

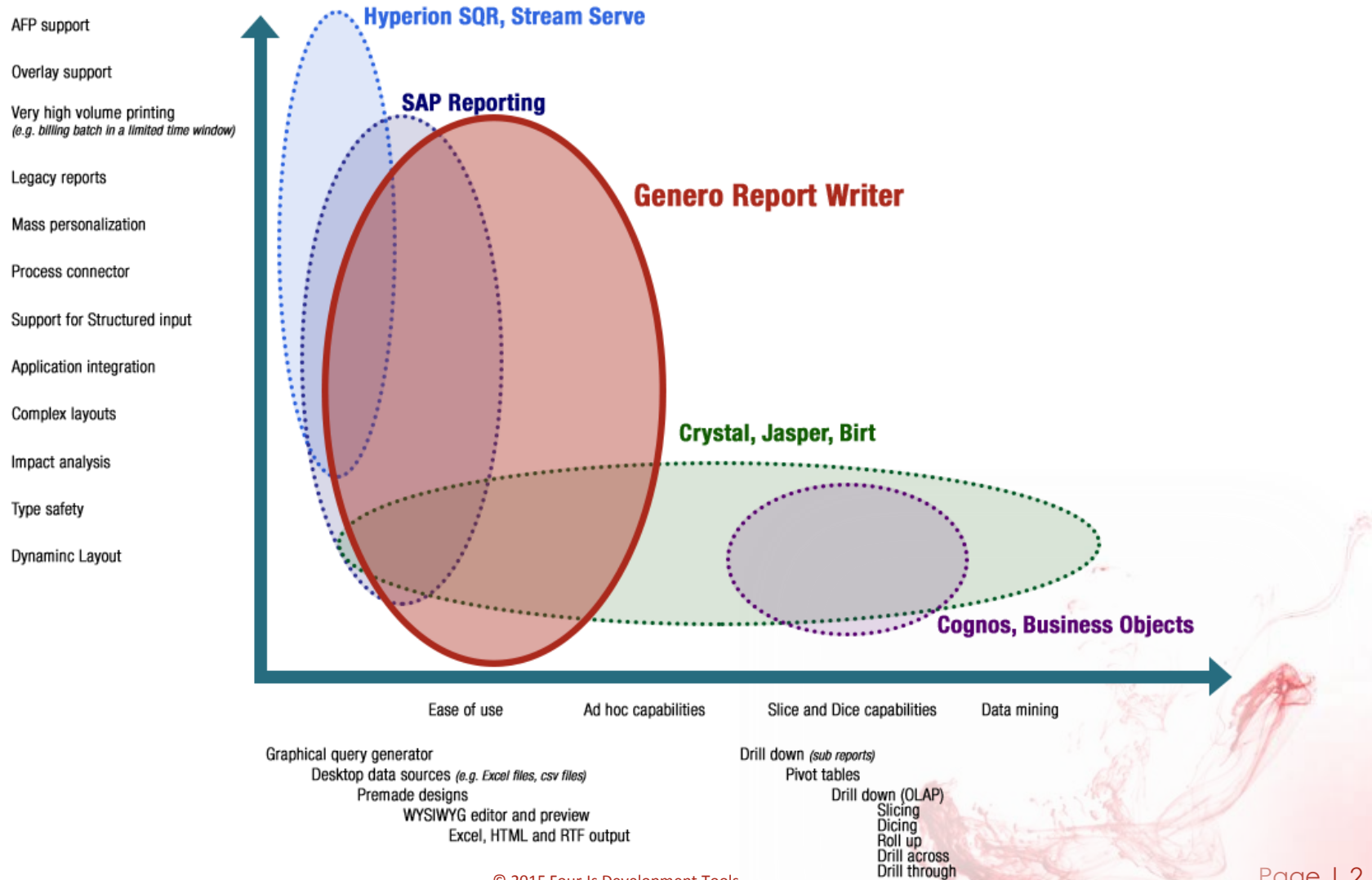


**Genero**®  
report writer

# PRODUCT OVERVIEW

July 2015





## DEVELOPMENT



Developer

```

public class Client {
    public static void main(String[] args) {
        try {
            Socket s = new Socket(host, port);
            OutputStream out = s.getOutputStream();
            InputStream in = s.getInputStream();
            long l1 = Math.random();
            double d1 = Math.random();
            byte[] protected1 = protection.getBytes(l1 + "" + d1);
            long l2 = Math.random();
            double d2 = Math.random();
            byte[] protected2 = protection.getBytes(l2 + "" + d2);
            out.writeUTF(user);
            out.writeUTF(protected1.length);
            out.write(protected1);
            out.flush();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

public static void main(String[] args) {
    String host = "192.168.1.100";
    int port = 7999;
    String user = "John";
    String password = "shh";
    Socket s = new Socket(host, port);
    Client client = new Client(s);
    client.sendAuthent
    
```



Designer

Category	Value
Category 1	Value 1
Category 2	Value 2
Category 3	Value 3
Category 4	Value 4
Category 5	Value 5
Category 6	Value 6
Category 7	Value 7
Category 8	Value 8
Category 9	Value 9
Category 10	Value 10
Category 11	Value 11
Category 12	Value 12
Category 13	Value 13
Category 14	Value 14
Category 15	Value 15
Category 16	Value 16
Category 17	Value 17
Category 18	Value 18
Category 19	Value 19
Category 20	Value 20

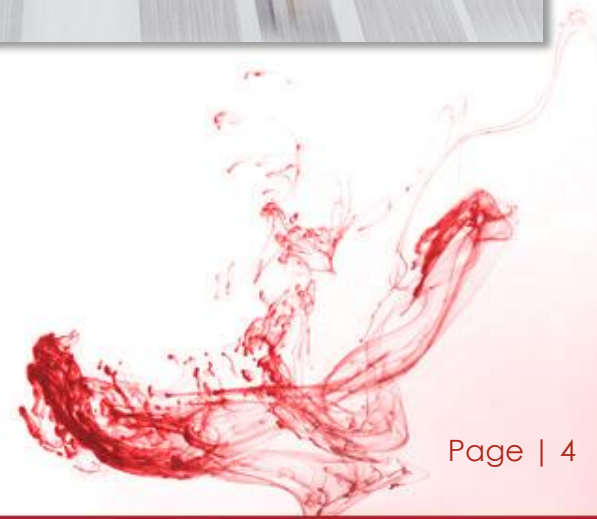
## PRODUCTION



End-user

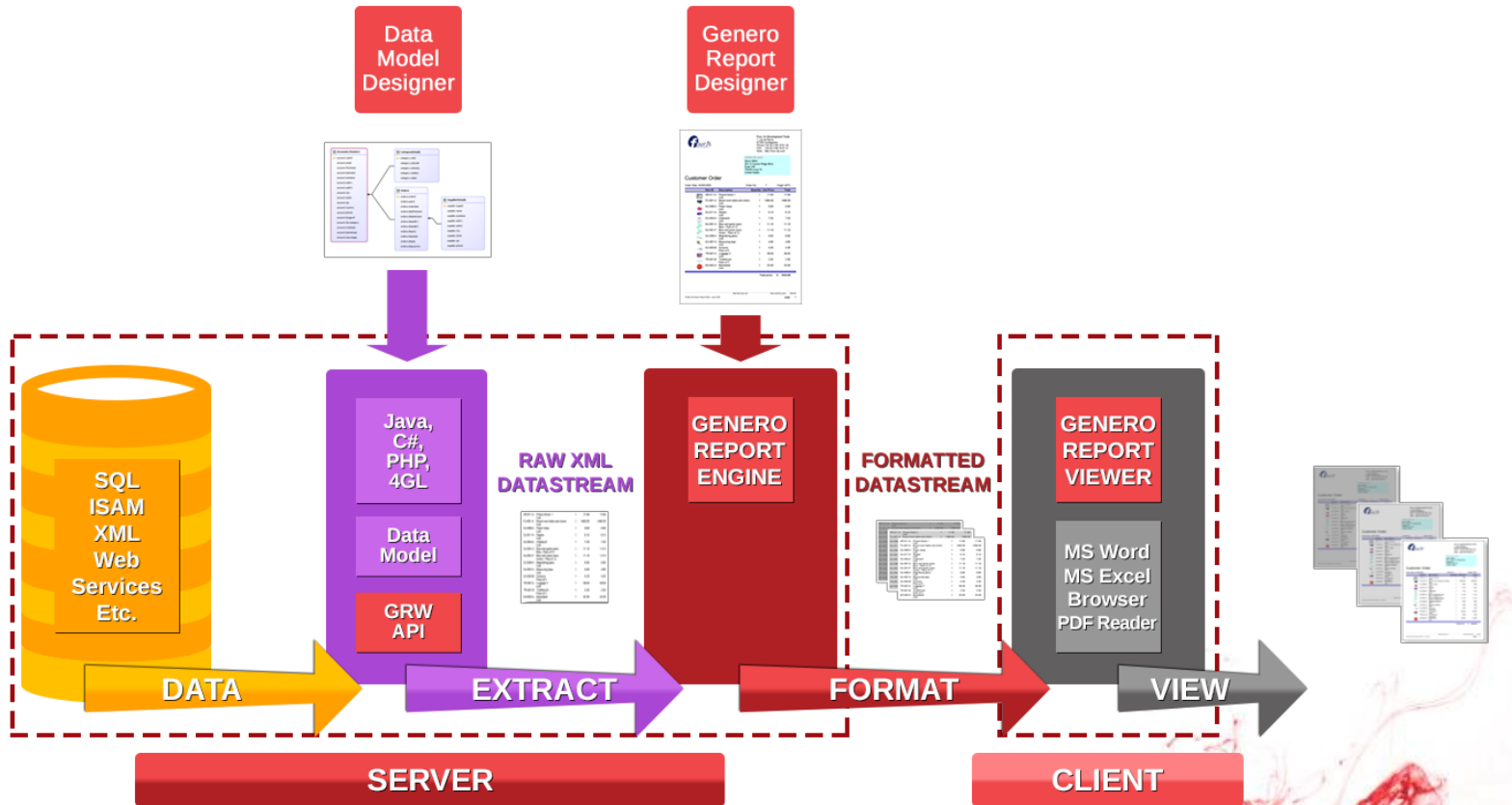
Category	Value
Category 1	Value 1
Category 2	Value 2
Category 3	Value 3
Category 4	Value 4
Category 5	Value 5
Category 6	Value 6
Category 7	Value 7
Category 8	Value 8
Category 9	Value 9
Category 10	Value 10
Category 11	Value 11
Category 12	Value 12
Category 13	Value 13
Category 14	Value 14
Category 15	Value 15
Category 16	Value 16
Category 17	Value 17
Category 18	Value 18
Category 19	Value 19
Category 20	Value 20

