

ARCHIMEDES

**An Open Source Utility
Repository Analysis and Persistence
For Versata 5.5.x
From**



BAND SOFTWARE DESIGN, LLC



Logical Data Integrity testing by Euclid
from



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Archimedes for Versata 5.5.x Repository Analysis

Archimedes creates statistical analysis, metrics, and detailed reports from any Versata 5.5.x repository.

MetaRepos- is a Versata 5.5.x application that allows you to version and persist your XML metadata (that is, your business rules) to the Logic Server.

Euclid – from Integrity Logic is a data-testing tool that can analyze, measure, and report logical data integrity errors.

Archimedes with the **MetaRepos** provides project managers:

- 1) Archimedes provides **metrics and statistics** on your repository - how many business objects, attributes, business rules, user-defined methods, Java/HTML pages as well as the % generated versus user defined lines of code.
- 2) The HTML **Analysis report** that gives a detail of attributes, rules, relationships, methods, events, constraints, and a used-by cross-reference on a single printable HTML page. This HTML page can also be loaded into an MS Excel Spreadsheet for further refinements.
- 3) Archimedes includes a Versata application (**MetaRepos**) which will persist the content of a single analysis run. Load the **MetaRepos** into your Versata Studio© and deploy the business objects and data model to your DBMS.
- 4) Once persisted, several sample Java and HTML applications that will allow you to query, view, and drill-down into your meta-data and business rules.
- 5) The **MetaRepos** has a built in rules-based **differencing** engine to compare 2 versions of the same repository. How many of each object type (DataObject, Attribute, QueryObject, Application, Form) were added, removed, or changed between versions?
- 6) The **MetaRepos** can extend your runtime application by adding new attributes and semantic that can be accessed at runtime by your Versata application (an extensible meta-model with runtime features).
- 7) Now that the meta-data is persisted into your DBMS, use your favorite report writer to create custom rules reports.
- 8) Archimedes has a sample transformation engine to generate output to files (e.g. code generator and meta-data report writer). One new Transformation is for Euclid – a Logical Data Integrity testing tool from Integrity Logic.

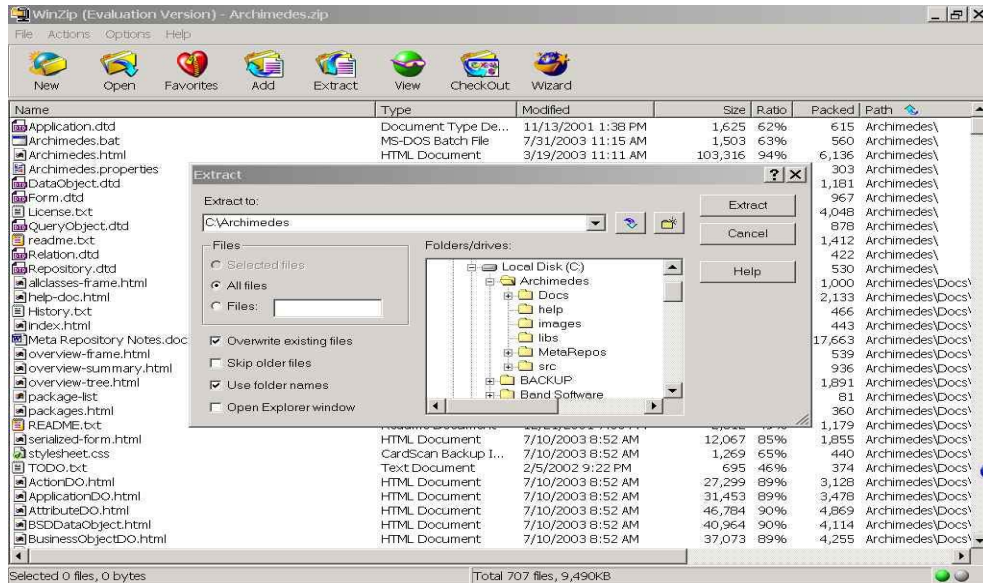
Source Forge Location: <http://sourceforge.net/projects/metarepos/>

Yahoo group: <http://groups.yahoo.com/group/versatausersgroup/>

Euclid from Integrity Logic: <http://www.integritylogic.com>

Archimedes Installation

Download and unzip the contents of Archimedes.zip to a new directory called Archimedes. Remember to set the option to use folder names.

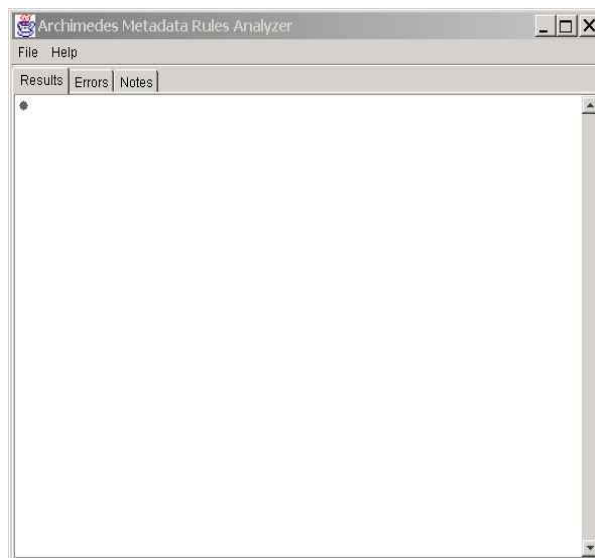


Configuration

Before you start, you will need to edit the Archimedes.bat file. This file contains the classpath information for both the Java JDK location and the location of your WebSphere and Versata directories. You can also edit the Archimedes.properties file – this controls the persistence to the TLE. You can use the same JDK from the Versata.

