
213   LET ordertotal = 0
214
215 ON EVERY ROW
216   LET lineitemprice = orderline.lineitem.unitprice * orderline.lineitem.quantity
217   LET overalltotal = overalltotal + lineitemprice
218   LET ordertotal = ordertotal + lineitemprice
219   PRINT orderline.*, lineitemprice, overalltotal, ordertotal
220
221 END REPORT
222
```



fglcomp –build-rdd OrderReport.4gl



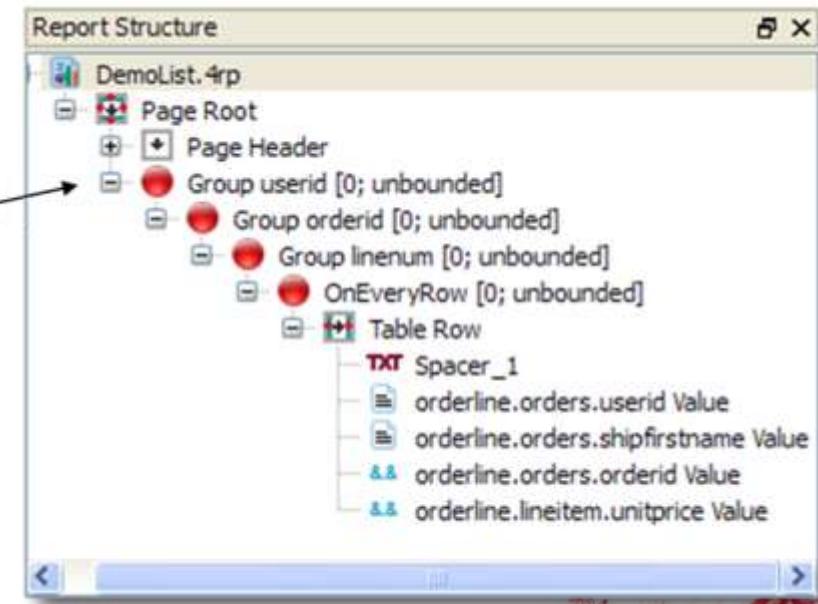
➤ Schema from Java « POJO » object:

- XML-Schema produced by the schema compiler (schemagen)
- Collections are recursively iterated
- Lazy retrieval supported via Iterator using coroutines (yield)

```
*import java.lang.reflect.Field;□

@XmlRootElement(name = "Report")
public abstract class OrderReportModel
{
    protected Field[] fields;
    private Row nextRow;
    private double overalltotal;
    private double usertotal;
    private double ordertotal;
    String currentUserId;
    int currentOrder;
    int currentLine;
    @XmlElement(required = true)
    public PivotControlBlock controlBlock;
    @XmlElement(name = "Group")
    AbstractCollection<User> users = new AbstractCollection<User>()
    {
        public Iterator<User> iterator()
        {
            return new Iterator<User>()
            {
                public boolean hasNext()
                {
                    return nextRow != null;
                }

                public User next()
                {
                    usertotal = nextRow.lineitemprice;
                    User user = new User(OrderReportModel.this);
                    return user;
                }
            };
        }
    };
}
```



schemagen OrderReportModel



➤ Schema from C# object:

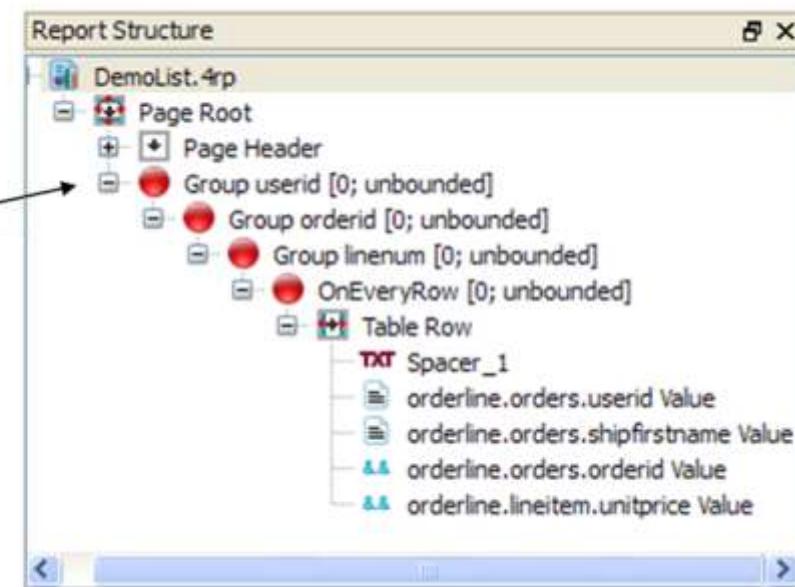
- XML-Schema produced by the schema compiler (Xsd.exe)
- Collections are recursively iterated
- Lazy retrieval supported via Iterator using coroutines (yield)

```
namespace Order
{
    [XmlRoot(ElementName = "Report")]
    class OrderReportModel
    {
        private Row nextRow;
        private double overalltotal;
        private double usertotal;
        private double ordertotal;
        String currentUserID;
        int currentOrder;
        int currentLine;

        [XmlElement()]
        public PivotControlBlock controlBlock;
        [XmlElement("Group")]
        IEnumerator<User> users()
        {
            usertotal = nextRow.lineitemprice;
            User user = new User();
            yield return user;
        }

        public OrderReportModel(PivotControlBlock controlBlock)
        {
            this.controlBlock = controlBlock;
        }

        void fetchNextRow()
        {
            try
        }
    }
}
```



xsd OrderReportModel



Data sources – PHP generated source & data

➤ Schema from BAM diagram:

- XML-Schema produced by the schema generator

```
class Account extends SerializableRecord {
    public $account_userid;
    public $account_email;
    public $account_firstname;
    public $account_lastname;

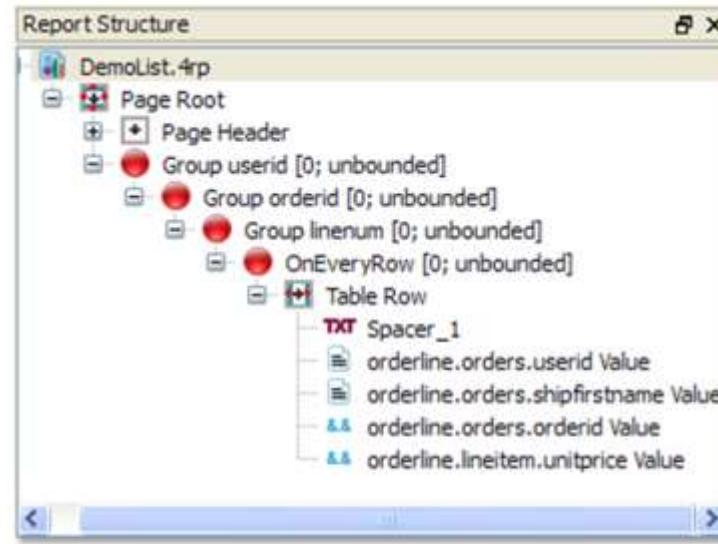
    public function serialize(GreXMLConnector $grexmlConnector)
    {
        $fglob = new FGDatabase();
        $query = "
            SELECT account.userid as account_userid,
                   account.email as account_email,
                   account.firstname as account_firstname,
                   account.lastname as account_lastname
            FROM account
            WHERE id=1";