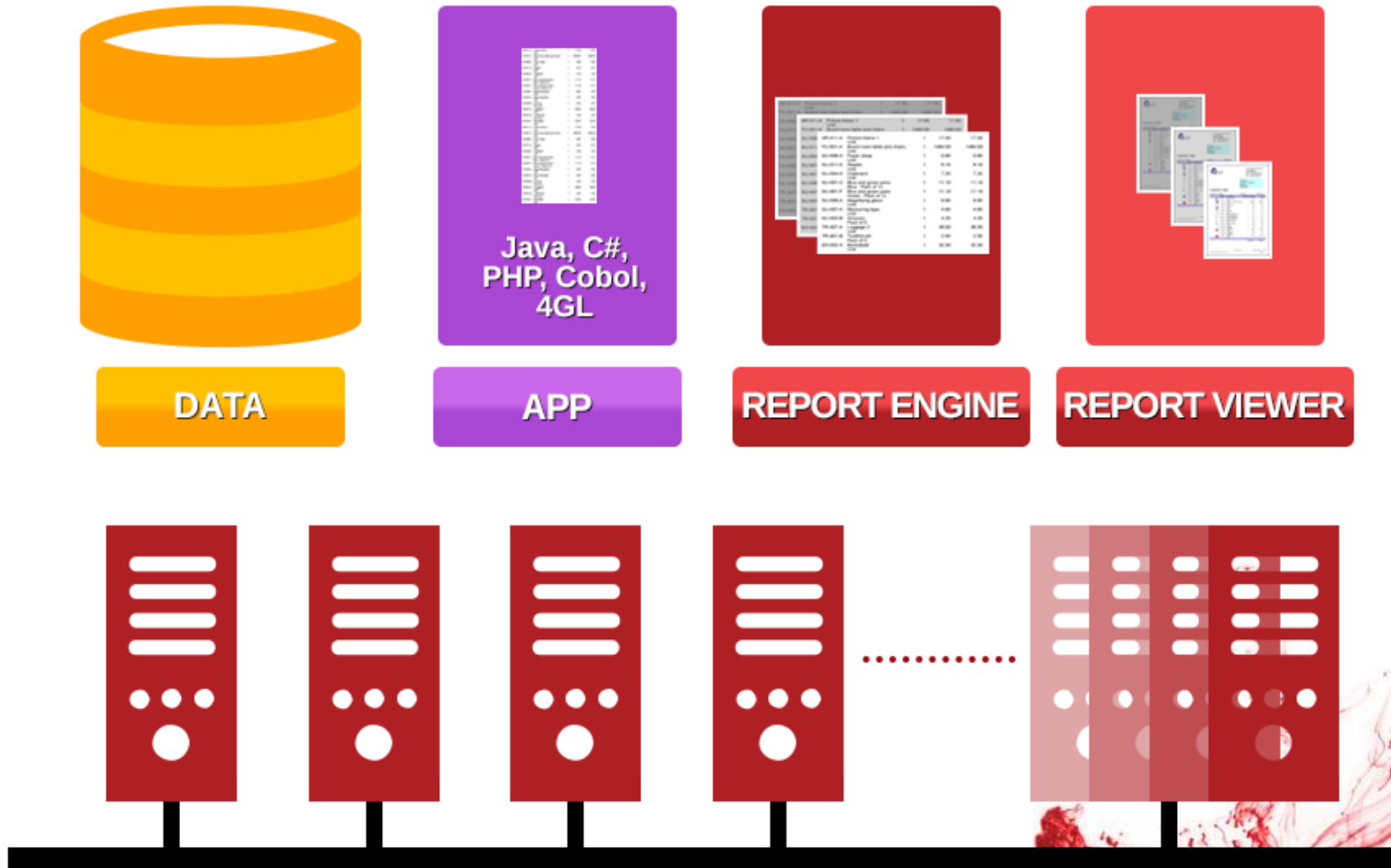
- **Enterprise reports**
- **Streaming architecture**
- **Scalable**
- **Dynamic layouting**
- **API driven**
- **Template driven**
- **Maintainable**



Development

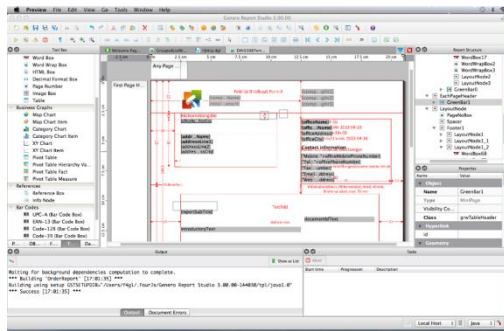
Deployment





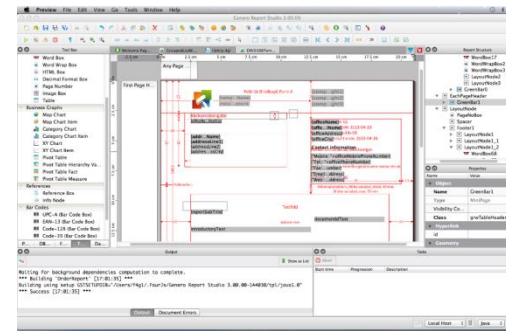
## DEVELOPMENT

- **Genero Studio (GST)**  
Design report data  
Design graphical layouts



## PRODUCTION

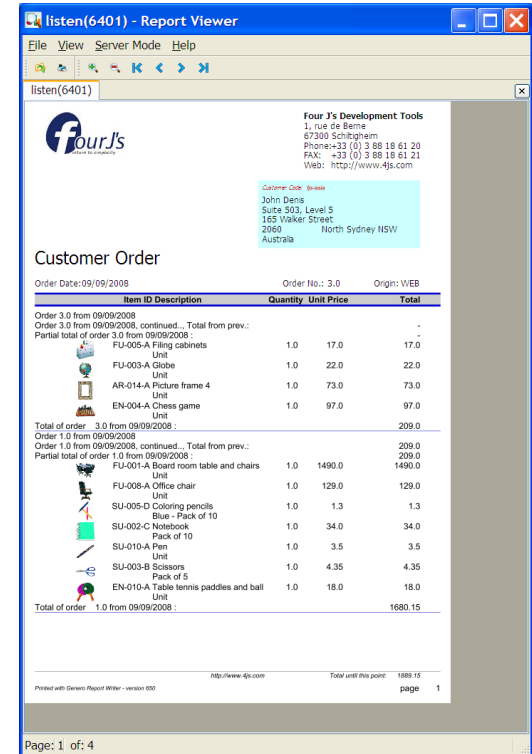
- **Genero Runtime Engine (GRE)**  
Execute and view reports
- **Genero Report Designer (GRD)**  
Modify layout on-site





## ➤ 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



The screenshot shows a web browser window titled "listen(6401) - Report Viewer". The report content includes:

**four J's Development Tools**  
 1, rue de Bieme  
 67300 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: 09/09/2008      Order No.: 3.0      Origin: WEB

Item ID	Description	Quantity	Unit Price	Total
Order 3.0 from 09/09/2008				
Order 3.0 from 09/09/2008, continued... Total from prev.: -				
Partial total of order 3.0 from 09/09/2008:				
FU-005-A	Filing cabinets	1.0	17.0	17.0
FU-003-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 of order 3.0 from 09/09/2008: 209.0				
Order 1.0 from 09/09/2008				
Order 1.0 from 09/09/2008, continued... Total from prev.: 209.0				
Partial total of order 1.0 from 09/09/2008:				
FU-001-A	Board room table and chairs	1.0	1490.0	1490.0
FU-008-A	Office chair	1.0	129.0	129.0
SU-005-D	Coloring pencils	1.0	1.3	1.3
SU-002-C	Notebook	1.0	34.0	34.0
SU-010-A	Pen	1.0	3.5	3.5
SU-003-B	Scissors	1.0	4.35	4.35
EN-010-A	Table tennis paddles and ball	1.0	18.0	18.0
Total of order 1.0 from 09/09/2008: 1680.15				

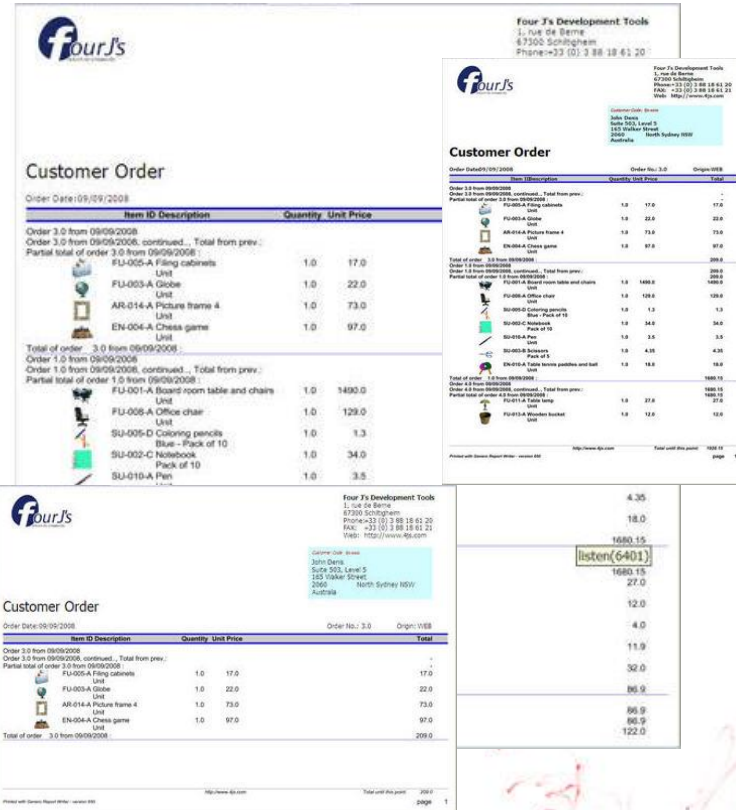
Printed with Genero Report Writer - version 000      http://www.4js.com      Total until this point: 1889.15      page 1

Page: 1 of: 4



## ➤ Dynamic layouting

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



The image displays four screenshots of a 'Customer Order' report generated by Four Js Development Tools. Each screenshot shows a different layout configuration, demonstrating the report's dynamic layouting capabilities. The reports include a header with the company logo and contact information, a table of items with columns for 'Item ID', 'Description', 'Quantity', 'Unit Price', and 'Total', and a footer with a page number.

**Top-Left Screenshot:** Shows a standard landscape orientation with a wide table. The 'Total' column is visible on the right side of the table.

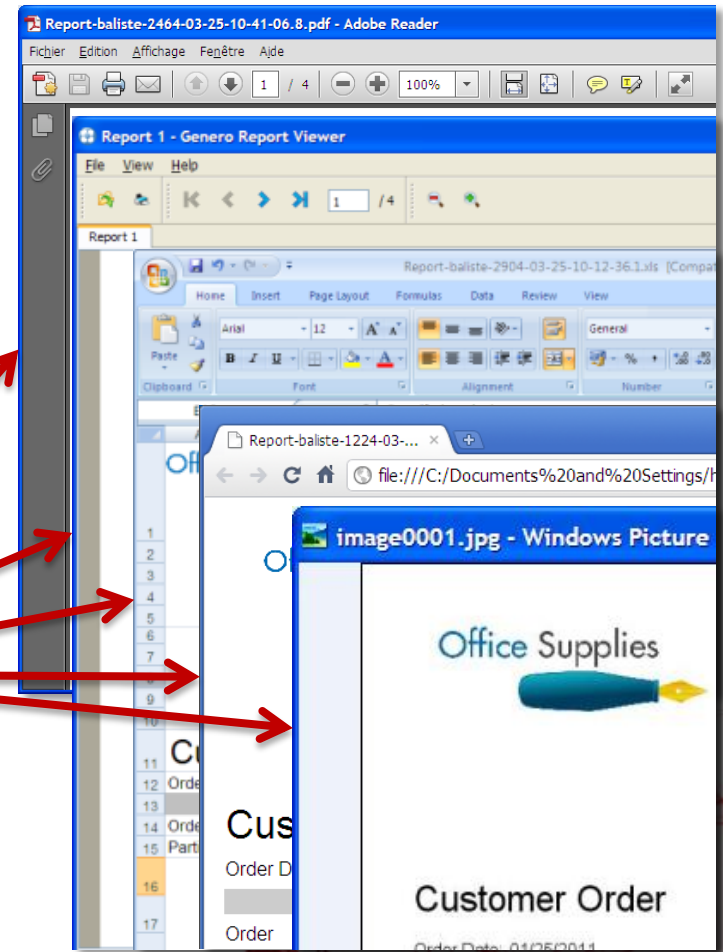
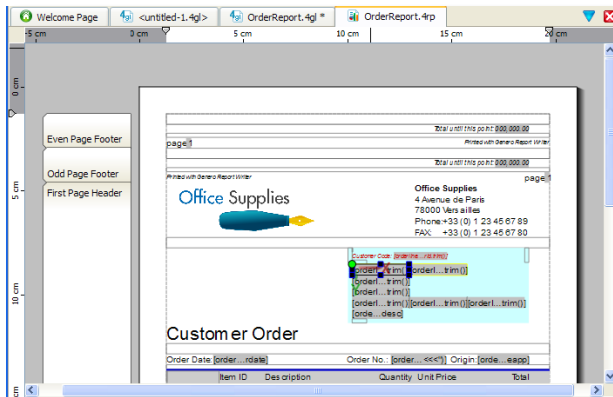
**Top-Right Screenshot:** Shows a landscape orientation with a narrower table. The 'Total' column is visible on the right side of the table.