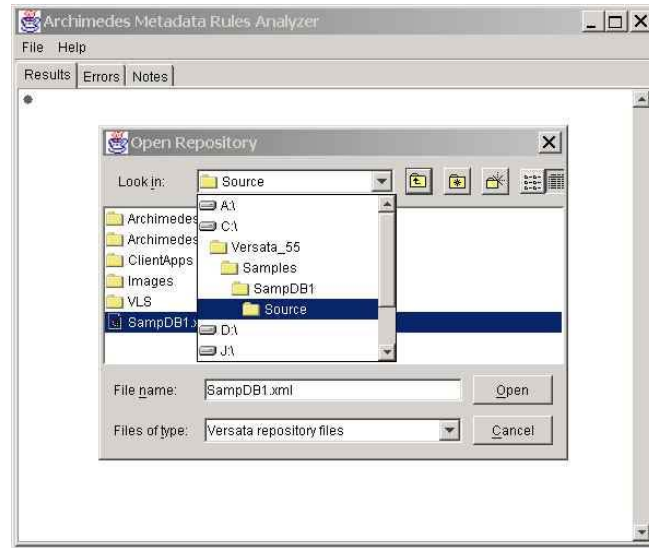
Running Archimedes

When you start Archimedes (click on the Archimedes.bat file), you should see a Java application window that looks like this:

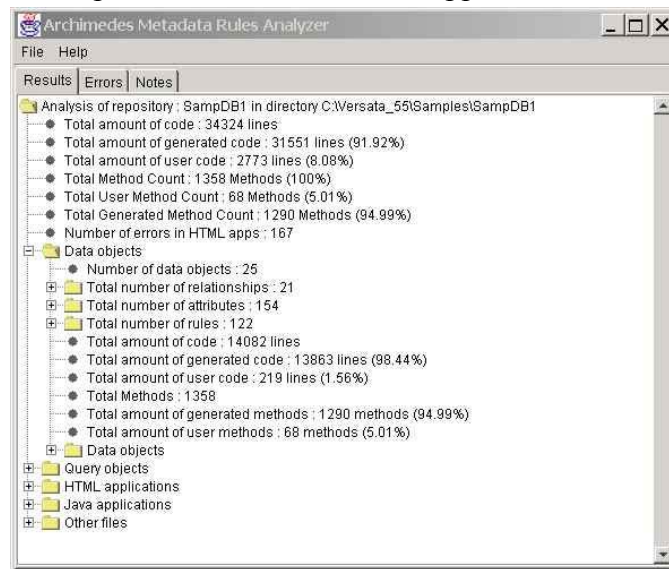


Open a Repository

Select the File/Open Repository menu option. Navigate to the location of your current Versata 5.5.x repository. The analysis will take a minute or two (you can view the progress in the DOS window). Note: If you are running a prior version of Versata, you can always convert to Versata 5.5.x and run the analysis.



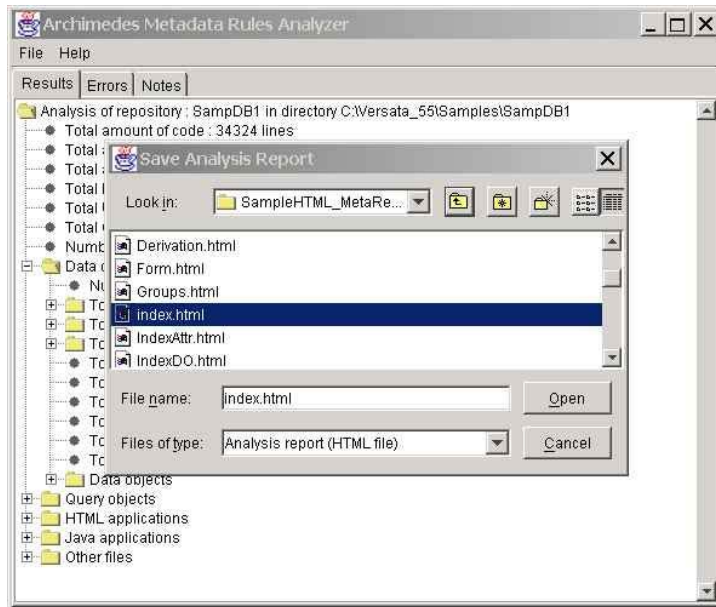
Once the analysis is completed, a series of statistics appear on the Results tab.



The statistics show counts and percentages of rules, methods, and lines of code for Data Objects, Applications, and Query Objects. All of this information can be persisted to a database using the MetaRepos application or printed to a series of HTML reports.

Save HTML Analysis Report

You can save these statistics and detailed contents to a series of HTML pages. Select the File/Save HTML Analysis report. Navigate to a new empty directory and save the root page as index.html. One feature is that these detailed HTML pages can be loaded in MS Excel for further editing and display formatting. Save the root page as **index.html**.



This is a Sample Report of the MetaRepos Versata Application.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Mail Print Preview Print Setup

Address C:\Temp\MetaRepos\New Folder\index.html

Versata repository analysis

Repository name : MetaRepos

Repository location : C:\Archimedes\MetaRepos

Analysis date : Tue Apr 29 13:56:09 PDT

Analysis run on machine : TYLER_DELL

Analysis run by user : Tyler

Automation analyzer version : v0.6

Summary

Artefact count

Data objects	30
Query objects	4
HTML apps	2
Java apps	1
Other files	0

Code count

Category	Total lines	Generated	Percent	User	Percent
Server lines	730	520	71.23%	210	28.77%
Client lines	1503	1497	99.6%	6	0.4%
Other files	0	0	0%	0	100%

Method count

Category	Total Methods	Generated	Percent	User	Percent
Server	2025	1948	96.2%	77	3.8%
Client	477	0	0%	477	100%
Other files	0	0	0%	0	100%
Total	2502	1948	77.86%	554	22.14%

Form summary

App type	Total forms	Rebuildable	Percent	Customized	Percent
HTML	56	56	100%	0	0%
Java	16	5	31.25%	11	68.75%
Total	72	61	84.72%	11	15.28%