        $fglob->runQuery($query);
        while ($row = $fglob->fetch()) {
            $this->setAttributes($row);
            parent::serialize($grexmlConnector);
        }
    }

    protected function serializeChildren(GreXMLConnector $grexml)
    {
        $child = new Orders($this->account_userid);
        $child->serialize($grexmlConnector);
    }
}

class Orders extends SerializableRecord {
    public $orders_orderid;
    public $orders_userid;
    public $orders_orderdate;
    public $orders_totalprice;
    private $query;

    public function __construct($account_userid) {
        $this->query =
"
            SELECT orders.orderid as orders_orderid,
                   orders.userid as orders_userid,
                   orders.orderdate as orders_orderdate,
                   orders.totalprice as orders_totalprice
            FROM orders
            WHERE id=1
            AND orders.userid='".$account_userid."'";
    }
}
```

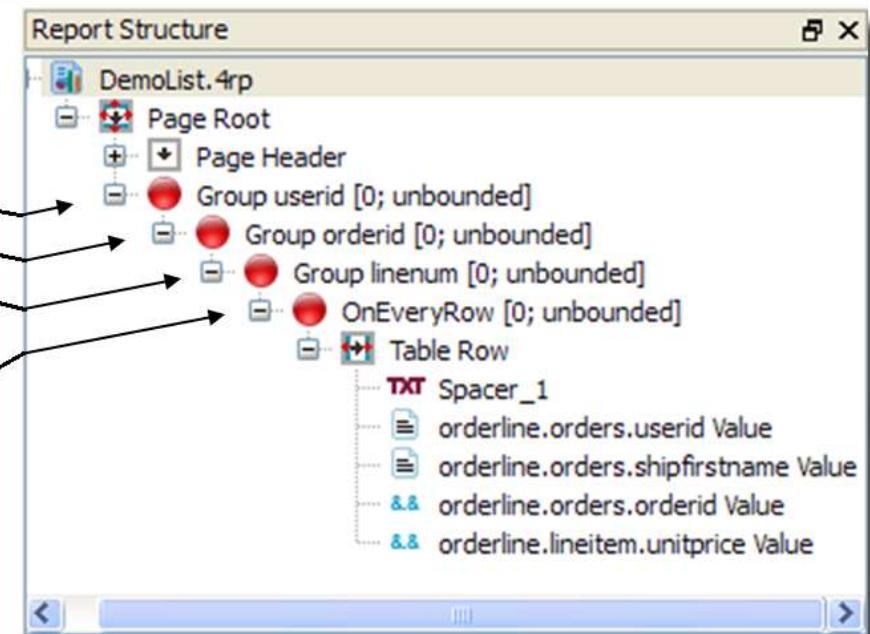




➤ Schema from COBOL code: REPORT SECTION used

- XSD schema produced by schemagen compiler
- INITIATE, GENERATE and TERMINATE instructions remapped to C-Functions
- Groups triggers based on CONTROLS

```
REPORT SECTION.  
RD DemoList ARE FINAL  
CONTROLS PAGE LIMIT IS 66  
HEADING 1  
FIRST DETAIL 6  
LAST DETAIL 42  
FOOTING 52.  
  
Main SECTION.  
Begin.  
  OPEN INPUT SalesFile.  
  OPEN OUTPUT PrintFile.  
  READ Salesfile  
    AT END SET EndOfFile TO TRUE  
END-READ.  
INITIATE ListReport.  
  PERFORM PrintListReport  
    UNTIL EndOfFile.  
TERMINATE ListReport.  
CLOSE SalesFile, PrintFile.  
STOP RUN.  
  