**Bottom-Left Screenshot:** Shows a landscape orientation with a table that is wider than the top-left screenshot. The 'Total' column is visible on the right side of the table.

**Bottom-Right Screenshot:** Shows a portrait orientation with a very narrow table. The 'Total' column is visible on the right side of the table.

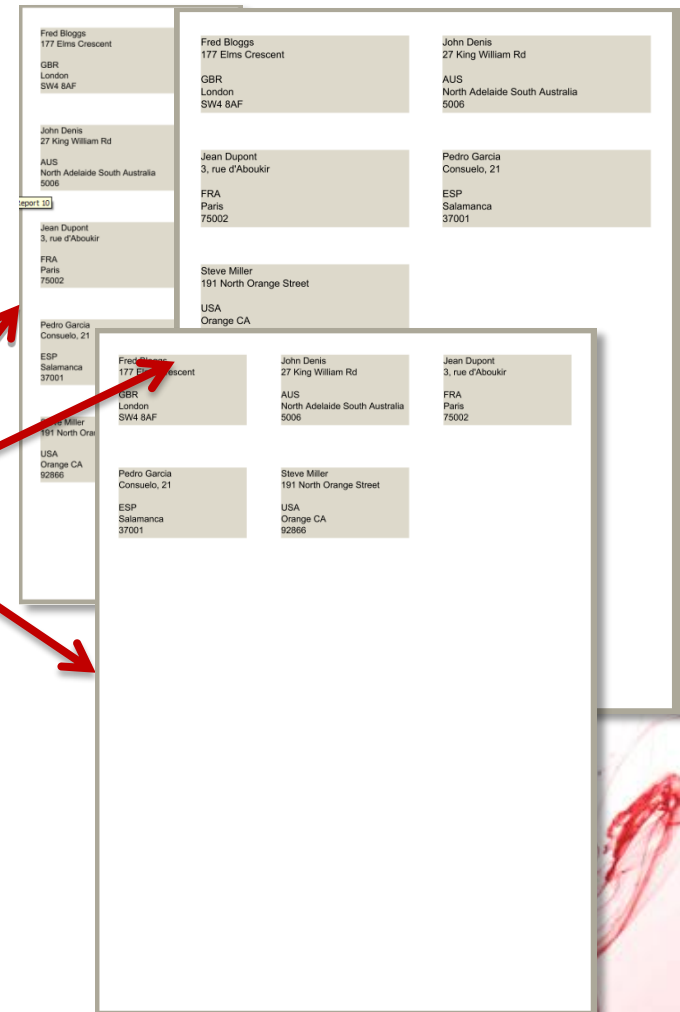
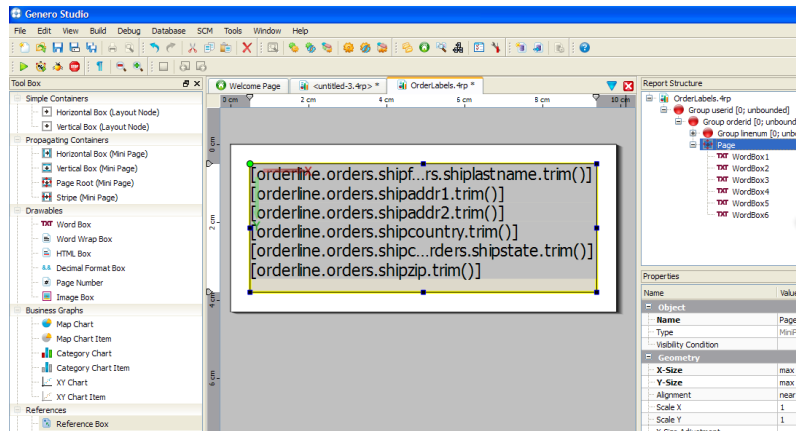
## ➤ Dynamic layouting

- 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



## ➤ 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.



- **Respects existing report code**
  - Same code, new output formats.
- **New output formats**
  - PDF,
  - Browser,
  - MS-Excel<sup>®</sup> and MS-Word<sup>®</sup>.
- **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.

## ➤ Hand coded data sources

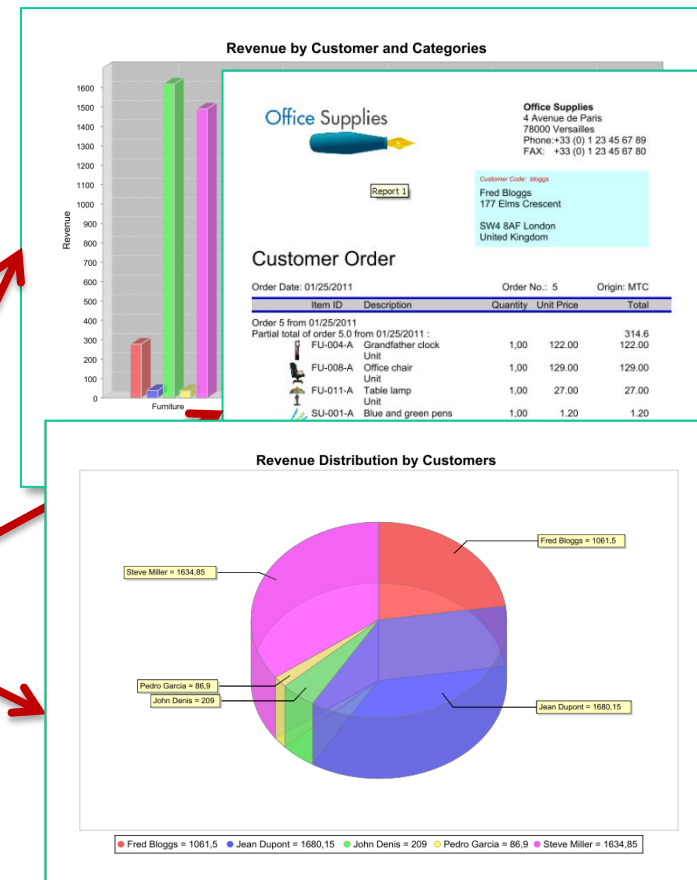
- Allows reusing existing objects,
  - e.g. JPA/Hibernate classes
- Enables custom data sources,
  - e.g. Web services
- Requires schema extraction utility and marshaller.
  - Available for 4GL, Java and .Net.

## ➤ 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.

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

Name	Type	Sample Data
<b>OrderReport.rdd - report all orders</b>		
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.shipfirst...	CHAR(80)	foobar
orderline.orders.shiplast...	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.billfirst...	CHAR(80)	foobar
orderline.orders.billlastn...	CHAR(80)	foobar
orderline.orders.billaddr1	CHAR(80)	foobar
orderline.orders.billaddr2	CHAR(80)	foobar



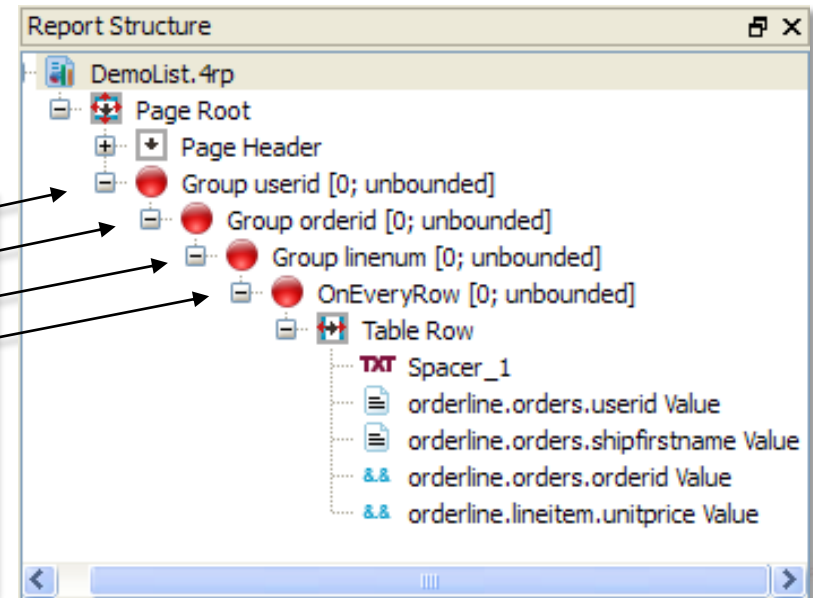


## ➤ Schema from 4GL code: REPORT

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

```

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

```

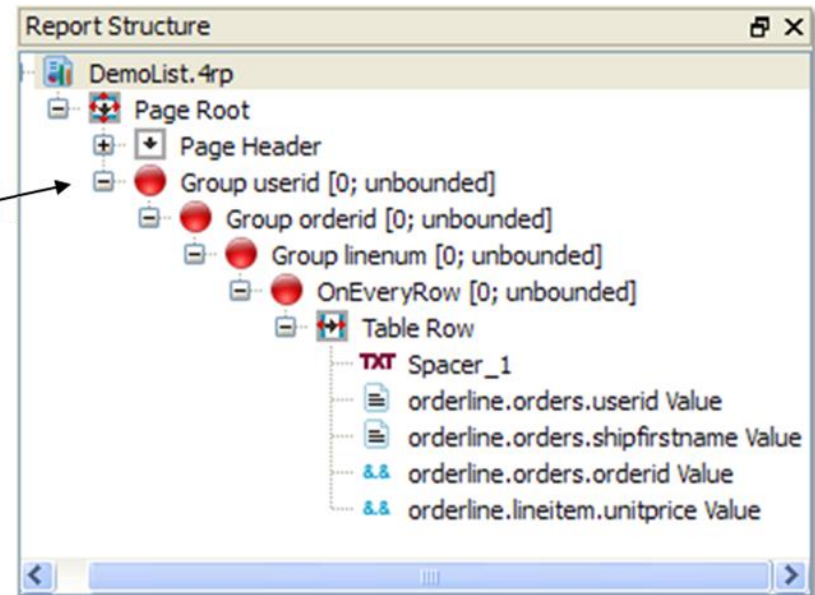
import java.lang.reflect.Field;

@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)