Attributes summary

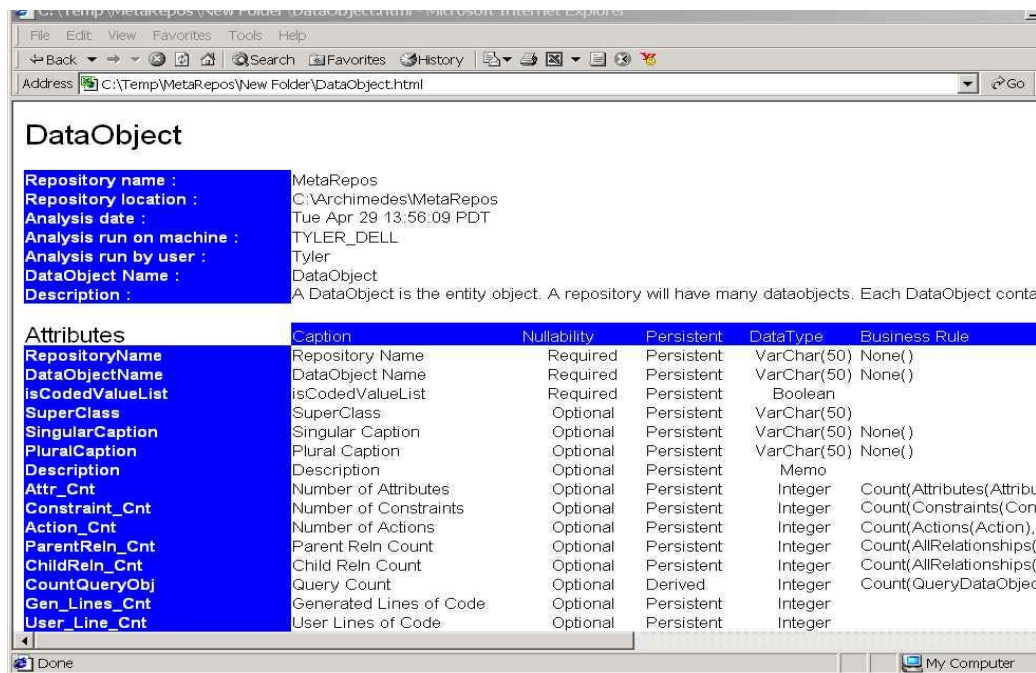
Total number of attributes	294
Persistent attributes	261
Non-persistent attributes	33
Required attributes	100
Prevent user update attributes	105
Derived attributes	147
Coded value	4

Rules summary

Relationships	46
Constraints	0
Actions	1

Drill Down on Each Data Object

You can drill down into each Data Object and see a summary report including attributes, rules, events, constraints, relationships, used by, and user defined methods.



DataObject

Repository name : MetaRepos
 Repository location : C:\Archimedes\MetaRepos
 Analysis date : Tue Apr 29 13:56:09 PDT
 Analysis run on machine : TYLER_DELL
 Analysis run by user : Tyler
 DataObject Name : DataObject
 Description : A DataObject is the entity object. A repository will have many dataobjects. Each DataObject conta

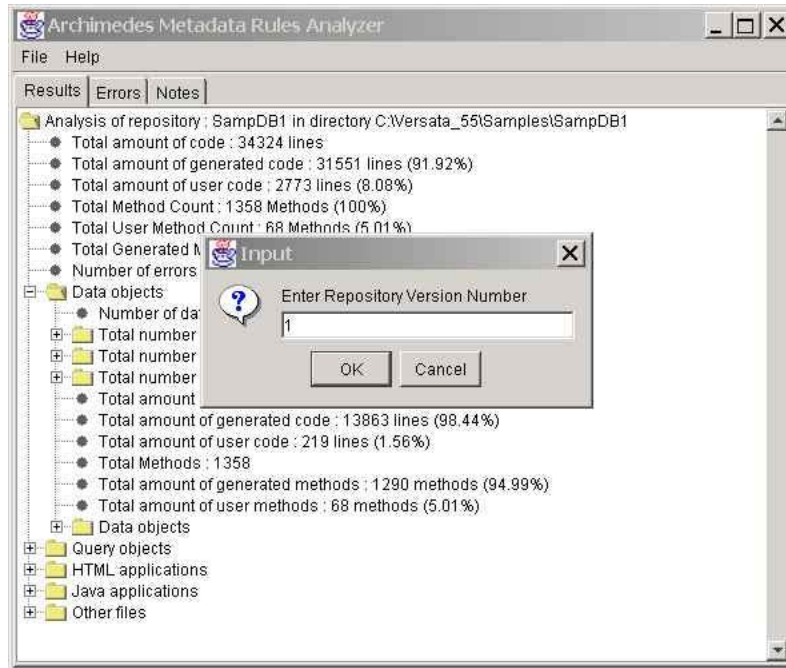
Attributes	Caption	Nullability	Persistent	DataType	Business Rule
RepositoryName	Repository Name	Required	Persistent	VarChar(50)	None()
DataObjectName	DataObject Name	Required	Persistent	VarChar(50)	None()
isCodedValueList	isCodedValueList	Required	Persistent	Boolean	
SuperClass	SuperClass	Optional	Persistent	VarChar(50)	
SingularCaption	Singular Caption	Optional	Persistent	VarChar(50)	None()
PluralCaption	Plural Caption	Optional	Persistent	VarChar(50)	None()
Description	Description	Optional	Persistent	Memo	
Attr_Cnt	Number of Attributes	Optional	Persistent	Integer	Count(Attributes(Attribu
Constraint_Cnt	Number of Constraints	Optional	Persistent	Integer	Count(Constraints(Con:
Action_Cnt	Number of Actions	Optional	Persistent	Integer	Count(Actions(Action),
ParentReIn_Cnt	Parent ReIn Count	Optional	Persistent	Integer	Count(AllRelationships(
ChildReIn_Cnt	Child ReIn Count	Optional	Persistent	Integer	Count(AllRelationships(
CountQueryObj	Query Count	Optional	Derived	Integer	Count(QueryDataObjec
Gen_Lines_Cnt	Generated Lines of Code	Optional	Persistent	Integer	
User_Line_Cnt	User Lines of Code	Optional	Persistent	Integer	

Note: This report can also be loaded in MS Excel for further formatting and refinement.

Persist to MetaRepos

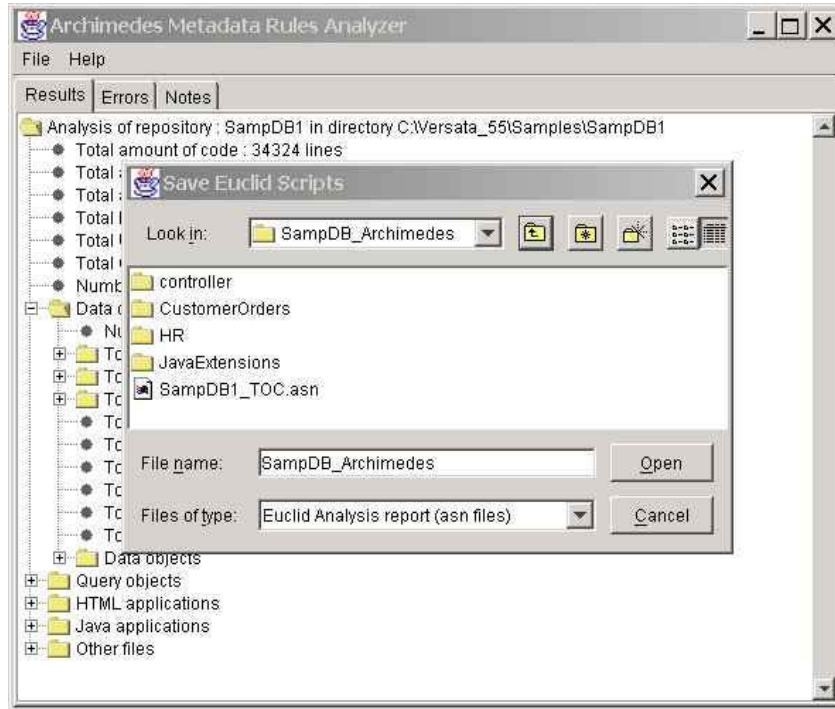
The persistence engine will store this collection of Versata rules under a specific version number. This version number can be used later to compare prior versions of the same repository to determine the changes between releases. (File/Save to VLS).