PrintListReport.  
  MOVE UserId TO UserIdNow.  
  MOVE OrderId TO OrderIdNow.  
  MOVE LineItem TO LineItemNow.  
  GENERATE OnEveryRow.  
  READ Salesfile  
    AT END SET EndOfFile TO TRUE  
END-READ.
```



schemagen OrderReport.cbl



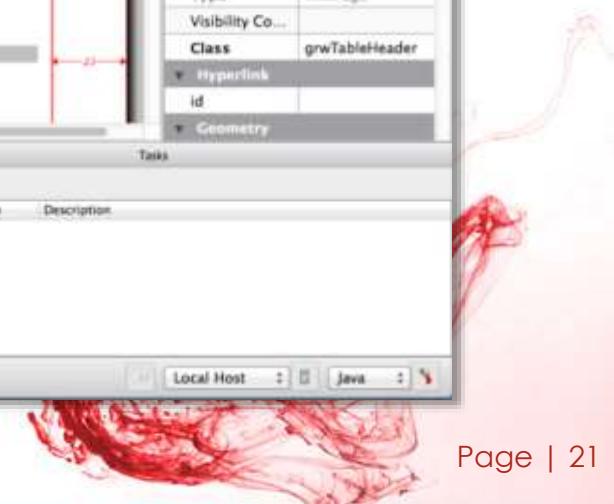
Genero Report Designer

The screenshot shows the Genero Report Studio 3.00.00 interface. The main area displays a report layout titled "First Page H...". The layout includes several components: a stamp at the top left, a "Feld für Rückkoppl. Form A" (Feedback Form A field) containing "[addr...Name]", "[addressLine1]", "[addressLine2]", and "[address...asCity]"; a "Fotomarke 1" (Photo mark 1) below it; a "Textfeld" (Text field) with "[reportSubTitle]" and "[introductoryText]"; and a large block of contact information on the right. The contact information includes fields like "[OfficeName] CO", "[OfficeName] 01", "[OfficeName] 0123 04-23", "[OfficeAddress] 0123 00", "[OfficeCity] 0123 04-16", "Contact information", "[Mobile: "+officeMobilePhoneNumber+"]", "[Tel: "+officePhoneNumber+"]", "[Fax: "+officeFaxNumber+"]", "[Email: "+officeEmail+"]", "[Web: "+officeWebadress+"]", and "[Informationen, Höhe verstellbar, max. 40 mm, Breite verstellbar, max. 70 mm]". The "Report Structure" panel on the right shows the hierarchical structure of the report, with "GreenBar1" selected. The "Properties" panel shows details for "GreenBar1", including its name, type (Minipage), visibility conditions, class (grwTableHeader), and a hyperlink entry. The "Output" and "Tasks" panels at the bottom provide build status and task management information.

Waiting for background dependencies computation to complete.
*** Building 'OrderReport' [17:01:35] ***
Building using setup GSTSETUPDIR="/Users/f4gl/.FourJs/Genero Report Studio 3.00.00-144038/tpl/javal.0"
*** Success [17:01:35] ***

Output Document Errors

Local Host Java



➤ **Template driven**

- Create report design from templates
 - Design (.4rp) generated from:
 - a template and
 - a data schema.
 - Support for JAXB (schema generation and marshalling).

➤ Used at design time

- Generated design can be saved for further mods.

➤ Command line interface to create the design (.4RP)

➤ Used at runtime

- Internally generated design used at runtime.





Report templates

 <p>HARRIS PAINTING & DECORATING WE PAINT WITH PASSION</p>		<p>GUARANTEED QUALITY HIGHLY EXPERIENCED FULLY INSURED</p>																																																																																																																
<p>Rücksendungsinfo: Parcelforce 6 days delivery, 4. Main Street, Brisbane Central QLD 4001.</p> <p>Fred Bloggs 177 Elm Crescent SW18 8AF London</p> <p>Projektanmeldung & Dekorating Bearbeitung: vom: 2013-04-23 Unter-/oben: mit: 00 Wiederholung: ab: 2013-04-26</p> <p>Contact Information: Name: Michael Schäfferberger Mobile: 1300 234 4567 Fax: 1300 234 456 Email: michael@harris-painting.com.au Web: www.harris-painting.com.au</p> <p>Internationallock, Höhe variabel, mind. 40 mm, Breite variabel, max. 75 mm</p>																																																																																																																		
<p>Textfeld Site: Seaside Apartment House Project</p> <p>Dear Mr. Bloggs,</p> <p>according to your order of 06/04/2014 please receive herewith our invoice 5 for the seaside apartment house project.</p> <table border="1"> <thead> <tr> <th>Order No.</th> <th>Description</th> <th>Quantity</th> <th>Unit Price</th> </tr> </thead> <tbody> <tr><td>5</td><td>1 FU-004-A</td><td>1</td><td>122.00</td></tr> <tr><td>5</td><td>2 FU-008-A</td><td>1</td><td>129.00</td></tr> <tr><td>5</td><td>3 FU-011-A</td><td>1</td><td>27.00</td></tr> <tr><td>5</td><td>4 SU-001-A</td><td>1</td><td>1.20</td></tr> <tr><td>5</td><td>5 SU-001-D</td><td>1</td><td>1.20</td></tr> <tr><td>5</td><td>6 SU-004-A</td><td>1</td><td>7.20</td></tr> <tr><td>5</td><td>7 SU-005-A</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>8 SU-005-C</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>9 SU-006-E</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>10 SU-006-F</td><td>1</td><td>0.90</td></tr> <tr><td>5</td><td>11 SU-002-A</td><td>1</td><td>4.00</td></tr> <tr><td>5</td><td>12 SU-009-A</td><td>1</td><td>4.00</td></tr> <tr><td>5</td><td>13 SU-009-A</td><td>1</td><td>0.80</td></tr> <tr><td>5</td><td>14 SU-010-A</td><td>1</td><td>3.00</td></tr> <tr><td>5</td><td>15 SU-003-A</td><td>1</td><td>4.35</td></tr> <tr><td>5</td><td>16 SU-011-A</td><td>1</td><td>8.10</td></tr> <tr><td>5</td><td>17 AR-011-A</td><td>1</td><td>17.00</td></tr> <tr><td>5</td><td>18 AR-004-A</td><td>1</td><td>117.00</td></tr> <tr><td>5</td><td>19 AR-017-A</td><td>1</td><td>130.00</td></tr> <tr><td>5</td><td>20 AR-012-A</td><td>1</td><td>29.00</td></tr> <tr><td>5</td><td>21 TR-005-A</td><td>1</td><td>45.00</td></tr> <tr><td>5</td><td>22 TR-007-A</td><td>1</td><td>38.00</td></tr> <tr><td>5</td><td>23 TR-008-A</td><td>1</td><td>32.00</td></tr> <tr><td>5</td><td>24 TR-009-A</td><td>1</td><td>31.00</td></tr> <tr><td>5</td><td>25 TR-003-A</td><td>1</td><td>17.00</td></tr> <tr><td>5</td><td>26 TR-012-A</td><td>1</td><td>11.00</td></tr> <tr><td>5</td><td>27 TR-001-A</td><td>1</td><td>0.00</td></tr> </tbody> </table> <p>Satz 1 von 2 425</p> <p>Company location: Harris Painting & Decorating Brisbane Central QLD 4001</p> <p>Bank information: Bank of Queensland Account No.: 36238438 BSB: 124-301 IBAN: AU29 3046 3443 40 BIC: BOQUAU2M</p> <p>Management: David Harris Tax no.: 46073883483 Ort: K0395623</p> <p>enquiry@harris-painting.com.au, http://www.harris-painting.com.au</p>			Order No.	Description	Quantity	Unit Price	5	1 FU-004-A	1	122.00	5	2 FU-008-A	1	129.00	5	3 FU-011-A	1	27.00	5	4 SU-001-A	1	1.20	5	5 SU-001-D	1	1.20	5	6 SU-004-A	1	7.20	5	7 SU-005-A	1	0.15	5	8 SU-005-C	1	0.15	5	9 SU-006-E	1	0.15	5	10 SU-006-F	1	0.90	5	11 SU-002-A	1	4.00	5	12 SU-009-A	1	4.00	5	13 SU-009-A	1	0.80	5	14 SU-010-A	1	3.00	5	15 SU-003-A	1	4.35	5	16 SU-011-A	1	8.10	5	17 AR-011-A	1	17.00	5	18 AR-004-A	1	117.00	5	19 AR-017-A	1	130.00	5	20 AR-012-A	1	29.00	5	21 TR-005-A	1	45.00	5	22 TR-007-A	1	38.00	5	23 TR-008-A	1	32.00	5	24 TR-009-A	1	31.00	5	25 TR-003-A	1	17.00	5	26 TR-012-A	1	11.00	5	27 TR-001-A	1	0.00
Order No.	Description	Quantity	Unit Price																																																																																																															
5	1 FU-004-A	1	122.00																																																																																																															
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5	3 FU-011-A	1	27.00																																																																																																															
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5	5 SU-001-D	1	1.20																																																																																																															
5	6 SU-004-A	1	7.20																																																																																																															
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 <p>HARRIS PAINTING & DECORATING WE PAINT WITH PASSION</p>		<p>GUARANTEED QUALITY HIGHLY EXPERIENCED FULLY INSURED</p>																																																																																																																
<p>Rücksendungsinfo: Parcelforce 6 days delivery, 4. Main Street, Brisbane Central QLD 4001.</p> <p>Fred Bloggs 177 Elm Crescent SW18 8AF London</p> <p>Projektanmeldung & Dekorating Bearbeitung: vom: 2013-04-23 Unter-/oben: mit: 00 Wiederholung: ab: 2013-04-26</p> <p>Contact Information: Name: Michael Schäfferberger Mobile: 1300 234 4567 Fax: 1300 234 456 Email: michael@harris-painting.com.au Web: www.harris-painting.com.au</p>																																																																																																																		