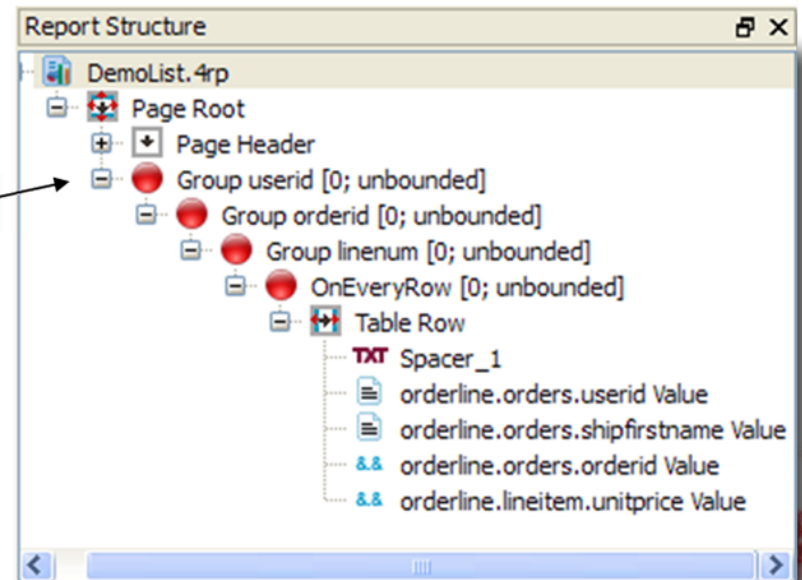
```
namespace Order
{
    [XmlRoot(ElementName = "Report")]
    class OrderReportModel
    {
        private Row nextRow;
        private double overalltotal;
        private double usertotal;
        private double ordertotal;
        String currentUserId;
        int currentOrder;
        int currentLine;

        [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

## ➤ 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)
{
    $fgldb = new FGLDatabase();
    $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     1=1';

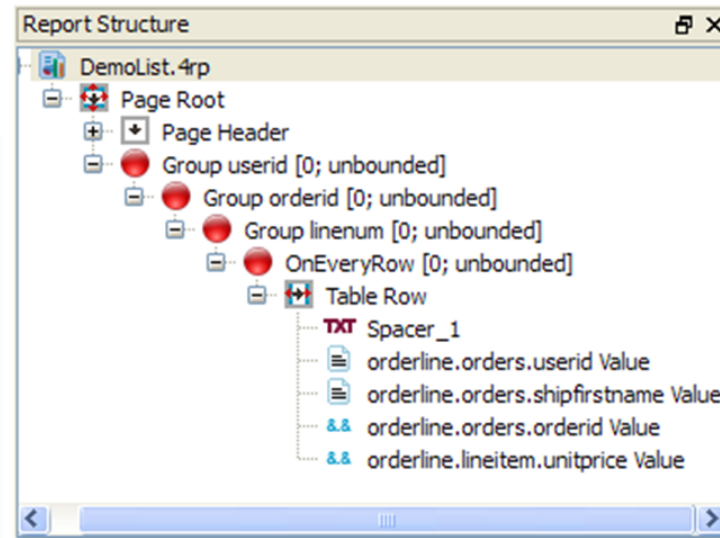
    $fgldb->runQuery($query);
    while ($row = $fgldb->fetch()) {
        $this->setAttributes($row);
        parent::serialize($greXMLConnector);
    }
}

protected function serializeChildren(GreXMLConnector $greXMLConnector)
{
    $schild = new Orders($this->account_userid);
    $schild->serialize($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     1=1
          AND orders.userid='".$account_userid.'"
';
}
}
    
```



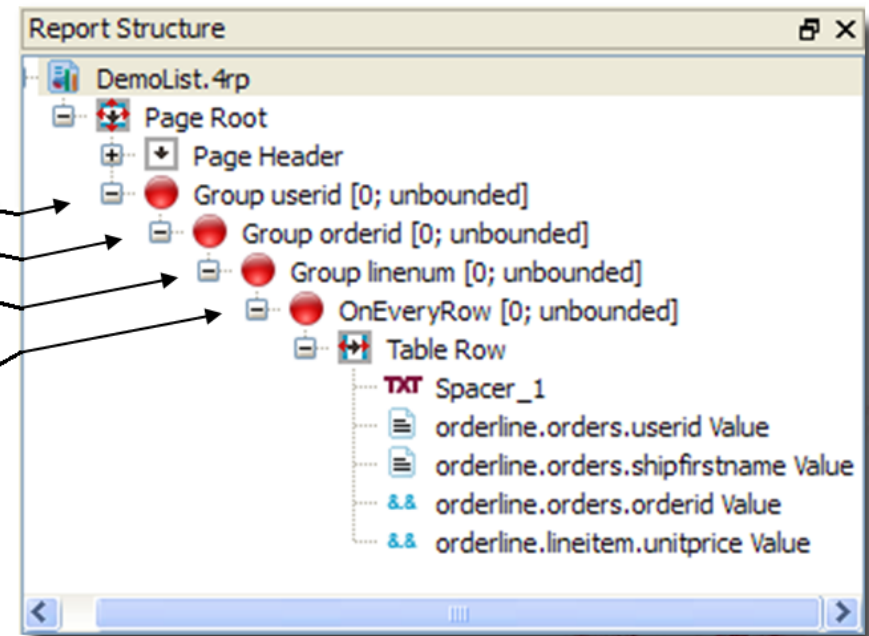
➤ **Schema from COBOL code: REPORT SECTION used**

- 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
  Userid
  Orderid
  LineNum
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.
C → INITIATE ListReport.
  PERFORM PrintListReport
  UNTIL EndOfFile.
C → TERMINATE ListReport.
  CLOSE SalesFile, PrintFile.
  STOP RUN.

PrintListReport.
C → 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

## ➤ Data source designer for relational databases

- Database query designer
- Code & XML-Schema generated for Java, C#, PHP...

ER	orderline (Master)
	orders.orderid
	orders.userid
	orders.orderdate
	orders.shipfirstname
	orders.shiplastname
	orders.shipaddr1
	orders.shipaddr2
	orders.shipcity
	orders.shipstate
	orders.shipzip
	orders.shipcountry
	orders.billfirstname
	orders.billlastname
	orders.billaddr1
	orders.billaddr2
	orders.billcity
	orders.billstate

Code/  
Schema  
Generation



```

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

public function serialize(GreXMLConnector $grexmlConnector) {
    $fqlDb = new FQLDatabase();
    $query =

SELECT account.userid as account_userid,
account.email as account_email,
account.firstname as account_firstname,
account.lastname as account_lastname
FROM
WHERE
    =1;

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

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

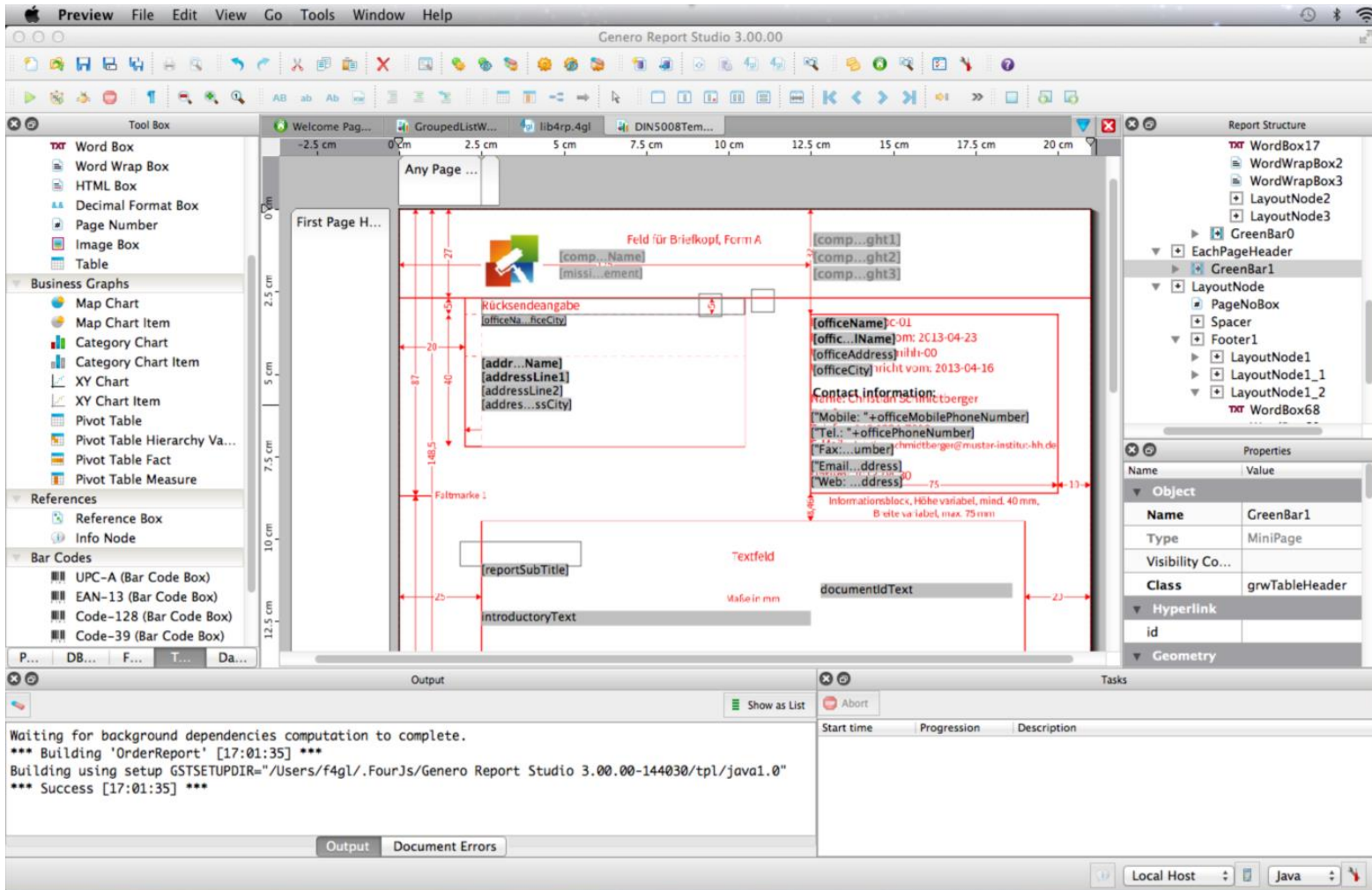
class Orders extends SerializableRecord {
public $orders_orderid;
public $orders_userid;
public $orders_orderdate;
public $orders_totalprice;
private $query;

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
WHERE
    =1
    AND orders.userid=".$account_userid.'"
    ";
}
}
    
```

Report Structure	
+	DemoList.4rp
+	Page Root
+	Page Header
+	Group userid [0; unbounded]
+	Group orderid [0; unbounded]
+	Group lineitem [0; unbounded]
+	OnEveryRow [0; unbounded]
+	Table Row
+	TXT Spacer_1
+	orderline.orders.userid Value
+	orderline.orders.shipfirstname Value
+	&& orderline.orders.orderid Value
+	&& orderline.lineitem.unitprice Value





The screenshot displays the Genero Report Studio 3.00.00 interface. The main workspace shows a report design for a page titled "Any Page ...". The design includes a header section "First Page H..." and a main content area with several text boxes and a table. The text boxes contain labels like "Feld für Briefkopf, Form A", "Rücksendeangabe", "Textfeld", and "documentidText". The table contains contact information for an office in Munich, including name, address, phone numbers, and email. The interface includes a toolbar at the top, a tool box on the left with categories like "Text", "Business Graphs", and "References", and a report structure tree on the right. The bottom of the window features an output console and a task manager.