NOTE: Before you attempt to persist, you must deploy the MetaRepos application to a Logic Server and to a database.



Generate Euclid Scripts

Select the menu option File/Generate Euclid Scripts. Navigate to a new empty directory and press OK. Archimedes will generate a series of scripts, which are imported into Euclid (a Data Integrity testing tool from Integrity Logic).



These scripts are organized into subdirectories that match your own file groups from Versata. A new directory called **controller** contains one file per data object. These control files are used to execute each script for the persistent business objects. Each business object has both a generated (<businessObj_GEN.asn>) and a user defined (<businessObj_USER.asn>)script. The main table of contents is found in the root directory in the file named: <yourrepository_TOC.asn>.

Take the Integrity Logic “Euclid” Challenge

Download Euclid from <http://www.integritylogic.com>. Please read the documentation provided with the product to understand how Euclid works.

1. Install and Configure Euclid

- a) Download the latest trial version from <http://www.integritylogic.com>. You will need to edit the classpath for your own JDBC driver. This is found in:

```
<dir>:\Euclid\jakarta-tomcat-4.1.18\bin\EuclidClasspath.bat
```

- b) To start Euclid – launch a DOS window or click

```
<dir>:\Euclid\StartEuclid.bat
```

- c) Then launch a browser and type the URL:

<http://localhost:8789/Euclid/src/Login.jsp>

2. Logon to Euclid

From the main Euclid page, press the login button.



The login form has a blue header with the word "Login" in bold. Below the header, there are two input fields: "User ID :" with the text "Euclid" entered, and "Password :" with "*****" entered. A blue "Login" button is positioned below the password field.

3. Create a new Project

Create a new project by pressing the New Project button.



The Projects table has a blue header with the word "Projects" in bold. Below the header, there is a table with two columns: "Project name" and "Description". The table contains two rows: "Archimedes" and "Sample project". The "Sample project" row has a description: "Sample project shipped with Euclid". A blue "New project" button is located below the table.

	Project name	Description
x	Archimedes	
x	Sample project	Sample project shipped with Euclid

4. Create new Data Source

Create anew Data source to your existing database. You can compare data between multiple databases.

Runs Scripts Data sources

Here are all the data sources defined for project Archimedes.

Data sources	
Name	Type
x ORCL	Oracle

New data source

Here is all the information about a data source.

Name : ORCL

Description

Type : Oracle

Parameters :	Name	Value	Type	Required	Description
Database URL		jdbc:oracle:thin:@localhost:1521:ORCL	String	Yes	The URL to the Oracle database, e.g. jdbc:oracle:thin:@localhos
User password		*****	Password	Yes	The user's password
Schema		TYLER	String	No	The default database schema
User ID		TYLER	String	Yes	The user ID

OK Revert Cancel Test

5. Import Archimedes Scripts

The navigation bar on the left has an Import hyperlink within the project. This is where you would import the Archimedes generated scripts.

Import scripts - setup

Enter the name of directory (on the server) that contains the .asn files you wish to import.

If you select the recursive option, all .asn files in subdirectories will also be imported.

Scripts directory : C:\Temp\MetaRepos

Recurse into subdirectories : ☒

Prefix :

Import Cancel

6. Create new Run

Create a new run by selecting the Run tab and pressing New run.

Project info		
Name	Archimedes	
ID	3	
Description		

[Runs](#)
[Scripts](#)
[Data sources](#)

The following is a list of all the predefined runs in this project.

Runs		
File name	Name	
x Test	Test	Schedule

[New run](#)

You can select one or more of the scripts from the controller director or run all the tables using the <yourreposname_TOC> script.

Run info	
Name	Test
File name	Test
ID	5
Description	
Default data source	ORCL
OK Revert	

The following is a list of the top-level scripts to be executed in this Run.



Scripts	
File name	
x /SampDB1_TOC	
Add script	

The following is a list of the parameters that will be asked of the user when scheduling this run.

7. Schedule and Execute (press *Execute Now*)

Look for the execute now button to start the process of running the scripts against your database.

This page allows you to schedule a Run for execution.

Schedule Run	
Run name	Test
Run ID	5
<input type="button" value="Execute now"/>	
<input type="radio"/> One-time execution <input checked="" type="radio"/> Periodic execution	
<input checked="" type="radio"/> Execute in : <input type="text" value="0"/> minutes <input type="text" value="0"/> hours <input type="text" value="0"/> days	
<input type="radio"/> Execute :	<input type="radio"/> Today <input type="radio"/> Tomorrow at : <input type="text" value="15"/> : <input type="text" value="46"/> <input type="radio"/> On : <input type="text" value="2003/07/31"/> 
Maximum execution time : <input type="text"/> minutes <input type="text"/> hours <input type="text"/> days	
Stop after : <input type="text"/>  at <input type="text" value="hour"/> : <input type="text" value="minute"/>	
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

8. Analyze Results

Once all the processing is complete, you can view the results (or press the Run History from the left side navigation bar). These assertion failures or errors can be viewed by drilling down using the Details tab.

This is a list of all the logs for all the runs that have been executed and not deleted. To get more information on a particular run, click on its start date.