<p>Textfeld Site: Seaside Apartment House Project</p> <p>Dear Mr. Bloggs,</p> <p>according to your order of 06/04/2014 please receive herewith our invoice 5 for the seaside apartment house project.</p> <table border="1"> <thead> <tr> <th>Order No.</th> <th>Description</th> <th>Quantity</th> <th>Unit Price</th> </tr> </thead> <tbody> <tr><td>5</td><td>1 FU-004-A</td><td>1</td><td>122.00</td></tr> <tr><td>5</td><td>2 FU-008-A</td><td>1</td><td>129.00</td></tr> <tr><td>5</td><td>3 FU-011-A</td><td>1</td><td>27.00</td></tr> <tr><td>5</td><td>4 SU-001-A</td><td>1</td><td>1.20</td></tr> <tr><td>5</td><td>5 SU-001-D</td><td>1</td><td>1.20</td></tr> <tr><td>5</td><td>6 SU-004-A</td><td>1</td><td>7.20</td></tr> <tr><td>5</td><td>7 SU-005-A</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>8 SU-005-C</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>9 SU-006-E</td><td>1</td><td>0.15</td></tr> <tr><td>5</td><td>10 SU-006-F</td><td>1</td><td>0.90</td></tr> <tr><td>5</td><td>11 SU-002-A</td><td>1</td><td>4.00</td></tr> <tr><td>5</td><td>12 SU-009-A</td><td>1</td><td>4.00</td></tr> <tr><td>5</td><td>13 SU-009-A</td><td>1</td><td>0.80</td></tr> <tr><td>5</td><td>14 SU-010-A</td><td>1</td><td>3.00</td></tr> <tr><td>5</td><td>15 SU-003-A</td><td>1</td><td>4.35</td></tr> <tr><td>5</td><td>16 SU-011-A</td><td>1</td><td>8.10</td></tr> <tr><td>5</td><td>17 AR-011-A</td><td>1</td><td>17.00</td></tr> <tr><td>5</td><td>18 AR-004-A</td><td>1</td><td>117.00</td></tr> <tr><td>5</td><td>19 AR-017-A</td><td>1</td><td>130.00</td></tr> <tr><td>5</td><td>20 AR-012-A</td><td>1</td><td>29.00</td></tr> <tr><td>5</td><td>21 TR-005-A</td><td>1</td><td>45.00</td></tr> <tr><td>5</td><td>22 TR-007-A</td><td>1</td><td>38.00</td></tr> <tr><td>5</td><td>23 TR-008-A</td><td>1</td><td>32.00</td></tr> <tr><td>5</td><td>24 TR-009-A</td><td>1</td><td>31.00</td></tr> <tr><td>5</td><td>25 TR-003-A</td><td>1</td><td>17.00</td></tr> <tr><td>5</td><td>26 TR-012-A</td><td>1</td><td>11.00</td></tr> <tr><td>5</td><td>27 TR-001-A</td><td>1</td><td>0.00</td></tr> </tbody> </table> <p>Satz 1 von 2</p> <p>Company location: Harris Painting & Decorating Brisbane Central QLD 4001</p> <p>Bank information: Bank of Queensland Account No.: 36238438 BSB: 124-301 IBAN: AU29 3046 3443 40 BIC: BOQUAU2M</p> <p>Management: David Harris Tax no.: 46073883483 Ort: K0395623</p>			Order No.	Description	Quantity	Unit Price	5	1 FU-004-A	1	122.00	5	2 FU-008-A	1	129.00	5	3 FU-011-A	1	27.00	5	4 SU-001-A	1	1.20	5	5 SU-001-D	1	1.20	5	6 SU-004-A	1	7.20	5	7 SU-005-A	1	0.15	5	8 SU-005-C	1	0.15	5	9 SU-006-E	1	0.15	5	10 SU-006-F	1	0.90	5	11 SU-002-A	1	4.00	5	12 SU-009-A	1	4.00	5	13 SU-009-A	1	0.80	5	14 SU-010-A	1	3.00	5	15 SU-003-A	1	4.35	5	16 SU-011-A	1	8.10	5	17 AR-011-A	1	17.00	5	18 AR-004-A	1	117.00	5	19 AR-017-A	1	130.00	5	20 AR-012-A	1	29.00	5	21 TR-005-A	1	45.00	5	22 TR-007-A	1	38.00	5	23 TR-008-A	1	32.00	5	24 TR-009-A	1	31.00	5	25 TR-003-A	1	17.00	5	26 TR-012-A	1	11.00	5	27 TR-001-A	1	0.00
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Report templates



HARRIS PAINTING & DECORATING
WE PAINT WITH PASSION

, GUARANTEED QUALITY
, HIGHLY EXPERIENCED
, FULLY INSURED

Harris painting & decorating, 4, Main Street, Brisbane Central QLD 4001

Fred Bloggs
177 Elm Crescent
SW4 8AF London
020 1234 5678

Harris painting & decorating
David Harris
4, Main Street
Brisbane Central QLD 4001

Contact information:
Mobile: 1300 234 457
Tel.: 1300 234 458
Fax: 1300 234 459
Email: david@harris-painting.com.au
Web: www.harris-painting.com.au

Site: Seaside Apartment House Project

5	1	1	122.00	PU-004-A
5	2	1	129.00	PU-009-A
5	3	1	27.00	PU-011-A
5	4	1	122.00	SU-001-A
5	5	1	122.00	SU-001-D
5	6	1	122.00	SU-004-A
5	7	1	0.15	SU-005-A
5	8	1	0.15	SU-005-C
5	9	1	0.15	SU-005-B
5	10	1	9.00	SU-006-A
5	11	1	4.00	SU-002-A
5	12	1	4.00	SU-008-A
5	13	1	0.95	SU-008-A
5	14	1	3.55	SU-010-A
5	15	1	4.35	SU-003-A
5	16	1	6.10	SU-011-A
5	17	1	17.00	AR-011-A
5	18	1	117.00	AR-004-A
5	19	1	130.00	AR-017-A
5	20	1	28.00	AR-012-A
5	21	1	45.00	TR-005-A
5	22	1	38.00	TR-007-A
5	23	1	32.00	TR-008-A
5	24	1	31.00	TR-009-A
5	25	1	17.00	TR-003-A
5	26	1	11.00	TR-012-A
5	27	1	0.90	TR-001-A
5	28	1	22.00	EN-001-A
5	29	1	97.00	EN-004-A
5	30	1	27.00	EN-008-A
5	31	1	15.00	EN-003-A
5	32	1	3.00	EN-005-A
5	33	1	108.00	EN-006-A

Seite 1 von 1

Company location:
Harris painting & decorating
Brisbane Central
QLD 4001

Bank information:
Bank of Queensland
Account No.: 36236438
BSB: 124-001
IBAN: AU62 3623 6438 0001
bic: BOQUAU2XXX

Management:
David Harris
Tax No. 0123456789
O-H: K2200523

Management:
David Harris
Tax No. 4423889583
O-H: K2200523



HARRIS PAINTING & DECORATING
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Harris painting & decorating, 4, Main Street, Brisbane Central QLD 4001

Fred Bloggs
177 Elm Crescent
SW4 8AF London
020 1234 5678

Harris painting & decorating
David Harris
4, Main Street
Brisbane Central QLD 4001

Contact information:
Mobile: 1300 234 457
Tel.: 1300 234 458
Fax: 1300 234 459
Email: sales@harris-painting.com.au
Web: www.harris-painting.com.au

Site: Seaside Apartment House Project

5	1	1	122.00	PU-004-A
5	2	1	129.00	PU-009-A
5	3	1	27.00	PU-011-A
5	4	1	1.20	SU-001-A
5	5	1	1.20	SU-001-D
5	6	1	7.20	SU-004-A
5	7	1	0.15	SU-005-A
5	8	1	0.15	SU-005-C
5	9	1	0.15	SU-005-B
5	10	1	9.90	SU-006-A
5	11	1	4.00	SU-002-A
5	12	1	4.00	SU-008-A
5	13	1	0.80	SU-008-C
5	14	1	3.50	SU-010-A
5	15	1	4.25	SU-003-A
5	16	1	6.10	SU-011-A
5	17	1	17.00	AR-011-A
5	18	1	117.00	AR-004-A
5	19	1	130.00	AR-017-A
5	20	1	28.00	AR-012-A
5	21	1	45.00	TR-005-A
5	22	1	38.00	TR-007-A
5	23	1	32.00	TR-008-A
5	24	1	31.00	TR-009-A
5	25	1	17.00	TR-003-A
5	26	1	11.00	TR-012-A
5	27	1	1.00	TR-001-A

Seite 1 von 2

Company location:
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Brisbane Central
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BSB: 124-001
IBAN: AU62 3623 6438 0001
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Management:
David Harris
Tax No. 0123456789
O-H: K2200523

Management:
David Harris
Tax No. 4423889583
O-H: K2200523

Page | 24



Report templates

The screenshot shows the Genero Report Designer interface. On the left, the 'Parameters' tab is selected in the 'Data Source & Template' panel. It displays the 'Template Design File Name' as '0106000Template.4rg', 'Data Source' as 'Jrd File Name: OrderReport', 'Jrd File Name' as 'OrderReport-report_all_orders', and 'Report Name' as 'report_all_orders'. Below these are lists of fields and placeholder mappings.

Fields contained in the report:

- orderline.orders.orderid
- orderline.orders.orderdate
- orderline.orders.orderstatus
- orderline.orders.shipfromname
- orderline.orders.shipfromstate
- orderline.orders.shipfromzip
- orderline.orders.shiptoaddr1
- orderline.orders.shiptoaddr2
- orderline.orders.shiptocity
- orderline.orders.shiptostate
- orderline.orders.shiptozip
- orderline.orders.shipwaybill
- orderline.orders.shipwaybillname
- orderline.orders.billfromname
- orderline.orders.billfromstate
- orderline.orders.billfromzip
- orderline.orders.billtoaddr1
- orderline.orders.billtoaddr2
- orderline.orders.billtocity
- orderline.orders.billtostate
- orderline.orders.billtozip

Placeholder Mapping:

Name	Number	Value
officeMobilePhoneNumber		1300 234 457
officePhoneNumber		1300 234 458
officeAddress		4, Main Street
FooterColumn2Row2		Account No.: 38238438
FooterName		Artif
FooterColumn2Title		Bank Information:
FooterColumn2Row1		Bank of Queensland

COMMAND LINE:

```
jira -e GeneroReport -debugLevel 9 -schemaFileBase "OrderReport-report_all_orders.rdf" -templateFileName "0106000Template.4rg" -triggerMapping "(Group: extend,outerGroup0,0,group,embed,innerGroup0,0+EveryRow,rows)" -rootElementName "Report" -relativePathFor "orderline,orderid,orderdate,orderstatus,shipfromname,orderline,orderstatus,quantity,orderline,shipfromname" -placeholderMappings "(firstName, "Artif"),(checkbox,measures, "0"),(logURL, "resources/GenericLetterLogo.png"),(companyName, "HARRIS PAINTING & DECORATING"),(measureStatement, "WE PAINT WITH PASSION!"),(companyHighlight1, "", GUARANTEED QUALITY!), (companyHighlight2, "", HIGHLY EXPERIENCED!), (companyHighlight3, "", FULLY INSURED!), (addressLine1, "Harris painting & decorating"), (officeAddress, "4, Main Street"), (officeCity, "Brookside Central QLD 40001"), (addressLine2, "((orderline.orders.billfromname.trim()))"), (addressLine3, "((orderline.orders.billfromstate.trim()))"), (addressLine4, "((orderline.orders.billfromzip.trim()))"), (addressLine5, "((orderline.orders.billtoaddr1.trim()))"), (addressLine6, "((orderline.orders.billtoaddr2.trim()))"), (addressLine7, "((orderline.orders.billtozip.trim()))"), (addressLine8, "((orderline.orders.billtocity.trim()))")
```



Report templates – editing templates

➤ Schema based template editing

- Predefined schemas for specific report classes,
- Type-safe editing of templates,
- Easy conversion of reports into templates.

➤ High flexibility

- **Template field** toolbox object for creation of document objects based on fields,
- Placeholder substitution,
- Support for all types of data representation (e.g. from primitives, tables, pivot tables, charts, etc.),
- Support for groups and typical layouts based on groups,
- Structure of actual data and structure of data in template can differ.





Report templates - samples

Order List Grouped by Customers and Orders				
OrderID	LineItem ItemId	Quantity	UnitPrice	
				Carried forward
				1,173.50
denis	John Denis			Carried forward:
				112.00
3.0	0939/2014			Carried forward:
3.	4.BH-004-A	1	87.00	112.00
				Total of 3.0:
				209.00
				Total of denis:
				209.00
dupont	Jean Dupont			
1.0	0939/2014			
1	1.FU-001-A	1	1495.00	
1	2.FU-008-A	1	129.00	
1	3.SU-005-D	1	1.30	
1	4.SU-002-C	1	14.00	
1	5.SU-010-A	1	3.50	
1	6.SU-003-B	1	4.35	
1	7.BH-010-A	1	16.00	
				Total of 1.0:
				1,660.15
				Total of dupont:
				1,660.15
				Total until this point:
				2,960.65

Order List Grouped by Customers and Orders				
LineItem ItemId	ProducName	Quantity	UnitPrice	
				Carried forward:
				1,061.50
denis	John Denis			
3.0	0939/2014			
1	1.FU-009-A	1	17.00	Filing cabinets
2.FU-001-A	Globe	1	22.00	
3.AR-014-A	Picture frame A	1	73.00	
4.SU-004-A	Chess game	1	97.00	
				Total of 3.0:
				209.00
				Total of denis:
				209.00
dupont	Jean Dupont			
1.0	0939/2014			
1	1.FU-001-A	1	1,495.00	Board room table and chairs
2.FU-008-A	Office chair	1	129.00	
3.SU-005-D	Cutting pencils	1	1.30	
4.SU-002-C	Notebook	1	14.00	
5.SU-010-A	Pen	1	3.50	
6.SU-003-B	Scissors	1	4.35	
7.BH-010-A	Table tennis paddles and ball	1	18.00	
				Total until this point:
				1,660.15
				Total until this point:
				1,660.15
				Total until this point:
				2,960.65
				3 of 3



➤ **Maintainability**

- Manage large numbers of reports
- Separation of report logic from presentation
 - Isolate database from external providers
 - Redecorate existing reports
- Version control
- Schema error checking
 - Type safe expressions
 - Schema modifications
 - Design, rather than runtime time discovery
- Template driven





➤ Pixel exact rendering

- Exact output as GRV,
- Text is declared as strings keeping the document small.