**Output Console:**

```

Waiting for background dependencies computation to complete.
*** Building 'OrderReport' [17:01:35] ***
Building using setup GSTSETUPDIR="/Users/f4gl/.FourJs/Genero Report Studio 3.00.00-144030/tp1/java1.0"
*** Success [17:01:35] ***
  
```

**Task Manager:**

Start time	Progression	Description



## ➤ **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.



**Feld für Briefkopf, Form A**  
HARRIS PAINTING & DECORATING  
WE PAINT WITH PASSION

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

**Fred Bloggs**  
177 Elms Crescent  
SW4 8AF London

**Harris painting & decorating**  
David Harris vom: 2013-04-23  
Ansprechpartner: mihh-00  
Brisbane Central QLD 4001-16

**Contact information:**  
Name: Christian Schmidtberger  
Telefon: 1300 234 456  
Telefax: 1300 234 456  
E-Mail: christian.schmidtberger@muster-institut-hh.de  
E-Mail: david@harris-painting.com.au  
Web: www.harris-painting.com.au

GUARANTEED QUALITY  
HIGHLY EXPERIENCED  
FULLY INSURED

Informationsblock, Höhe variabel, mind. 40 mm,  
Breite variabel, max. 75 mm

**Textfeld**  
Maße in mm

Site: Seaside Apartment House Project

Dear Mr. Bloggs,

according to your order of 08/24/2014 please receive herewith our invoice 5 for the seaside apartment house project.

Ordernr.	Liniennr.	Itemid	Quantity	Unitprice
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-005-B	1	0,15
5	10	SU-006-A	1	9,90
5	11	SU-002-A	1	4,00
5	12	SU-009-A	1	4,00
5	13	SU-008-A	1	0,80
5	14	SU-010-A	1	3,50
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-006-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	11,90
5	27	TR-001-A	1	0,90

Seite 1 von 2

**Company location:**  
Harris painting & decorating  
Brisbane Central  
QLD 4001

**Bank information:**  
Bank of Queensland  
Account No.: 38238438  
BSB: 124-001  
IBAN: AU45 3454 3443 43  
BIC: BOCB93834XX

**Management:**  
David Harris  
Tax No.: 49273693483  
O-ID: KD293823

**Umsatzsteuer-Identifikationsnummer (USt-IdNr.):**  
DE 275535343

**HARRIS PAINTING & DECORATING**  
WE PAINT WITH PASSION

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

**Fred Bloggs**  
177 Elms Crescent  
SW4 8AF London

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

**Contact information:**  
Mobile: 1300 234 457  
Tel.: 1300 234 456  
Fax: 1300 234 458  
Email: david@harris-painting.com.au  
Web: www.harris-painting.com.au

GUARANTEED QUALITY  
HIGHLY EXPERIENCED  
FULLY INSURED

Site: Seaside Apartment House Project

Dear Mr. Bloggs,

according to your order of 08/24/2014 please receive herewith our invoice 5 for the seaside apartment house project.

Ordernr.	Liniennr.	Itemid	Quantity	Unitprice
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-005-B	1	0,15
5	10	SU-006-A	1	9,90
5	11	SU-002-A	1	4,00
5	12	SU-009-A	1	4,00
5	13	SU-008-A	1	0,80
5	14	SU-010-A	1	3,50
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-006-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	11,90
5	27	TR-001-A	1	0,90

Seite 1 von 2

**Company location:**  
Harris painting & decorating  
Brisbane Central  
QLD 4001

**Bank information:**  
Bank of Queensland  
Account No.: 38238438  
BSB: 124-001  
IBAN: AU45 3454 3443 43  
BIC: BOCB93834XX

**Management:**  
David Harris  
Tax No.: 49273693483  
O-ID: KD293823



HARRIS PAINTING & DECORATING  
WE PAINT WITH PASSION

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

**Fred Bloggs**  
177 Elms Crescent  
SW4 8AF London

. GUARANTEED QUALITY  
. HIGHLY EXPERIENCED  
. FULLY INSURED

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

**Contact information:**  
Mobile: 1300 234 457  
Tel.: 1300 234 456  
Fax: 1300 234 458  
Email: david@harris-painting.com.au  
Web: www.harris-painting.com.au

### Site: Seaside Apartment House Project

Orderid	Linenum/itemid	Quantity	Unitprice
5	1	1	122.00 FU-004-A
5	2	1	129.00 FU-008-A
5	3	1	27.00 FU-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-009-A
5	13	1	0.80 SU-008-A
5	14	1	3.50 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	29.00 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-006-A
5	24	1	31.00 TR-009-A
5	25	1	17.00 TR-003-A
5	26	1	11.90 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.: 38236438  
BSB: 124-001  
IBAN: AU45 3454 3443 43  
BIC: BOQE3334XX

**Management:**  
David Harris  
Tax No.: 49273693483  
O-ID: KD293823



HARRIS PAINTING & DECORATING  
WE PAINT WITH PASSION

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

**Fred Bloggs**  
177 Elms Crescent  
SW4 8AF London

. GUARANTEED QUALITY  
. HIGHLY EXPERIENCED  
. FULLY INSURED

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

**Contact information:**  
Mobile: 1300 234 457  
Tel.: 1300 234 456  
Fax: 1300 234 458  
Email: david@harris-painting.com.au  
Web: www.harris-painting.com.au

Site: Seaside Apartment House Project

Dear Mr. Bloggs,

according to your order of 06/24/2014 please receive herewith our invoice 5 for the seaside apartment house project.

Invoice Nr.: 5  
Customer Id: bloggs  
Order Date: 06/24/2014

Orderid	Linenum/itemid	Quantity	Unitprice
5	1	1	122.00
5	2	1	129.00
5	3	1	27.00
5	4	1	1.20
5	5	1	1.20
5	6	1	7.20
5	7	1	0.15
5	8	1	0.15
5	9	1	0.15
5	10	1	9.90
5	11	1	4.00
5	12	1	4.00
5	13	1	0.80
5	14	1	3.50
5	15	1	4.35
5	16	1	6.10
5	17	1	17.00
5	18	1	117.00
5	19	1	130.00
5	20	1	29.00
5	21	1	45.00
5	22	1	38.00
5	23	1	32.00
5	24	1	31.00
5	25	1	17.00
5	26	1	11.90
5	27	1	0.90
5	28	1	22.00
5	29	1	97.00
5	30	1	27.00
5	31	1	15.00
5	32	1	3.00
5	33	1	108.00

Seite 1 von 2

**Company location:**  
Harris painting & decorating  
Brisbane Central  
QLD 4001

**Bank information:**  
Bank of Queensland  
Account No.: 38236438  
BSB: 124-001  
IBAN: AU45 3454 3443 43  
BIC: BOQE3334XX

**Management:**  
David Harris  
Tax No.: 49273693483  
O-ID: KD293823

**Menu**

Data Source & Template Parameters

Design Template

Template Design File Name: DIN5008Template

Data Source

.rdd File Name: OrderReport

.xsd File Name: OrderReport-report\_all\_orders

Report Name: report\_all\_orders

Use drag & drop to select fields

Fields not printed:

- orderline.orders.orderid
- orderline.orders.userid
- orderline.orders.orderdate
- orderline.orders.shipfirstname
- orderline.orders.shiplastname
- orderline.orders.shipaddr1
- orderline.orders.shipaddr2
- orderline.orders.shipcity
- orderline.orders.shipstate
- orderline.orders.shipzip
- orderline.orders.shipcountry
- orderline.orders.billfirstname
- orderline.orders.billlastname
- orderline.orders.billaddr1
- orderline.orders.billaddr2
- orderline.orders.billcity
- orderline.orders.billstate
- orderline.orders.billzip

Fields contained in the report:

- orderline.lineitem.orderid
- orderline.lineitem.linenum
- orderline.lineitem.itemid
- orderline.lineitem.quantity
- orderline.lineitem.unitprice

Placeholder Mapping

Name	Numeric	Value
officeMobilePhoneNumber	<input type="checkbox"/>	1300 234 457
officeFaxNumber	<input type="checkbox"/>	1300 234 458
officeAddress	<input type="checkbox"/>	4. Main Street
footerColumn2Row2	<input type="checkbox"/>	Account No.: 38238438
fontName	<input type="checkbox"/>	Arial
footerColumn2Title	<input type="checkbox"/>	Bank information:
footerColumn2Row1	<input type="checkbox"/>	Bank of Queensland

Command Line

```
java -ea GenerateReport -debuglevel 9 -schemaFileName "OrderReport-report_all_orders.xsd" -templateFileName "DIN5008Template.4rp" -triggerMapping "{(Group userid,outerGroups),(Group orderid,innerGroups),(OnEveryRow,rows)" -rootElementName "Report" -fieldNamePatterns "orderline.lineitem.orderid,orderline.lineitem.linenum,orderline.lineitem.itemid,orderline.lineitem.quantity,orderline.lineitem.unitprice" -placeholderMapping "{(fontName,,"Arial"),(showMeasures,"0")",(logoURL,"resources/GermanLetterLogo.png"),(companyName,"HARRIS PAINTING & DECORATING"),(missionStatement,"WE PAINT WITH PASSION"),(companyHighlight1," GUARANTEED QUALITY"),(companyHighlight2," HIGHLY EXPERIENCED"),(companyHighlight3," FULLY INSURED"),(officeName,"Harris painting & decorating"),(officeAddress,"4. Main Street"),(officeCity,"Brisbane Central QLD 4001"),(addressFirstName,"{(orderline.orders.billfirstname.trim()}"),(addressLastName,"{(orderline.orders.billlastname.trim()}"),(addressLine1,"{(orderline.orders.billaddr1.trim()}"),(addressLine2,"{(orderline.orders.billaddr2.trim()}"),(addressZipCode,"{(orderline.orders.billzip.trim()}"),(
```

**HARRIS PAINTING & DECORATING**  
WE PAINT WITH PASSION

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

**Fred Bloggs**  
177 Elms Crescent  
SW4 8AF London

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

**Contact information:**  
Mobile: 1300 234 457  
Tel: 1300 234 458  
Fax: 1300 234 458  
Email: [fred@harris-painting.com.au](mailto:fred@harris-painting.com.au)  
Web: [www.harris-painting.com.au](http://www.harris-painting.com.au)

**INVOICE**  
Site: Seaside Apartment House Project

Dear Mr. Bloggs,

according to your order of 06/24/2014 please receive herewith our invoice 5 for the seaside apartment house project.