Runs for this project						
	Run file name	Start time	End time	Run time	Assert. failures	Errors
X	TestPart.xml	Mon Jul 07 10:59:57 PDT 2003	Mon Jul 07 10:59:58 PDT 2003	1 sec.	38	0
X	AllScripts.xml	Mon Jul 07 11:09:27 PDT 2003	Mon Jul 07 11:09:48 PDT 2003	20 sec.	42	0
X	AllScripts.xml	Wed Jul 16 17:20:03 PDT 2003	Wed Jul 16 17:20:25 PDT 2003	21 sec.	42	0

This is all the information about a run that has completed. You can dig into it down to the level of an individual failure.

Run info			
Name	AllScripts.xml	Assertion failure types	4
Scheduled start	Wed Jul 16 17:20:02 PDT 2003	Assertion failures	42
Actual start	Wed Jul 16 17:20:03 PDT 2003	Errors	0
End date	Wed Jul 16 17:20:25 PDT 2003	Warnings	0
Running time	21 sec.	Notes	601
Data integrity			
Assertion types executed	157	Assertion types executed (weighted)	1570
Assertion types passed	153 (97.45%)	Assertion types passed (weighted)	1530 (97.45%)
Assertion types failed	4 (2.55%)	Assertion types failed (weighted)	40 (2.55%)
Assertions executed	7011	Assertions executed (weighted)	70110
Assertions passed	6969 (99.40%)	Assertions passed (weighted)	69690 (99.40%)
Assertions failed	42 (0.60%)	Assertions failed (weighted)	420 (0.60%)
Details			
Scripts with events Assertion failure types Error types Warning types Note types Parameters All scri			
This is a list of all the scripts which had assertion failures, errors, warnings or notes during execution.			
Scripts			

Drill Down using the tabs above to see the details:

Here are run-time details on the script:

Script details							
Name	CUSTOMERS_GEN.xml						
File name	CustomerOrders/CUSTOMERS_GEN.xml						
ID	Script000000000027						
Description							
Number of invocations	19						
Total time	721 ms.						
Average time per invocation	37 ms.						
Assertion failures	1						
Errors	0						
Warnings	0						

Instructions							
ID	Execs	Time	Avg	AF	Err	Warn	
2							// Assume calling control script has set Table: CUSTOMERS into local attribute:
2							// \$CUSTOMERS
2	19	0 ms.	0 ms.	0	0	0	ASSERT \$CUSTOMERS IS NOT NULL

You can drill down on the Error or Assertion to see exactly why the error or rule failure occurred. This helps identify the Data Object, the Attribute, and the value(s) that are incorrect.

Changing Scripts to fix Errors or modify Rules

Remember, the scripts generated by Archimedes attempt to render every business rule as a test. Sometimes these rules cannot be executed or will be rendered incorrectly. Here are some common problems:

- All Constraints are commented out and moved to the USER defined scripts. You can decide to modify the Reject When or Accept When rule expressed as an assertion.
- All Formula are moved to the USER defined scripts and commented out. Simply because they may contain IF/Then statements, comments, or Java methods.
- Any WHERE clause that contains a Java method, comment, or has a Boolean (True/False) is commented out. These can be quickly changed and retested.
- Sometimes recursive self relationships cause the script to generate an SQL statement that cannot be resolved. This will generate an error. We suggest you fix the SQL or comment out the instruction.
- Duplicate tests on coded values when a relationship is also present. This will cause two identical instructions to be generated.
- Coded Value lists that have two or more primary keys will cause improper SQL to be generated (since we are trying to test one value). Simply comment out this instruction.

Versata repository analysis

Repository name :	SampDB1
Repository location :	C:\Versata_55\Samples\SampDB1
Analysis date :	Wed Jul 16 17:05:39 PDT 2003
Analysis run on machine :	TYLER_DELL
Analysis run by user :	Tyler
Automation analyzer version :	v0.6

Summary

Artefact count

Data objects	25
Query objects	17
HTML apps	29
Java apps	32
Other files	19

Code count

Category	Total lines	Generated	Percent	User	Percent
Server lines	15703	15473	98.54%	230	1.46%
Client lines	16168	15098	93.38%	1070	6.62%
Other files	1713	0	0%	1713	100%
Total lines	33584	30571	91.03%	3013	8.97%

Method count

Category	Total Methods	Generated	Percent	User	Percent
Server Methods	1358	1290	94.99%	68	5.01%
Client	2036	394	19.35%	1642	80.65%
Other files	197	0	0%	197	100%
Total Methods	3591	1684	46.9%	1907	53.1%

Form summary

App type	Total forms	Rebuildable	Percent	Customized	Percent
HTML	172	114	66.28%	58	33.72%
Java	102	36	35.29%	66	64.71%
Total	274	150	54.74%	124	45.26%

Attributes summary

Total number of attributes	154
Persistent attributes	148
Non-persistent attributes	6
Required attributes	35
Prevent user update attributes	47
Derived attributes	68
Coded value	8

Rules summary

Relationships	21
Constraints	13
Actions	8
Sums	11
Counts	3
Parent replicates	7
Formulas	21
Defaults	26
Conditions	4
Coded values	8
Total rules	122

Data objects

Name	Gen. Code	User code	Constraints	Actions	Pers. Attribs	Non pers.	Required	No update	Sum	Count	Replicate	Formula	Default	Condition	Coded	val
CUSTOMERS	1068		3	6	0	18	0	2	8	4	2	1	1	3	0	2
CUSTOMER_USER	316		1	0	0	3	0	0	0	0	0	0	0	0	0	0
DEPARTMENT	1019		41	2	0	11	0	1	5	1	1	0	2	3	1	0
EMPLOYEES	1404		80	1	3	15	2	4	3	1	0	0	4	2	2	1
EMPLOYEESAUDIT	474		1	0	0	7	0	2	4	0	0	2	2	2	0	0
EMPLOYEEESKILL	374		4	0	0	3	0	2	0	0	0	0	0	0	0	0
EMPLOYEEESPENDING	341		1	0	0	4	0	0	0	0	0	0	0	1	0	0
ORDERITEM	1051		1	0	0	8	1	3	5	0	0	3	2	1	0	0
ORDERS	1733		51	3	2	15	2	1	9	2	0	1	6	4	0	1
ORDER_IMAGES_MAP	245		1	0	0	2	0	0	0	0	0	0	0	0	0	0
PART	922		9	0	1	15	1	1	8	3	0	0	3	4	0	4
PARTSRECEIVED	546		13	1	1	6	0	5	1	0	0	0	1	3	0	0
SECUREDATA	258		1	0	0	3	0	1	0	0	0	0	0	0	0	0
SKILL	429		1	0	0	2	0	2	1	0	0	0	0	0	0	0
STATE_TAX_SCHEDULE	316		1	0	0	3	0	0	0	0	0	0	0	0	0	0
SYSTEM_SCALARS	275		1	0	0	3	0	0	1	0	0	0	0	0	1	0
VALID_AUTO	345		1	0	0	2	0	1	1	0	0	0	0	0	0	0
VALID_CREDIT	354		1	0	0	3	0	1	0	0	0	0	0	1	0	0
VALID_EMPTYTYPE	412		1	0	0	2	0	2	0	0	0	0	0	0	0	0
VALID_EMPTYTYPE_SKLS	362		1	0	0	2	0	0	0	0	0	0	0	0	0	0
VALID_MODELAUTO	395		1	0	0	2	0	2	0	0	0	0	0	0	0	0
VALID_PARTTYPE	271		1	0	0	3	0	0	1	0	0	0	0	0	0	0
VALID_STATE	328		1	0	1	2	0	2	0	0	0	0	0	0	0	0
VALID_UNIT	234		1	0	0	1	0	1	0	0	0	0	0	0	0	0
XDA_CUSTOMERS	391		1	0	0	13	0	2	0	0	0	0	0	2	0	0
Total	13863		219	13	8	148	6	35	47	11	3	7	21	26	4	8