➤ Creation of WOFF fonts on-the-fly

- Supports all fonts seen by GRE (Type1 and TrueType),
- Fonts are cached and can be shared between documents,
- Good performance also for Asian fonts.

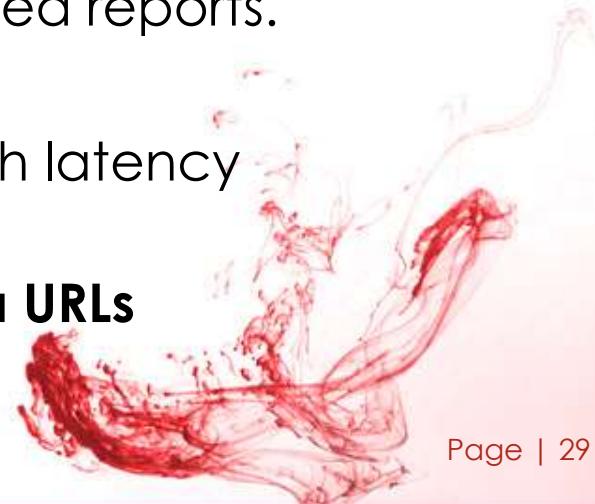
➤ Streaming (progressive) viewing and printing

- Support of random navigation in unfinished reports.

➤ Support for very large documents

- Works well on low bandwidth and/or high latency connections.

➤ Reports can be bookmarked and shared via URLs





Browser based report viewer - samples

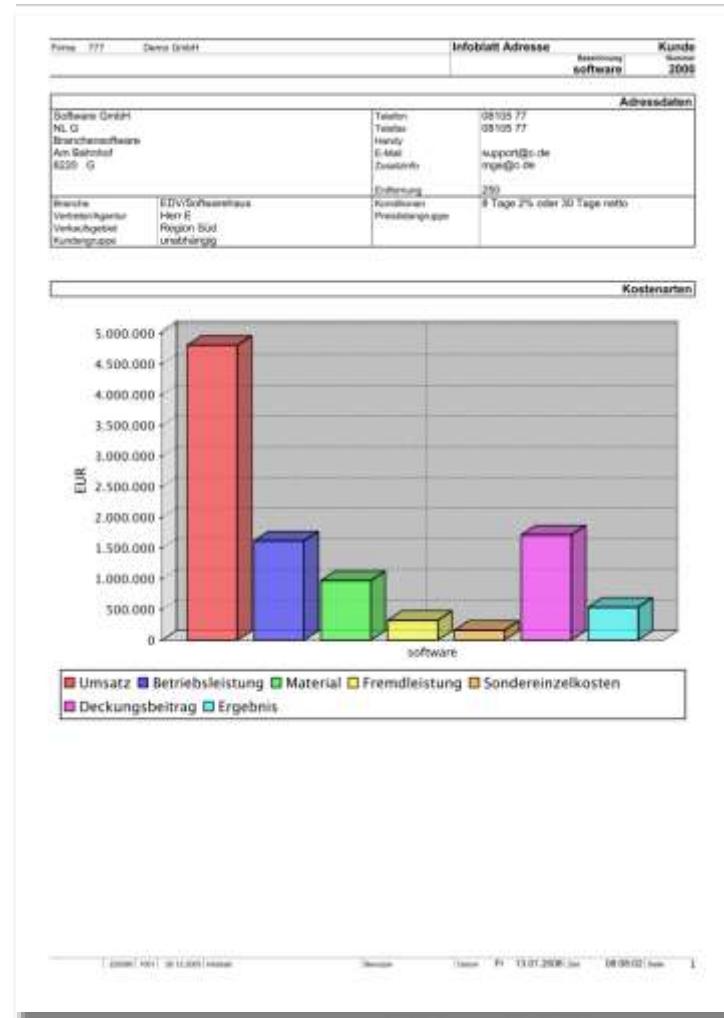
- [Calendar](#)
- [CategorychartByAreasAndCategories](#)
- [CategorychartRevenueByCategoriesAndCustomers](#)
- [CategorychartRevenueByCustomersAndCategories](#)
- [DynamicPivotTable](#)
- [GenericList](#)
- [GroupedTableDemo](#)
- [ListDemo](#)
- [MapchartRevenueByCategories](#)
- [MapchartRevenueByCustomers](#)
- [MapchartRevenueByCustomersAndCategories](#)
- [MasterReport](#)
- [OrderLabels](#)
- [OrderList](#)
- [OrderReport](#)
- [OrderReportASCII](#)
- [OrderReportASCII4](#)
- [OrderStock](#)
- [StaticPivotTable](#)
- [TableDemo](#)
- [XYChart](#)
- [Chinese Report](#)





➤ Report Engine

- Graphic rendering of text reports
- Quick and easy data layout
- Advanced layout
 - Position & size data elements
 - Avoid data truncation
 - Translation & internationalization
 - Design single report for multiple paper sizes





➤ Report Engine

- XML streamed output
- Low memory consumption
- “Print-as-you-go”
 - Rapid 1st, 2nd, 3rd... nth page delivery
- Print very large reports
 - No need for temp files
 - Merge data/blobs from
 - multiple sources
- Relative or absolute positioning of elements
 - Headers/footers on page breaks
 - Horizontal/vertical box propagation

The screenshot shows a report interface with the following details:

Four J's Development Tools
1, rue de Berne
67200 Schiltigheim
Phone: +33 (0) 3 88 18 61 20
Fax: +33 (0) 3 88 18 61 21
Web: <http://www.4js.com>

Customer Order
Order Date: 03/05/2005 Order No.: 7 Origin: MTC

Item ID	Description	Quantity	Unit Price	Total
AR-011-A	Picture frame 1 Unit	1	17.00	17.00
FU-001-A	Board room table and chairs	1	1480.00	1480.00
SU-008-A	Paper clamp	1	0.80	0.80
SU-011-A	Duster	1	6.10	6.10
SU-004-A	Clipboard	1	7.20	7.20
SU-001-C	Blue and green pens	1	11.10	11.10
SU-001-F	Blue and green pens	1	11.10	11.10
SU-006-A	Magnifying glass	1	9.90	9.90
SU-007-A	Measuring tape	1	4.80	4.80
SU-003-B	Scissors	1	4.35	4.35
TR-007-A	Luggage 2	1	38.00	38.00
TR-001-B	Toothbrush	1	2.90	2.90
EN-002-A	Basketball	1	32.00	32.00

Total price: \$ 1634.85

Powered with Genero Report Writer - version 4.0

http://www.4js.com Total width this report: 1040.00 Page: 1

➤ Hand coded data sources

- Allows reusing existing objects (e.g. JPA/Hibernate classes)
- Enables custom data sources (e.g. web service).
- Requires schema-from-code utility and marshaller to be workable (Available for 4GL, Java and .Net).

➤ Generated data sources (via. BAM)

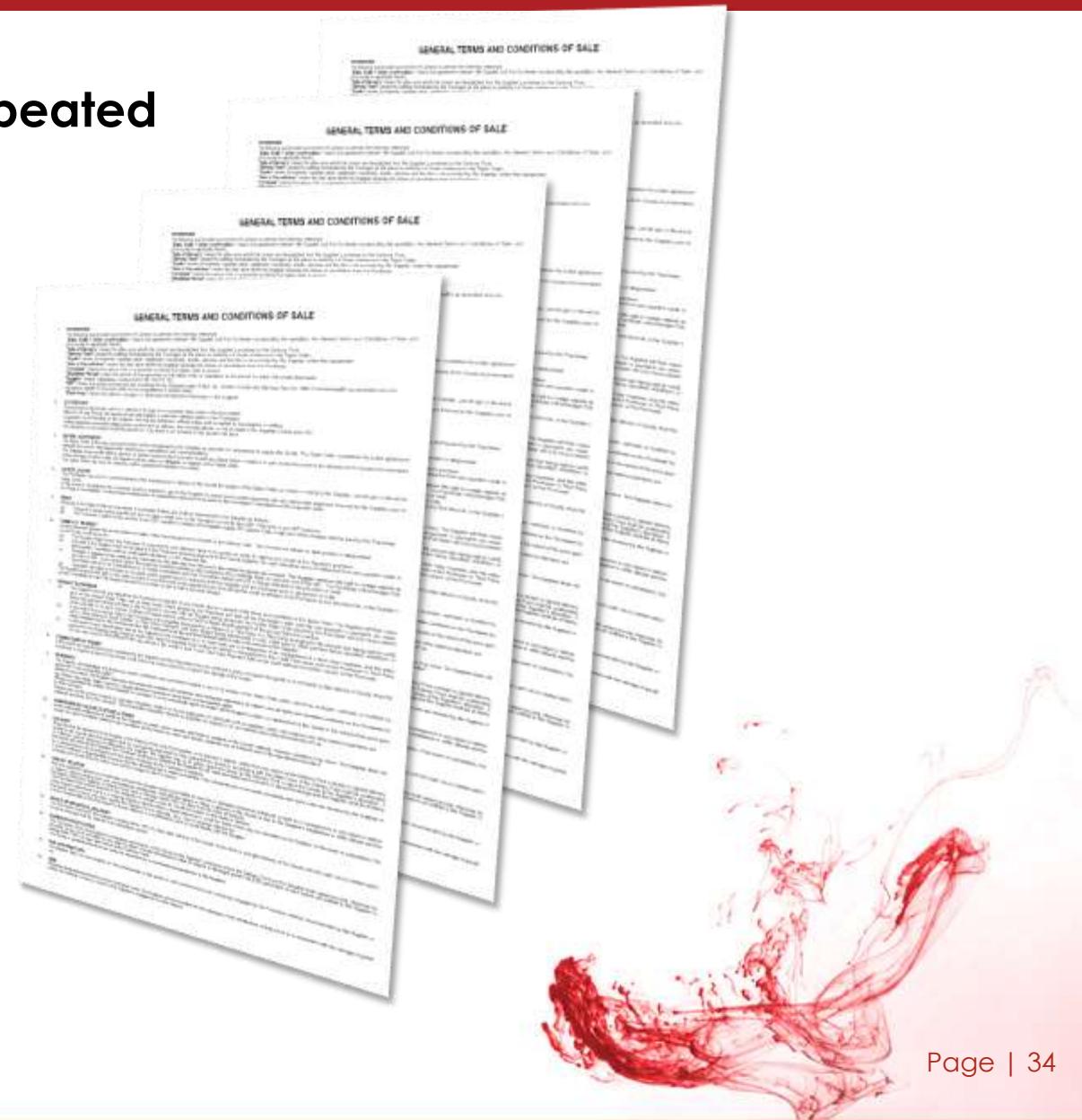
- Abstracts language specific details
- Works for languages without schema compiler (e.g. PHP, C, COBOL)
- Enables the creation of identical data sources in different languages.





Reverse side printing

- Efficient printing of repeated verso pages



Enterprise class reports – output formats

➤ Output formats:

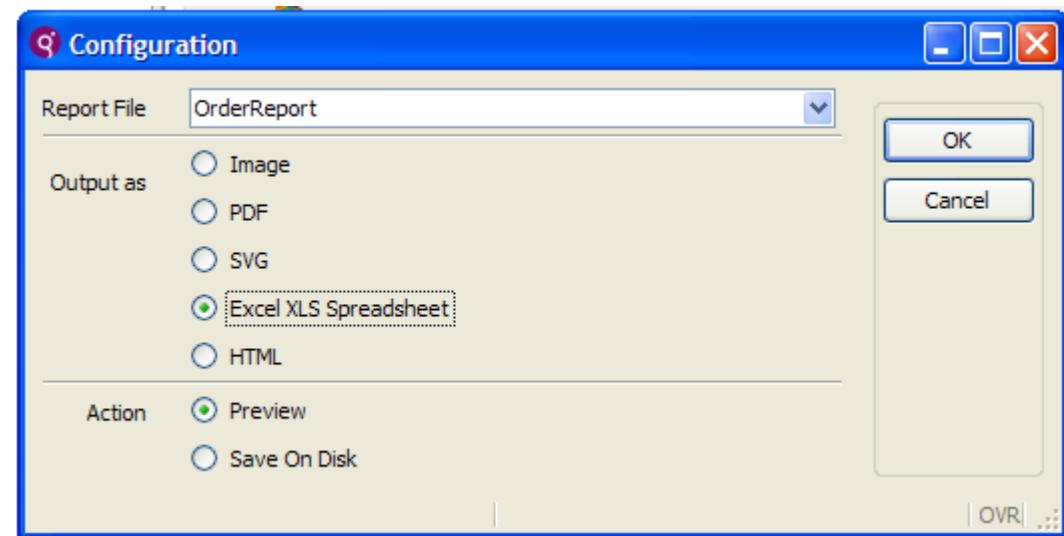
Excel

Word

PDF

HTML

SVG





Enterprise class reports – output formats

MS Excel

➤ Excel output

- Output any REPORT to Excel
- Design Excel reports from Report Designer
- Graphical elements rendered as images

Microsoft Excel - Report-alex dell-11028-05-17-15-46-21.7.xls

	A	B	C
1	Revenue by Categories and Customers	Customer	Revenue