Quantity	Unit Price	Amount
5	1 FU-001-A	122.00
5	2 FU-008-A	129.00
5	3 FU-011-A	27.00
5	4 SU-001-A	1.20
5	5 SU-001-D	1.20
5	6 SU-004-A	7.20
5	7 SU-005-A	0.15
5	8 SU-005-C	0.15
5	9 SU-005-B	0.15
5	10 SU-006-A	9.90
5	11 SU-002-A	4.00
5	12 SU-009-A	4.00
5	13 SU-008-A	0.80
5	14 SU-010-A	3.50
5	15 SU-003-A	4.35
5	16 SU-011-A	6.10
5	17 AR-011-A	17.00
5	18 AR-004-A	117.00
5	19 AR-017-A	130.00
5	20 AR-012-A	29.00
5	21 TR-005-A	45.00
5	22 TR-007-A	38.00
5	23 TR-006-A	32.00
5	24 TR-009-A	31.00
5	25 TR-003-A	17.00
5	26 TR-012-A	11.90
5	27 TR-001-A	0.90

Seite 1 von 2

Company location:      Bank information:      Management:

OK  
Cancel  
rerun

## ➤ 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.

Order List Grouped by Customers and Orders					3
Orderid	Linenum Itemid	Quantity	Unitprice		
				Carried forward:	1,173.50
<b>denis</b>	<b>John Denis</b>			Carried forward:	112.00
<b>3.0</b>	<b>02/20/2014</b>			Carried forward:	112.00
	3	4 EN-004-A	1	97.00	
<b>Total of 3.0:</b>					209.00
<b>Total of denis:</b>					209.00
<b>dupont</b>	<b>Jean Dupont</b>				
<b>1.0</b>	<b>02/20/2014</b>				
	1	1 FU-001-A	1	1,490.00	
	1	2 FU-008-A	1	129.00	
	1	3 SU-005-D	1	1.30	
	1	4 SU-002-C	1	34.00	
	1	5 SU-010-A	1	3.50	
	1	6 SU-003-B	1	4.35	
	1	7 EN-010-A	1	18.00	
<b>Total of 1.0:</b>					1,680.15
<b>Total of dupont:</b>					1,680.15
				<b>Total until this point:</b>	2,950.65

Order List Grouped by Customers and Orders				
Linenum Itemid	Prodname	Quantity	Unitprice	
				Carried forward:
				1,061.50
<b>denis</b>	<b>John Denis</b>			
<b>3.0</b>	<b>02/20/2014</b>			
	1 FU-005-A	Filing cabinets	1	17.00
	2 FU-003-A	Globe	1	22.00
	3 AR-014-A	Picture frame 4	1	73.00
	4 EN-004-A	Chess game	1	97.00
<b>Total of 3.0:</b>				209.00
<b>Total of denis:</b>				209.00
<b>dupont</b>	<b>Jean Dupont</b>			
<b>1.0</b>	<b>02/20/2014</b>			
	1 FU-001-A	Board room table and chairs	1	1,490.00
	2 FU-008-A	Office chair	1	129.00
	3 SU-005-D	Coloring pencils	1	1.30
	4 SU-002-C	Notebook	1	34.00
	5 SU-010-A	Pen	1	3.50
	6 SU-003-B	Scissors	1	4.35
	7 EN-010-A	Table tennis paddles and ball	1	18.00
				<b>Total until this point:</b>
				1,680.15
				<b>Total until this point:</b>
				2,950.65
				3 of 5



## ➤ **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





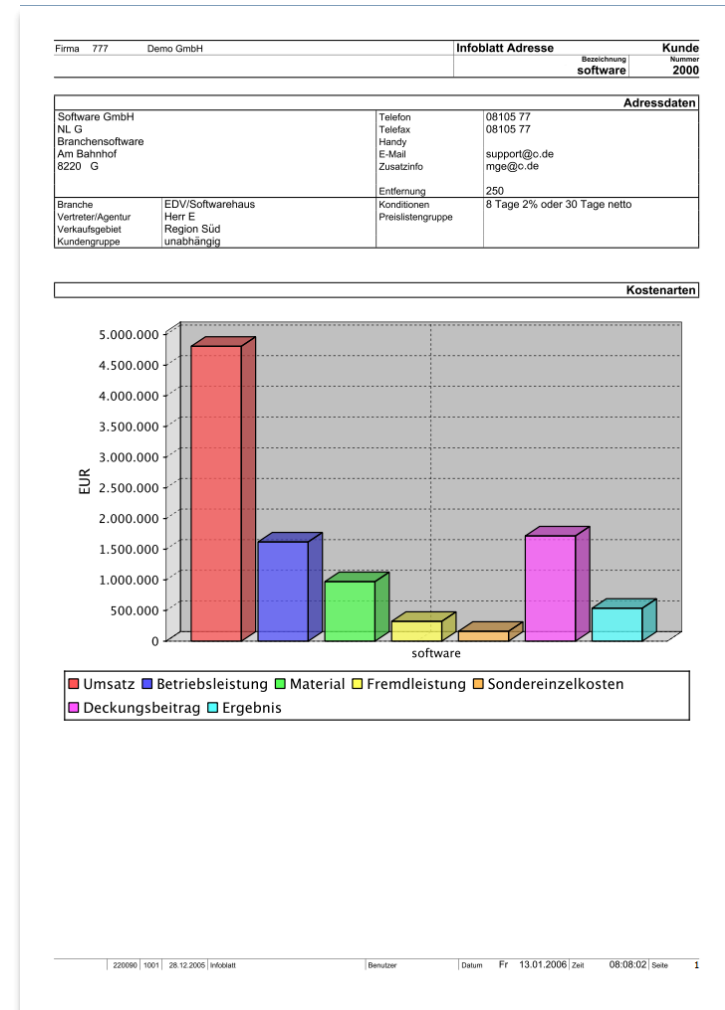
- **Pixel exact rendering**
  - Exact output as GRV,
  - Text is declared as strings keeping the document small.
- **Creation of WOFF fonts on-the-fly**
  - Supports all fonts seen by GRE (Type1 and TrueType),
  - Fonts are cached and can be shared between documents,
  - Good performance also for Asian 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**

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



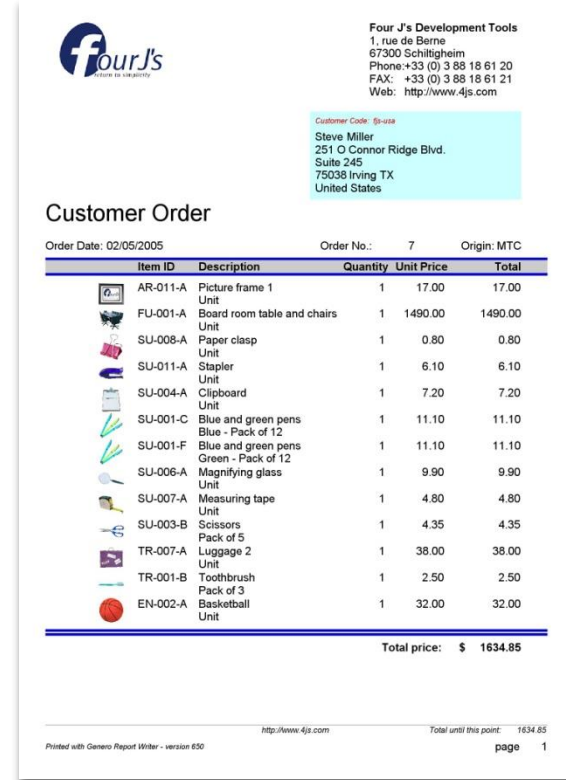
## ➤ Report Engine

- 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 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>... n<sup>th</sup> 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



Four J's Development Tools  
1, rue de Berne  
67300 Schiltigheim  
Phone: +33 (0) 3 88 18 61 20  
FAX: +33 (0) 3 88 18 61 21  
Web: <http://www.djs.com>

Customer Code: 05-024  
Steve Miller  
251 O Connor Ridge Blvd.  
Suite 245  
75038 Irving TX  
United States

### Customer Order

Order Date: 02/05/2005      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 Unit	1	1490.00	1490.00
SU-008-A	Paper clasp Unit	1	0.80	0.80
SU-011-A	Stapler Unit	1	6.10	6.10
SU-004-A	Clipboard Unit	1	7.20	7.20
SU-001-C	Blue and green pens Blue - Pack of 12	1	11.10	11.10
SU-001-F	Blue and green pens Green - Pack of 12	1	11.10	11.10
SU-006-A	Magnifying glass Unit	1	9.90	9.90
SU-007-A	Measuring tape Unit	1	4.80	4.80
SU-003-B	Scissors Pack of 5	1	4.35	4.35
TR-007-A	Luggage 2 Unit	1	38.00	38.00
TR-001-B	Toothbrush Pack of 3	1	2.50	2.50
EN-002-A	Basketball Unit	1	32.00	32.00
<b>Total price:</b>				<b>\$ 1634.85</b>

Printed with Genero Report Writer - version 650      <http://www.djs.com>      Total until this point: 1634.85      page 1

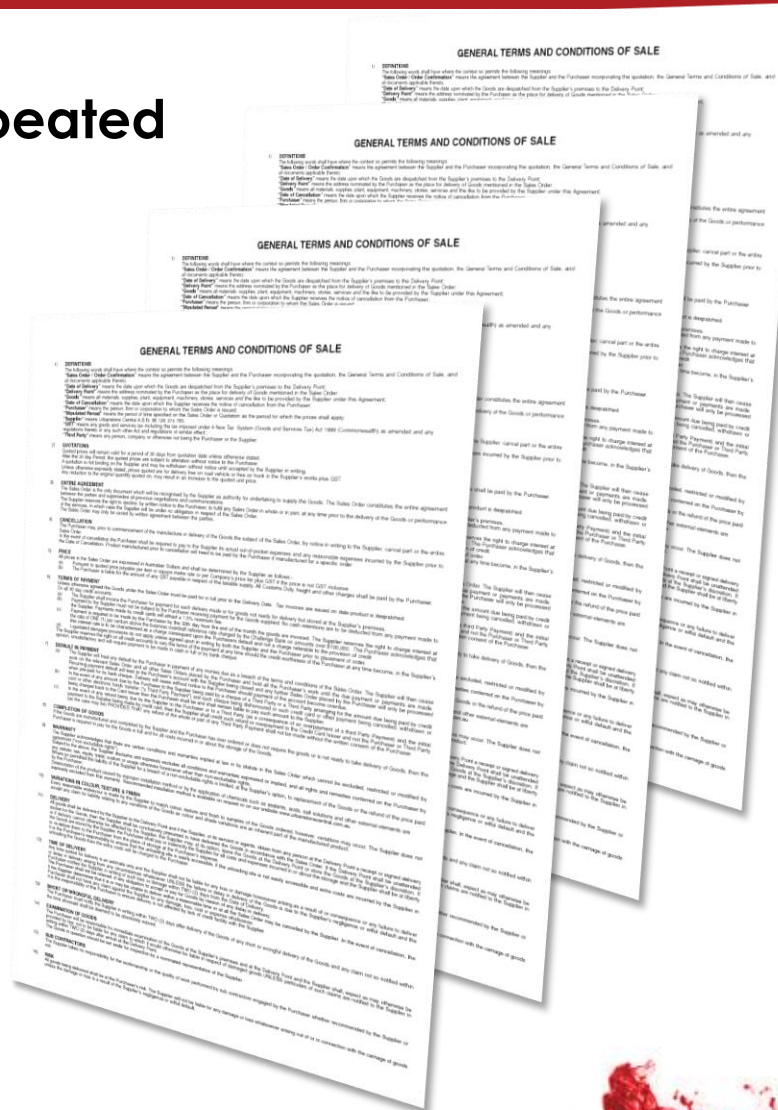
## ➤ Hand coded data sources

- 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.