Query objects

Name	Num attribs	Num objects	Gen. Code	User code
CustQueryVirtuals	4		1	87 11
DefaultSkillsForEmpType	4		2	88 0
DeptJoinSubDept	12		2	97 0
EmpJoinDept	16		2	102 0
EmpList	7		1	91 0
EmpSalaryHistory	5		1	89 0
EmpSkills	4		2	88 0
EmpSkillsXDASToredProcedure	4		2	88 0
OrderItemJoinPart	15		2	100 0
OrderJoinOptSalesRep	19		2	105 0
OrderJoinSalesRep	19		2	105 0
OrderJoinSalesRepAndMgr	22		4	110 0
OrderJoinSalesRepCust	7		3	91 0
OrderJoinSalesRepForTree	16		2	102 0
OrderTotalSalesByCust	2		1	85 0
OrdersNoVirtuals	12		1	97 0
StateWideBalance	2		1	85 0
Total	170		1610	11

Relationships

Parent	Children	Role name	Enforced
CUSTOMERS	CUSTOMER_USER	Users	True
	ORDERS	hasOrders	True
DEPARTMENT	DEPARTMENT	SubDepartments	True
	EMPLOYEES	EmployeesReportingTo	True
	EMPLOYEES	EmployeesOnLoanTo	True
EMPLOYEES	DEPARTMENT	Manages	True
	EMPLOYEEAUDIT	EmployeeAudit	True
	EMPLOYEE SKILL	EmployeeSkills	True
	EMPLOYEE SPENDING	PendingChanges	True
	ORDERS	Orders	True
ORDERS	ORDERITEM	OrderItems	True
PART	ORDERITEM	OrderItems	True
	PARTSRECEIVED	PartsReceived	True
SKILL	EMPLOYEE SKILL	EmployeeSkills	True
	VALID_EMPTYYP_SKLS	DefaultSkillForEmpTypes	True
VALID_AUTO	VALID_MODELAUTO	Models	True
VALID_CREDIT	CUSTOMERS	Customers	True
VALID_EMPTYTYPE	EMPLOYEES	Employee	True
	VALID_EMPTYYP_SKLS	DefaultSkills	True
VALID_MODELAUTO	PART	PartsFor	True
VALID_STATE	STATE_TAX_SCHEDULE	TaxSchedules	True

Child	Parents	Role name	Enforced
CUSTOMERS	VALID_CREDIT	CodeTableCredit	True
CUSTOMER_USER	CUSTOMERS	CustomerAccount	True
DEPARTMENT	DEPARTMENT	HeadDepartment	True
	EMPLOYEES	ManagedBy	True
EMPLOYEES	DEPARTMENT	ReportingDepartment	True
	DEPARTMENT	OnLoanDepartment	True
	VALID_EMPTYTYPE	ValidEmpType	True
EMPLOYEEAUDIT	EMPLOYEES	Employee	True
EMPLOYEE SKILL	EMPLOYEES	Employee	True
	SKILL	Skill	True
EMPLOYEE SPENDING	EMPLOYEES	EmployeeForChanges	True
ORDERITEM	ORDERS	Order	True
	PART	Part	True
ORDERS	CUSTOMERS	placedByCustomer	True
	EMPLOYEES	SalesRep	True
PART	VALID_MODELAUTO	ModelFor	True
PARTSRECEIVED	PART	Part	True
STATE_TAX_SCHEDULE	VALID_STATE	StateForSchedule	True

VALID_EMPTYYP_SKLS

SKILL
VALID_EMPTYYPESkill
EmpTypeTrue
True

VALID_MODELAUTO

VALID_AUTO

Make

True

HTML applications

App name	Pages	Page name	Gen. Code	User code	RebuildableDataObjects	Picks	
Automation_Demo	22	Automation_Demo	42	0	0	0	
		Automation_DemoServlet	30	0	0	0	
		FramesetPage	18	1 true	0	0	
		StartupPage	18	1 true	0	0	
		pCUSTOMERMenuList	18	1 true	1	0	
		pCUSTOMERS	18	0 true	1	0	
		pCUSTOMERSQBF	18	1 true	1	1	
		pCUSTOMER_Orders	18	1 true	5	0	
		pEMPLOYEE	18	0 true	4	7	
		pEMPLOYEEES	18	0 true	1	3	
		pEMP_Add1	23	1 true	1	2	
		pEMP_Add2_C	18	0 true	1	0	
		pEMP_Add2_H	18	0 true	1	0	
		pEMP_Add2_S	18	0 true	1	0	
		pEMP_Add3_Skills	18	0 true	2	1	
		pltem	18	1 true	1	3	
		pORDERS_Grid	18	0 true	1	0	
		pOrder_Items	18	1 true	3	3	
		pOrder_Items_RO	18	0 true	2	0	
		pPART	18	0 true	2	1	
		pPARTS	18	0 true	1	1	
		pPaidOrders_Items	18	0 true	2	0	
		pPick_Parts	18	0 true	1	0	
		pPick_Skills	18	0 true	1	0	
		Total	473	8	100%	33	22
Basic_HTML	9	Basic_HTML	40	0	0	0	
		Basic_HTMLServlet	30	0	0	0	
		FramesetPage	18	1 true	0	0	
		StartupPage	18	1 true	0	0	
		pCUSTOMERMenuList	18	1 true	1	0	
		pCUSTOMERSQBF	18	1 false	1	1	
		pCUSTOMER_Orders	18	1 false	2	0	
		pltem	18	1 false	1	3	
		pMenuListFrameset	18	1 true	0	0	
		pOrder_Items	18	1 false	2	2	
		pPART	18	1 true	1	0	
		Total	232	9	55.56%	8	6
Business_Change	7	Business_Change	22	0	0	0	
		Business_ChangeServlet	30	0	0	0	
		FramesetPage	18	1 false	0	0	
		StartupPage	18	1 true	0	0	
		pCUSTOMERS	18	1 false	2	1	
		pCUSTOMERS_Grid	18	1 false	1	0	
		pCUSTOMER_USER	18	1 false	1	1	
		pMenuListFrameset	18	1 false	0	0	
		pPART	18	1 false	1	1	
		Total	178	7	14.29%	5	3
Controls_Date	2	Controls_Date	22	0	0	0	
		Controls_DateServlet	30	0	0	0	