2	Insert categories		
3	Furniture	John Denis	39.00
4	Furniture	Jean Dupont	1,619.00
5	Furniture	Pedro Garcia	39.00
6	Furniture	Fred Bloggs	278.00
7	Furniture	Steve Miller	1,490.00
8	Office Decor	John Denis	73.00
9	Office Decor	Fred Bloggs	293.00
10	Office Decor	Steve Miller	17.00
11	Entertainment	John Denis	97.00
12	Entertainment	Jean Dupont	18.00
13	Entertainment	Pedro Garcia	32.00
14	Entertainment	Fred Bloggs	272.00
15	Entertainment	Steve Miller	32.00
16	Supplies	Jean Dupont	43.15
17	Supplies	Pedro Garcia	4.00
18	Supplies	Fred Bloggs	42.70
19	Supplies	Steve Miller	55.35
20	Travelling	Pedro Garcia	11.90
21	Travelling	Fred Bloggs	175.80
22	Travelling	Steve Miller	40.50
23			

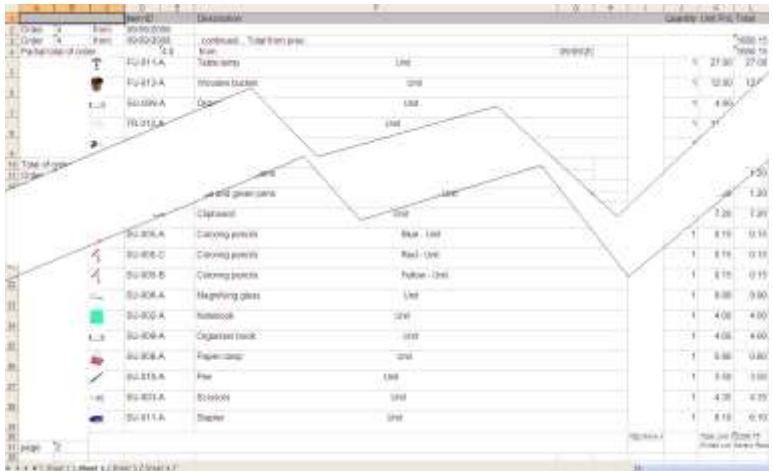


Enterprise class reports – output formats

MS Excel

➤ Excel output

- Output any REPORT to Excel
- Design Excel reports from Report Designer
- Graphical elements rendered as images





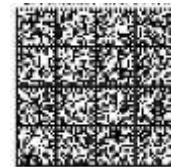
Enterprise class reports – output formats

MS Excel

➤ Excel output

- Output any REPORT to Excel
- Design Excel reports from Report Designer
- Graphical elements rendered as images

Report Title Here		
User1	B1p4001 Suite 500, Level 5	209.00
to-asia	Suite 500, Level 5	209.00
to-asia	Suite 500, Level 5	209.00
to-asia	Suite 500, Level 5	209.00



Enterprise class reports – output formats

MS Word

The screenshot shows a Microsoft Word document window titled "Report_002_10-07-11-23-02.rtf - Microsoft Word". The document contains a logo for "Office Supplies" featuring a blue pen nib, company address, customer information, and a table of items ordered.

Office Supplies
4 Avenue de Paris
78000 Versailles
Phone: +33 (0) 1 23 45 67 89
FAX: +33 (0) 1 23 45 67 80

Customer Code: bloggs
Fred Bloggs
177 Elms Crescent
SW4 8AF London
United Kingdom

Customer Order

Item ID	Description	Quantity	Unit Price	Total
FU-004-A	Grandfather clockUnit	1,00	122.00	122.00
FU-008-A	Office chairUnit	1,00	129.00	129.00
FU-011-A	Table lampUnit	1,00	27.00	27.00
SU-001-A	Blue and green pensBlue - Unit	1,00	1.20	1.20
SU-001-D	Blue and green pensGreen - Unit	1,00	1.20	1.20
SU-004-A	ClipboardUnit	1,00	7.20	7.20
SU-005-A	Coloring pencilsBlue - Unit	1,00	0.15	0.15





Genero
report writer

Enterprise class reports – output formats HTML & PDF

Fred's Development

Customer Order

Order ID	Description	Quantity	Unit Price	Total Price
FO-001	Filing cabinet (1)	1.00	17.00	17.00
FO-002	Wool (1)	1.00	22.00	22.00
FO-003	Picture frame (1)	1.00	73.00	73.00
FO-004	Cheese (1)	1.00	97.00	97.00
FO-005	Office chair (1)	1.00	1,490.00	1,490.00
FO-006	Board room table and chairs (1)	1.00	129.00	129.00
FO-007	Coloring pencils (1)	1.00	1.30	1.30
FO-008	Notebook (1)	1.00	34.00	34.00

Total order value: 1,699.30

Customer Order

Order ID	Description	Quantity	Unit Price	Total Price
FO-001	Filing cabinet (1)	1.00	17.00	17.00
FO-002	Wool (1)	1.00	22.00	22.00
FO-003	Picture frame (1)	1.00	73.00	73.00
FO-004	Cheese (1)	1.00	97.00	97.00
FO-005	Office chair (1)	1.00	1,490.00	1,490.00
FO-006	Board room table and chairs (1)	1.00	129.00	129.00
FO-007	Coloring pencils (1)	1.00	1.30	1.30
FO-008	Notebook (1)	1.00	34.00	34.00

Total order value: 1,699.30

Company

User: 12 A. Smith

Entered according to user's order of products listed

Order Date: 2003-08-14 Page: 1

John Davis

Travelling = 175.8

Entertainment = 272

Supplies = 42.7

Office Decor = 293

Furniture = 278

● Entertainment = 272 ● Furniture = 278 ● Office Decor = 293 ● Supplies = 42.7

● Travelling = 175.8

Steve Miller

Travelling = 40.3

Entertainment = 32

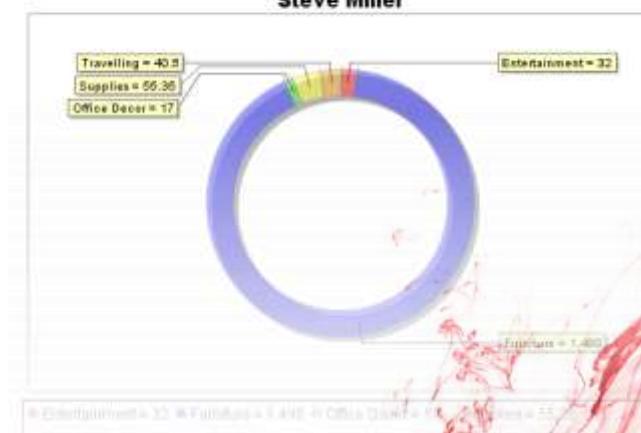
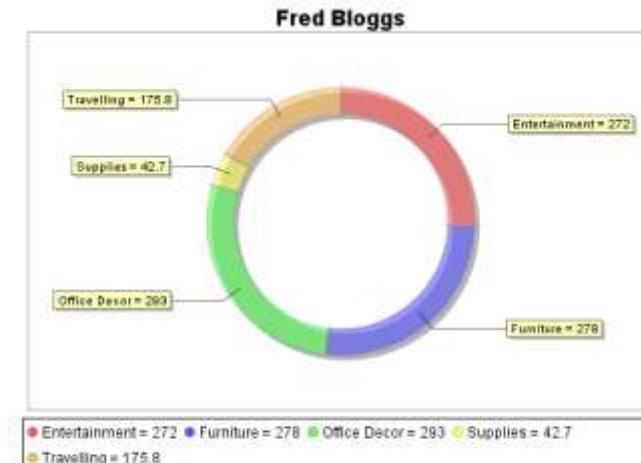
Supplies = 56.38