## ➤ Efficient printing of repeated verso pages



## ➤ Output formats:

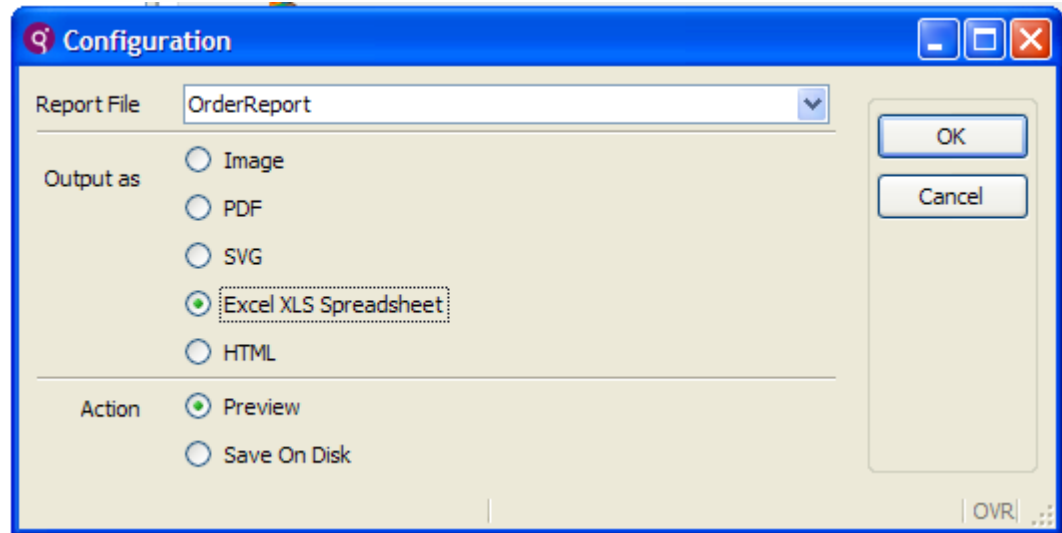
Excel

Word

PDF

HTML

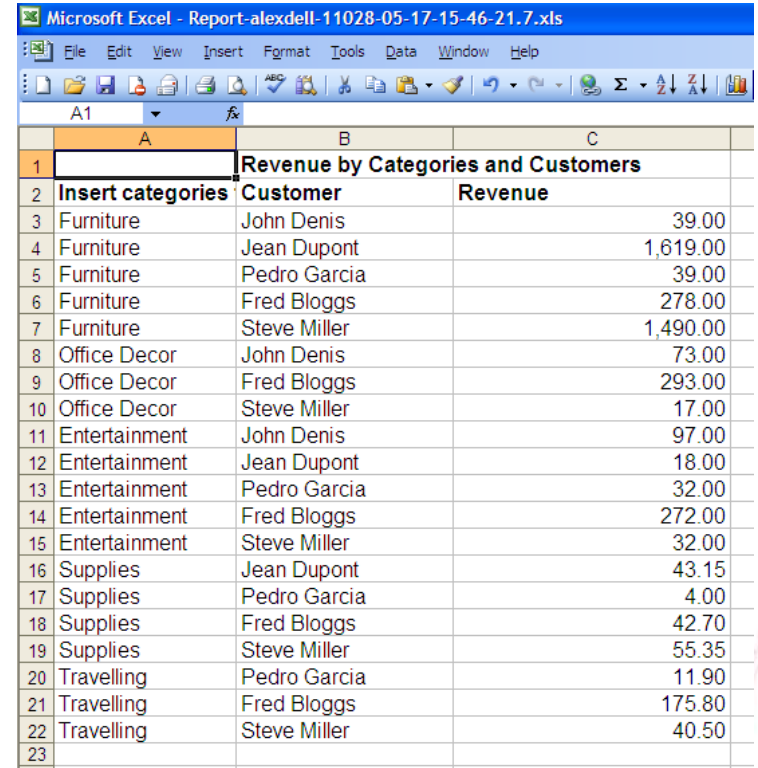
SVG





### ➤ Excel output

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



	A	B	C
1		<b>Revenue by Categories and Customers</b>	
2	<b>Insert categories</b>	<b>Customer</b>	<b>Revenue</b>
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			



### ➤ Excel output

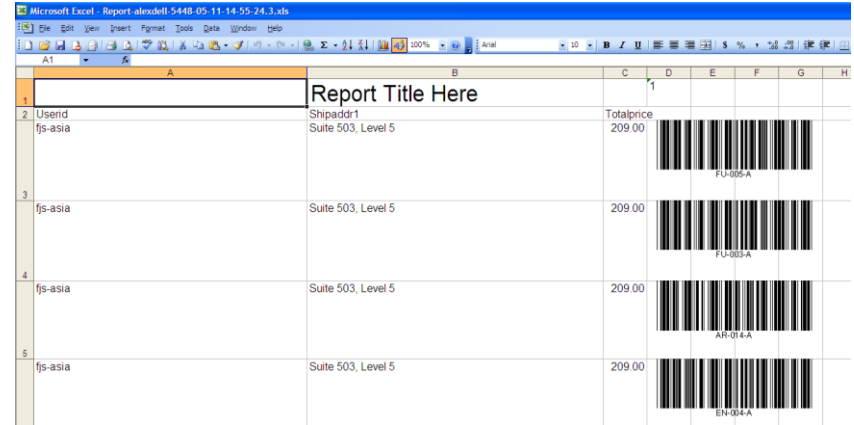
- Output any REPORT to Excel
- Design Excel reports from Report Designer
- Graphical elements rendered as images





	A	B	C	D	E	F	G	H	I	J	K	L
				Item ID	Description					Quantity	Unit Price	Total
2	Order	4	from	09/09/2008								71680.15
3	Order	4	from	09/09/2008	continued - Total from prev:							71680.15
4	Partial total of order		from	09/09/2008								
5				FU-011.A	Table lamp	Unit				1	27.00	27.00
6				FU-013.A	Wooden bucket	Unit				1	12.00	12.00
7				SU-009.A	Organizer book	Unit				1	4.00	4.00
8				TR-012.A		Unit				1	11.00	11.00
9												
10	Total of order											3.20
11	Order											1.20
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31	page											
32												

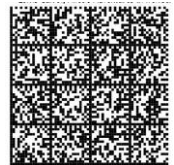


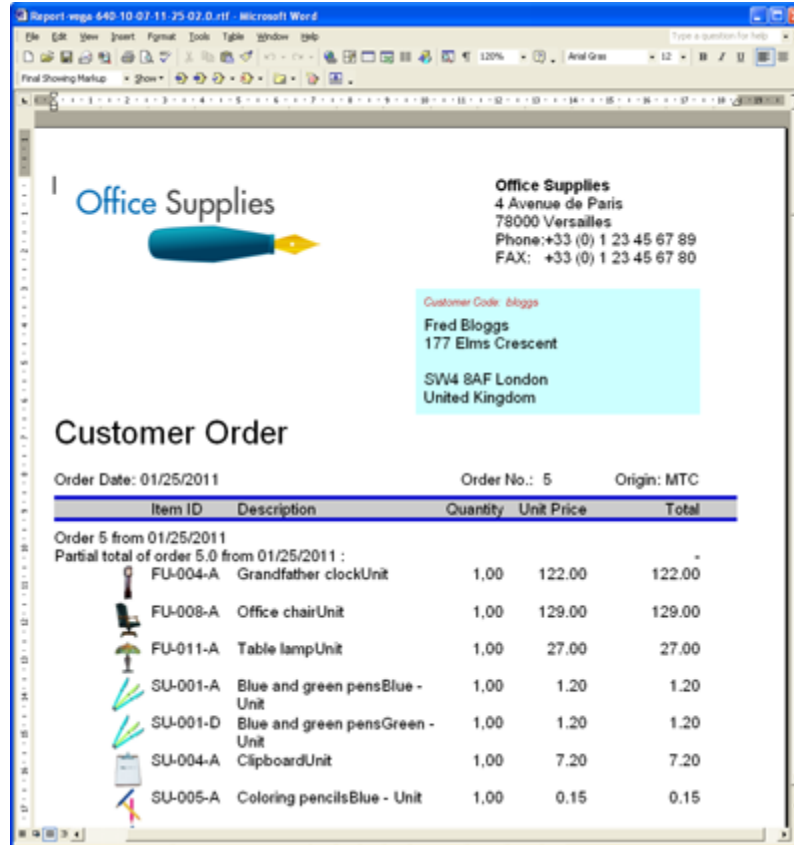
### ➤ Excel output

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




	A	B	C	D	E	F	G	H
1		Report Title Here		1				
2	Usend fs-asia	Shpaddr1 Suite 503, Level 5	Totalprice 209.00					
3	fs-asia	Suite 503, Level 5	209.00					
4	fs-asia	Suite 503, Level 5	209.00					
5	fs-asia	Suite 503, Level 5	209.00					





The screenshot shows a Microsoft Word document with the following content:








**Office Supplies**  


**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**

Order Date: 01/25/2011      Order No.: 5      Origin: MTC

Item ID	Description	Quantity	Unit Price	Total
Order 5 from 01/25/2011				
Partial total of order 5.0 from 01/25/2011 :				
 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

# Enterprise class reports – output formats

## HTML & PDF



**Four Js Development 1**  
7, rue de Dublin  
67300 Schiltigheim  
Phone:  
FAX: +33 (0) 3 88 18 21  
Web: <http://www.4js.cc>

Customer Code: **0454**  
John Denis  
Suite 503, Level 5  
165 Walker Street  
2060 North Sydney NSW  
Australia

Company: 1 United sportswear - Order Items 2003-08-14 Page: 1

User: 12 A Smith ordered ascending by user id, order id and line number

John Denis

Begin of order:	3.0 from:	09/09/2008			
fis-asia	John Denis	FU-005	17.00	Filing cabinets	
fis-asia	John Denis	FU-003	22.00	Globe	
fis-asia	John Denis	AR-014	73.00	Picture frame 4	
fis-asia	John Denis	EN-004	97.00	Chess game	
Total of order 3.0 209.0					
Begin of order:	1.0 from:	09/09/2008			
fis-fr	Jean Dupont	FU-001	1,490.00	Board room table and chairs	
fis-fr	Jean Dupont	FU-008	129.00	Office chair	
fis-fr	Jean Dupont	SU-005	1.30	Coloring pencils	
fis-fr	Jean Dupont	SU-002	34.00	Notebook	
Total of order 1.0 1663.3					

Company: 1 United sportswear - Order Items 2003-08-14 Page: 2

User: 12 A Smith ordered ascending by user id, order id and line number

John Denis

fis-fr	Jean Dupont	SU-010	3.50	Pen	
fis-fr	Jean Dupont	SU-003	4.35	Scissors	
fis-fr	Jean Dupont	EN-011	18.00	Table tennis paddles and ball	
Total of order 1.0 1680.15					
Begin of order:	4.0 from:	09/09/2008			
fis-lat	Pedro Garcia	FU-011	27.00	Table lamp	

**Customer Order**

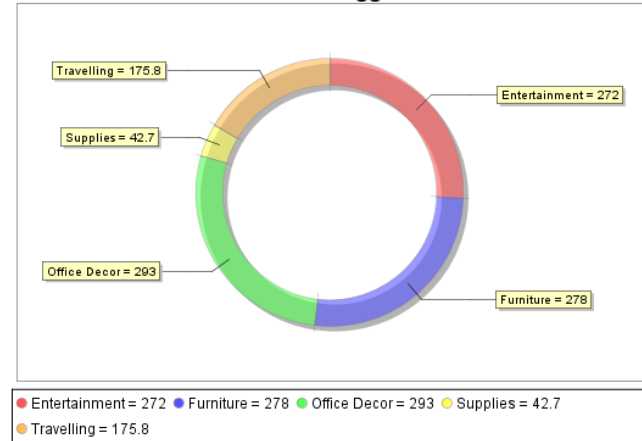
Order Date: 09/09/2008 Order No.: 3 Origin