	StartupPage	0	0 true	0	0
	pORDERS	17	1 false	2	5
	Total	69	1 50%	2	5
Controls_Tree	9				
	BoundTree	17	0 false	0	0
	Controls_Tree	22	0	0	0
	Controls_TreeServlet	30	0	0	0
	FramesetPage	17	0 true	0	0
	StartupPage	17	0 true	0	0
	pCUSTOMERS	17	0 false	1	0
	pDEPARTMENT	17	0 false	1	0
	pDEPARTMENT_Grid	43	93 false	1	0
	pNoData	17	1 false	0	0
	pORDERS	17	0 false	1	0
	startupFrameset	17	0 false	0	0
	Total	231	94 22.22%	4	0
Events_Actions	3				
	Events_Actions	22	0	0	0
	Events_ActionsServlet	30	0	0	0
	StartupPage	0	0 true	0	0
	pCUSTOMERS	26	18 false	1	1
	pORDERS_Grid	17	1 false	1	0
	Total	95	19 33.33%	2	1
Events_DataSource	8				
	Events_DataSource	22	0	0	0
	Events_DataSourceServlet	30	0	0	0
	FramesetPage	18	1 false	0	0
	StartupPage	18	1 true	0	0
	pAddCustomer	18	1 false	1	1
	pCUSTOMERS	31	21 false	1	1
	pCUSTOMERS_Grid	23	21 false	1	0
	pEMPLOYEEESGiveRaise	23	30 false	1	3
	pEMPLOYEEES_Grid	18	1 false	1	0
	pMenuListFrameset	18	1 false	0	0
	Total	219	77 12.5%	5	5
Events_Hide_Fields	2				
	Events_Hide_Fields	22	0	0	0
	Events_Hide_FieldsServlet	30	0	0	0
	StartupPage	0	0 true	0	0
	pEMPLOYEEES	22	14 false	1	3
	Total	74	14 50%	1	3
Events_Tracing	5				
	Events_Tracing	40	0	0	0
	Events_TracingServlet	30	0	0	0
	FramesetPage	18	0 false	0	0
	StartupPage	18	0 true	0	0
	pCUSTOMERS	18	0 false	2	0
	pDEPARTMENT	18	0 false	2	0
	pORDERS	18	0 false	1	2
	Total	160	0 20%	5	2
Frames_Multiple	7				
	FrameSetEmpsPlus	17	1 false	0	0
	Frames_Multiple	22	0	0	0
	Frames_MultipleServlet	30	0	0	0
	FramesetPage	17	1 false	0	0
	StartupPage	17	1 true	0	0
	pCUSTOMERS	17	1 false	1	0
	pEmpJoinDept_Grid	17	1 false	1	0

pOrderItemJoinPart_Grid	17	1 false	1	0
pOrderJoinOptSalesRep_Grid	17	1 false	1	0
Total	171	7 14.29%	4	0

GridDisplayForm

2				
GridDisplayForm	40	0	0	0
GridDisplayFormServlet	30	0	0	0
StartupPage	0	0 true	0	0
pCUSTOMERS	23	3 false	1	0
Total	93	3 50%	1	0

HTML_Mail

4				
FramesetPage	17	0 false	0	0
HTML_Mail	22	37	0	0
HTML_MailServlet	30	0	0	0
StartupPage	17	0 true	0	0
pCUSTOMERS	30	19 false	1	1
pCUSTOMERS2	17	0 false	1	0
Total	133	56 25%	2	1

PDX_Basic_HTML

15				
FramesetPage	42	0 true	0	0
PDX_Basic_HTML	101	0	0	0
PDX_Basic_HTMLServlet	113	0	0	0
StartupPage	112	0 true	0	0
pAddEmployee	57	0 true	1	0
pCustomerList	91	0 true	1	0
pCustomerOrders	135	0 true	4	0
pCustomerPick	57	0 true	1	0
pDepartment	65	0 true	1	2
pEditCustomer	61	0 true	1	1
pEditOrder	84	0 true	2	3
pEmployeeDetails	84	0 true	2	3
pEmployeeList	94	0 true	1	0
pEmployeeSearch	74	0 true	1	0
pMenuListFrameset	42	0 true	0	0
pPartDetails	57	0 true	1	0
pPartList	74	0 true	1	0
Total	1385	0 100%	17	9

PDX_Basic_Layout

4				
FramesetPage	18	0 true	0	0
PDX_Basic_Layout	40	0	0	0
PDX_Basic_LayoutServlet	30	0	0	0
StartupPage	18	0 true	0	0
pCUSTOMERS	18	0 true	3	2
pEMPLOYEES	18	0 true	1	3
Total	142	0 100%	4	5

PDX_Cascading_Picks

4				
FramesetPage	42	0 true	0	0
PDX_Cascading_Picks	101	0	0	0
PDX_Cascading_PicksServlet	113	0	0	0
StartupPage	76	0 true	0	0
pCUSTOMERS	57	0 true	1	0
pDEPARTMENT	70	5 false	1	2
Total	501	5 75%	2	2