Office Decor = 17

Furniture = 1,492

● Entertainment = 32 ● Furniture = 1,492 ● Office Decor = 17 ● Supplies = 56.38

● Travelling = 40.3

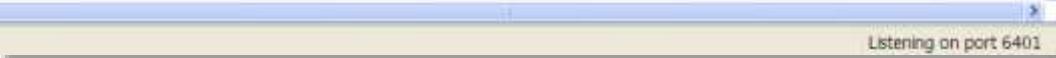




Enterprise class reports - pagination

➤ Page 'n of M'

- 'M' page count for all pages or sub-ranges
- Display total number of pages 'M' on each page

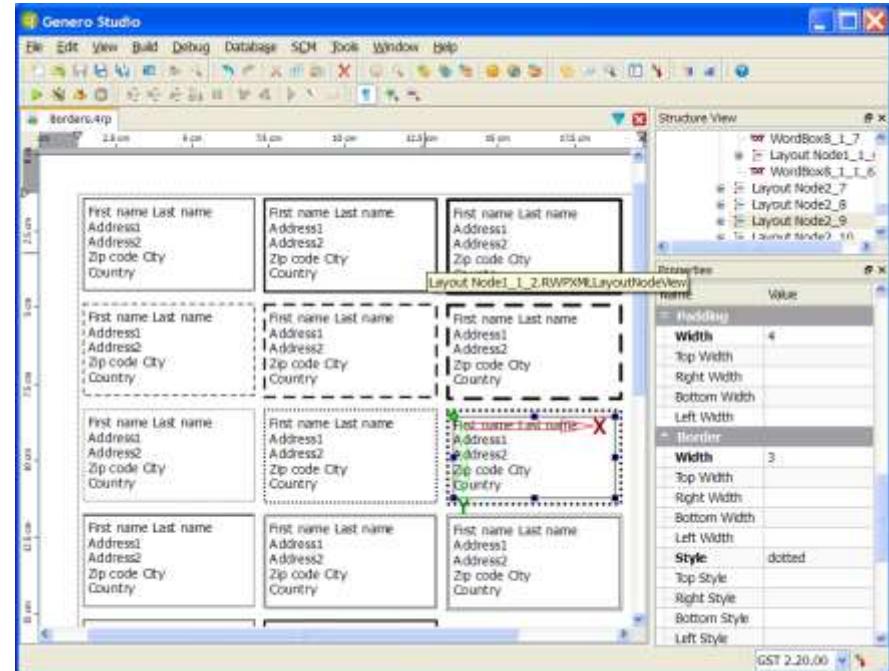
	1,00	0.00	0.00
	1,00	4.35	4.35
saddles and ball	1,00	18.00	18.00
<hr/>			1680.15
<hr/>			
http://www.4js.com		Total until this point: 1889.15	
page 1/4			
			





➤ Borders and padding

- Border style & thickness
- Padding:
 - Defines outer space
- Marging:
 - Defines inner space



Enterprise class reports – data sources

- **XML data sources**

- XML as data

- XML schema(or DTD) as report data definition

- **Report Designer**

- Dataview shows XML schema

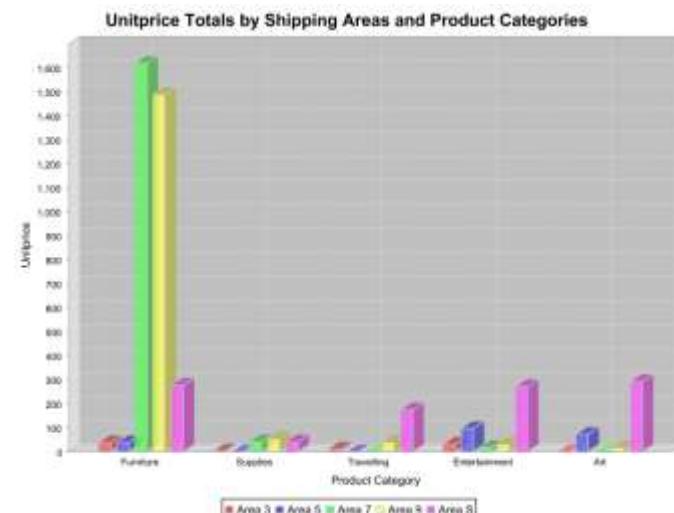
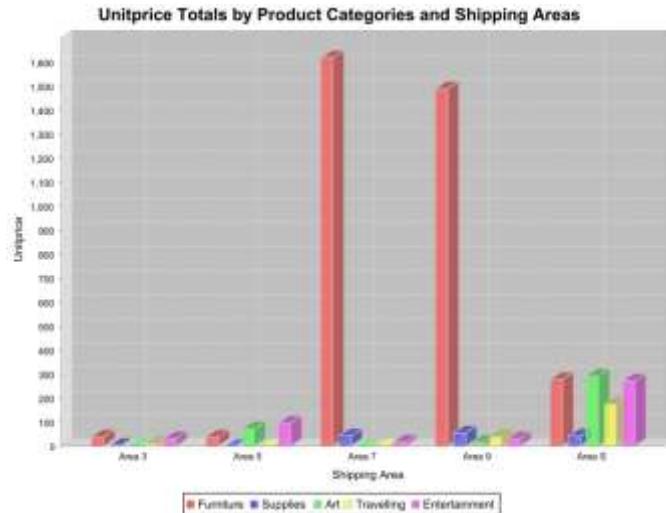
- Report design based on XML schema

- **Third party product integration will use XML data sources**





- Charts with multiple dimensions,
- Table with fixed column role types (measure & dimension),
- Table rows known as 'facts'.

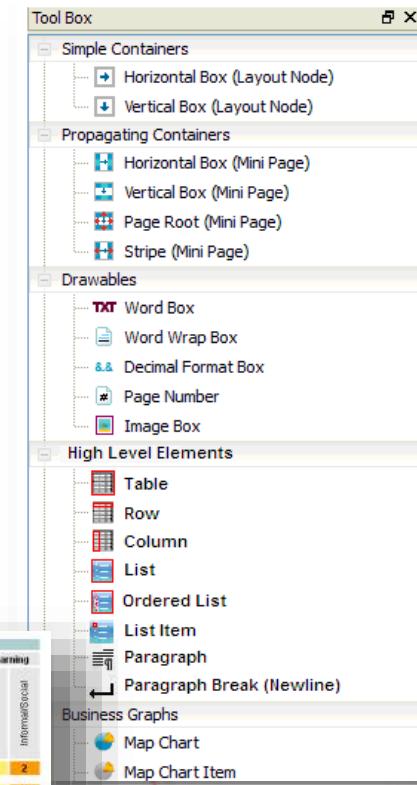


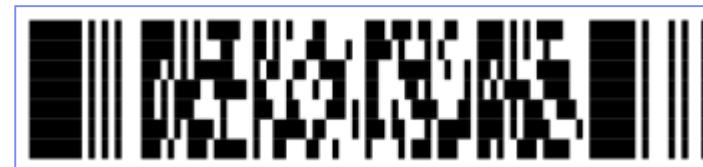


- Table object manipulates columns, lines and cells for easier formatting and alignment

		Header A	Header B			Header C
		Header 1	Header 2	Header 3	Header 4	Header 5
L11		L12	L13	L14	L15	L16
L21		L22	L23	L24	L25	L26
L31		L32	L33	L34	L35	L36
L41		L42	L43	L44	L45	L46
L51		L52	L53	L54	L55	L56

Overall	Environment			Factors					
	McBassi	Work	Leadership	Learning	Accomplish.	Commitment	Work	Leadership	Learning
Business Unit X	3	3	1	2	3	1	3	2	1
Sales Unit 1	3	3	4	2	3	1	3	2	1
Sales Unit 2	5	5	5	4	5	5	5	5	5
Sales Unit 3	3	3	1	2	3	1	3	2	1
Business Unit Y	2	2	2	2	2	3	2	1	3
Call Center 1	2	2	3	2	3	2	2	3	2
Call Center 2	2	2	3	1	2	3	1	3	2
Call Center 3	2	2	2	2	2	1	2	1	2
Plant 1	3	3	4	3	1	5	3	3	5
Plant 2	3	3	4	3	3	4	3	4	2
Plant 3	3	2	4	3	3	3	2	1	3







Quick response (QR) codes

Hello World: width="3cm"

<http://www.4js.com>



Hello World: size not specified
(default error correction (3))



➤ **Sub-reports**

Produce REPORT data using sub-reports

Design a single graphical representation

➤ **Templates**

Store part of the graphical representation in a Template library

Re-use elements of the template library (aggregation)

Parameterized template elements

User defined regions in template elements





➤ Sub-reports

REPORT data using sub-reports

Design a single graphical representation

Three column sub-report in a 'detail' section. When more data is added, the sub-report will stretch the section downwards adding rows but keeping three columns across.

<i>Requisition Spending by Section - Current</i>		
<i>Department: ADP 303000 Mgmt</i>		
<i>Section: 30300000 MGMT.</i>		
<i>Requisition Type</i>	<i>Budget</i>	<i>Total \$</i>
Police Detail for Road	\$0.00	\$1,500.00
Cell Phones	\$20,000.00	\$3,758.15
<i>Summary for 'ReqDept' = 30300000 (2 detail records)</i>		
<i>Sum</i>		\$5,258.15
<i>Section: 30304000 SAFETY</i>		
<i>Requisition Type</i>	<i>Budget</i>	<i>Total \$</i>
Safety data sheets	\$0.00	\$998.00
<i>Summary for 'ReqDept' = 30304000 (1 detail record)</i>		
<i>Sum</i>		\$998.00
<i>Department: ADP 333000 Grounds</i>		
<i>Section: 33304000 Grounds</i>		
<i>Requisition Type</i>	<i>Budget</i>	<i>Total \$</i>
Heavy Equipment Repair	\$95,000.00	\$2,057.00
Paint Booth VOC Tracking Soft	\$1,100.00	\$550.00
State Inspection Stickers	\$1,250.00	\$850.00
Stock	\$10,750.00	\$604.76
Tires	\$45,000.00	\$2,281.28
<i>Summary for 'ReqDept' = 33304000 (5 detail records)</i>		
<i>Sum</i>		\$6,343.04

Thank you





QUESTIONS ?