Item ID	Description	Quantity	Unit Price	Total
Order 3 from 09/09/2008 continued... Total from prev.				
Partial total of order 3.0 from 09/09/2008:				
FU-005-A	Filing cabinets Unit	1.00	17.00	
FU-003-A	Globe Unit	1.00	22.00	
AR-014-A	Picture frame 4 Unit	1.00	73.00	
EN-004-A	Chess game Unit	1.00	97.00	
Total of order 3 from 09/09/2008				
Order 1 from 09/09/2008 continued... Total from prev.				
Partial total of order 1.0 from 09/09/2008:				
FU-001-A	Board room table and chairs Unit	1.00	1490.00	
FU-008-A	Office chair Unit	1.00	129.00	
SU-005-D	Coloring pencils Blue - Pack of 10	1.00	1.30	
SU-002-C	Notebook Pack of 10	1.00	34.00	
SU-010-A	Pen Unit	1.00	3.50	
SU-003-B	Scissors Pack of 5	1.00	4.35	
EN-010-A	Table tennis paddles and ball Unit	1.00	18.00	
Total of order 1 from 09/09/2008				

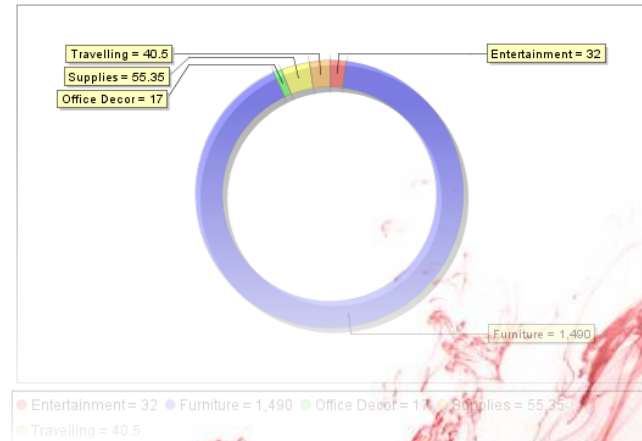
Order 4 from 09/09/2008 continued... Total from prev. 1680.15

Item ID	Description	Quantity	Unit Price	Total
Order 4 from 09/09/2008 continued... Total from prev. 1680.15				
Partial total of order 4.0 from 09/09/2008:				
FU-011-A	Table lamp Unit	1.00	27.00	27.00
FU-013-A	Wooden bucket Unit	1.00	12.00	12.00
SU-009-A	Organizer book Unit	1.00	4.00	4.00
TR-012-A	T-Shirt Unit	1.00	11.90	11.90
EN-007-A	Menace Unit	1.00	32.00	32.00
Total of order 4 from 09/09/2008				
Order 5 from 09/09/2008 continued... Total from prev. 1680.15				

### Fred Bloggs

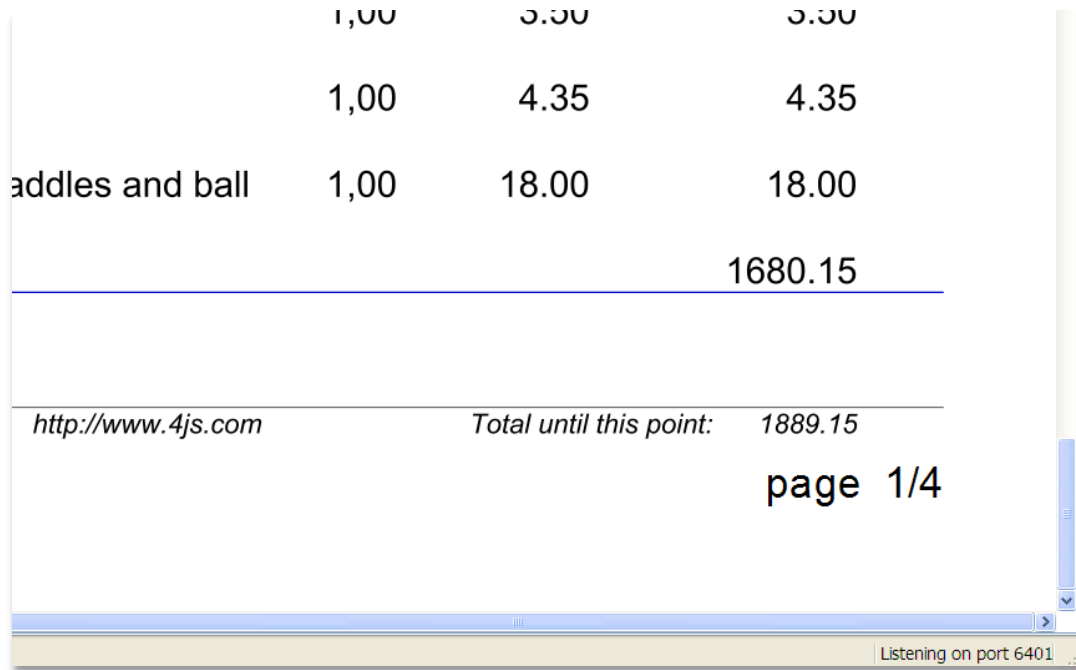


### Steve Miller



## ➤ Page 'n of M'

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

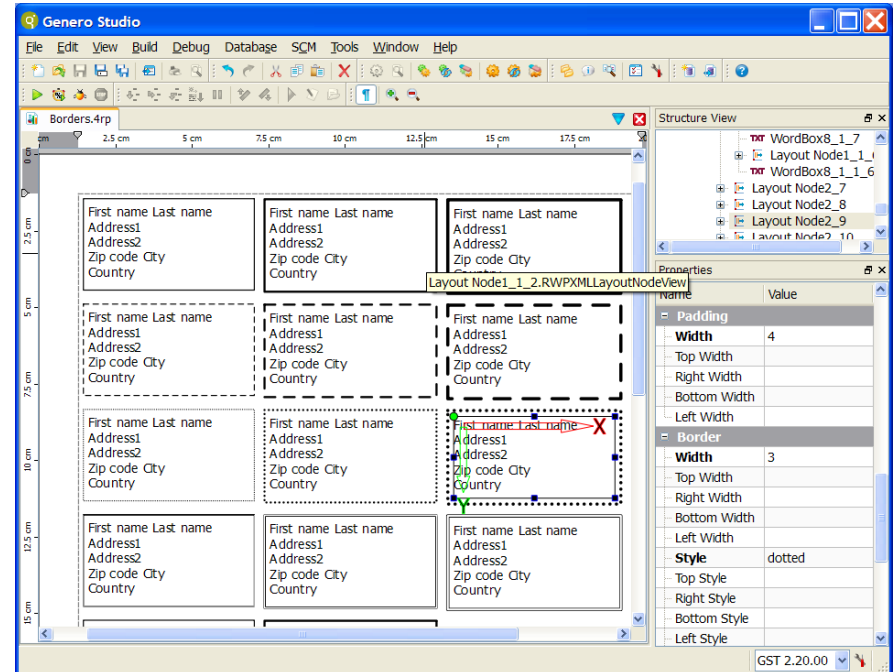


	1,00	3.30	3.30
	1,00	4.35	4.35
saddles and ball	1,00	18.00	18.00
			1680.15
<hr/>			
<i>http://www.4js.com</i>	<i>Total until this point:</i>	<i>1889.15</i>	
		<b>page 1/4</b>	

Listening on port 6401

## ➤ Borders and padding

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





## ➤ XML data sources

XML as data

XML schema(or DTD) as report data definition

## ➤ Report Designer

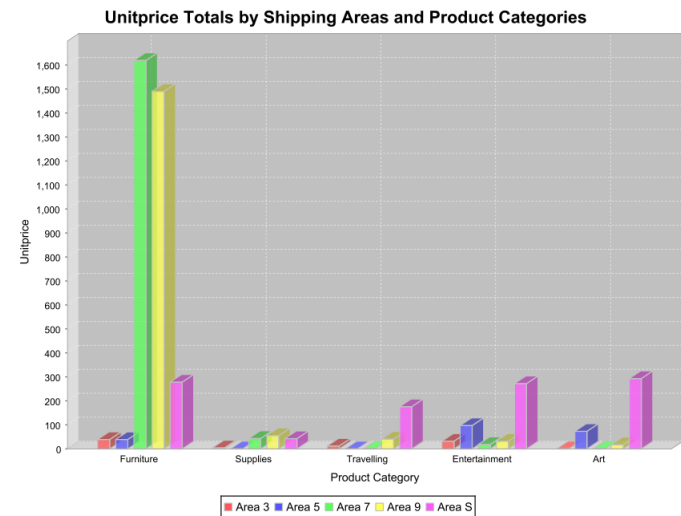
Dataview shows XML schema

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

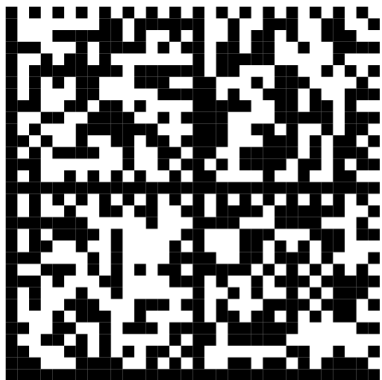
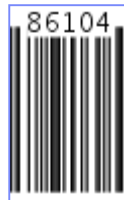
	Header A	Header B			Header C
Header 1	Header 2	Header 3	Header 4	Header 5	
L11	L12	L13	L14	L15	L16
L21	L22	L23	L24	L25	L26
L31	L32	L33	L34	L35	L36
L41	L42	L43	L44	L45	L46
L51	L52	L53	L54	L55	L56

	Overall	Environments			Factors									
		Work	Leadership	Learning	Accountability	Commitment to Employees	Conditions	Hiring Practices	Job Design	Processes	Behaviors	Communications	Formal	Informal/Social
XYZ Corporation	3	3	4	2	3	4	3	2	4	2	4	3	3	2
Business Unit X	3	3	4	2	3	4	3	2	4	3	4	3	3	2
Sales Unit 1	5	5	5	4	5	5	5	3	5	4	5	5	4	4
Sales Unit 2	3	3	4	2	3	4	3	2	4	3	4	4	3	3
Sales Unit 3	2	2	2	1	2	3	2	1	3	1	3	1	1	1
Business Unit Y	2	2	3	2	3	3	2	2	3	2	3	3	3	2
Call Center 1	4	4	5	3	5	4	4	2	4	3	5	5	4	3
Call Center 2	2	2	3	1	2	3	2	2	4	1	3	3	1	1
Call Center 3	1	1	2	2	2	1	1	1	2	1	2	1	3	1
Business Unit Z	3	3	4	3	3	4	3	2	4	2	4	4	4	2
Plant 1	4	4	5	3	4	5	4	3	5	4	5	5	4	2
Plant 2	3	3	4	3	3	4	4	3	4	2	4	4	4	1
Plant 3	3	2	4	3	3	3	2	1	4	1	4	3	3	2

**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
  - Decimal Format Box
  - Page Number
  - Image Box
- High Level Elements
  - Table
  - Row
  - Column
  - List
  - Ordered List
  - List Item
  - Paragraph
  - Paragraph Break (Newline)
- Business Graphs
  - Map Chart
  - Map Chart Item



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.

**Requisition Spending by Section - Current**

*Department: ADP 30300 Mgmt*

*Section: 30300000 MGMT.*

Requisition Type	Budget	Total \$
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>		
<b>Sum</b>		<b>\$5,258.15</b>

*Section: 30304000 SAFETY*

Requisition Type	Budget	Total \$
Safety data sheets	\$0.00	\$998.00
<i>Summary for 'ReqDept' = 30304000 (1 detail record)</i>		
<b>Sum</b>		<b>\$998.00</b>

*Department: ADP 33300 Grounds*

*Section: 33304000 Grounds*

Requisition Type	Budget	Total \$
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>		
<b>Sum</b>		<b>\$6,343.04</b>



**Thank you**