PDX_Conditional_Branching

6				
FramesetPage	18	0 true	0	0
PDX_Conditional_Branching	40	0	0	0
PDX_Conditional_BranchingServlet	30	0	0	0
StartupPage	18	0 true	0	0
pCUSTOMERS_Grid	18	0 true	1	0

	pORDERS	18	0 true	1	2
	pORDERS4	18	0 true	1	2
	pORDERS_Grid	18	0 true	1	0
	Total	178	0	100%	4
					4
PDX_Dynamic_Hide_Show_Style	5				
	FramesetPage	18	0 true	0	0
	PDX_Dynamic_Hide_Show_Style	40	0	0	0
	PDX_Dynamic_Hide_Show_StyleServlet	30	0	0	0
	StartupPage	18	0 true	0	0
	pEMPLOYEES	18	0 true	2	4
	pEMPLOYEESAUDIT	18	0 true	1	1
	pORDERS_Grid	18	0 true	1	0
	Total	160	0	100%	4
					5
PDX_Groups	2				
	PDX_Groups	40	0	0	0
	PDX_GroupsServlet	30	0	0	0
	StartupPage	0	0 true	0	0
	pEMPLOYEES	18	0 true	3	5
	Total	88	0	100%	3
					5
PDX_Inclusion	14				
	FramesetPage	18	0 true	0	0
	PDX_Inclusion	42	0	0	0
	PDX_InclusionServlet	30	0	0	0
	StartupPage	18	0 true	0	0
	pBottomLeftSKILLS	18	0 true	1	0
	pBottomRightAUDIT	18	0 true	1	0
	pCUSTOMERS	18	0 true	1	1
	pCUSTOMERS_Grid	18	0 true	1	0
	pDEPARTMENT	18	0 true	1	2
	pDEPARTMENT10	18	0 true	3	0
	pIntroduction	18	0 true	0	0
	pORDERITEM_Grid	18	0 true	1	0
	pORDERS	18	0 true	1	2
	pORDERS8_Grid	18	0 true	1	0
	pTopLeftEMPLOYEES	18	0 true	1	2
	pTopRightORDERS	18	0 true	1	0
	Total	324	0	100%	13
					7
PDX_Menu_Tabs	5				
	FramesetPage	18	0 true	0	0
	PDX_Menu_Tabs	40	0	0	0
	PDX_Menu_TabsServlet	30	0	0	0
	StartupPage	18	0 true	0	0
	pCUSTOMERS	18	0 true	2	1
	pEMPLOYEES	18	0 true	2	3
	pORDERS	18	0 true	1	2
	Total	160	0	100%	5
					6
PDX_Popup_Picks	2				
	PDX_Popup_Picks	109	0	0	0
	PDX_Popup_PicksServlet	113	0	0	0
	StartupPage	0	0 true	0	0
	pOrderJoinSalesRep	65	0 true	1	2
	Total	329	0	100%	1
					2
PDX_Return_Command	7				
	FramesetPage	18	0 true	0	0
	PDX_Return_Command	40	0	0	0
	PDX_Return_CommandServlet	30	0	0	0
	StartupPage	18	0 true	0	0
	gsCUSTOMERS	18	0 true	1	1

	gsORDERS	18	0 true	1	2
	pCUSTOMERS	18	0 true	1	1
	pCUSTOMERS_ORDERS	18	0 true	2	0
	pORDERS	18	0 true	1	2
	Total	196	0	100%	6
Recompute_Derivations	4				
	FramesetPage	17	0 false	0	0
	Recompute_Derivations	22	0	0	0
	Recompute_DerivationsServlet	30	0	0	0
	StartupPage	17	0 true	0	0
	pCUSTOMERS	17	0 false	1	1
Server_Extended_Properties	pEMPLOYEES_Grid	17	0 false	1	0
	Total	120	0	25%	2
	3				
	Server_Extended_Properties	72	0	0	0
	Server_Extended_PropertiesServlet	95	0	0	0
ShoppingCart	StartupPage	0	0 true	0	0
	pEMPLOYEES	64	0 false	1	1
	pEMPLOYEESPENDING_Grid	44	0 false	1	0
	Total	275	0	33.33%	2
	5				
Show_Dialog	ShoppingCart	22	0	0	0
	ShoppingCartServlet	30	0	0	0
	StartupPage	59	1 true	0	0
	pCUSTOMERS	18	1 false	1	0
	pORDERITEM	18	1 false	1	2
	pORDERS	18	1 false	2	2
SortCombo	pPART	18	1 false	1	1
	Total	183	5	20%	5
	3				
	Show_Dialog	22	0	0	0
	Show_DialogServlet	30	0	0	0
SubClass	StartupPage	0	0 true	0	0
	SubClass	22	0	0	0
	SubClassServlet	30	0	0	0
	pEMPLOYEES	17	1 false	1	3
	Total	69	1	50%	3
Suppress_Login	2				
	StartupPage	0	0 true	0	0
	9				
	FramesetPage	42	0 true	0	0
	SortCombo	101	0	0	0
SubClass	SortComboServlet	113	0	0	0
	StartupPage	127	0 true	0	0
	pCUSTOMERS	61	0 true	1	1
	pCUSTOMERS5_Grid	78	0 false	1	1
	pCUSTOMERS8	57	0 false	1	0
	pORDERITEM	82	0 true	1	2
SortCombo	pORDERITEM_Grid	82	0 true	1	2
	pORDERS_Grid	82	0 true	1	2
	pPART_Grid	57	0 true	1	0
	Total	924	0	77.78%	7
	8				
SubClass	2				
	StartupPage	0	0 true	0	0
	SubClass	22	0	0	0
	SubClassServlet	30	0	0	0
	pEMPLOYEES	17	1 false	1	3
	Total	69	1	50%	3
Suppress_Login					
	2				
	StartupPage	0	0 true	0	0
	2				
	StartupPage	0	0 true	0	0

Suppress_Login	22	0	0	0
Suppress_LoginServlet	30	26	0	0
pCUSTOMERS	17	0 false	1	0
Total	69	26	50%	1 0

Grand total	172	7331	364	66.28%
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Java applications

App name	Pages	Form name	Gen. Code	User code	RebuildableDataObjects	Picks
Basic_Data_Access	2					
		Basic_Data_Access	36	6 true	0	0
		DEPARTMENT	43	116 false	5	3
		StartupForm	16	0 true	0	0
		Total	95	122	50%	5 3
Client_Custom_Login	3					
		Client_Custom_Login	36	20 true	0	0
		Customers	16	0 false	1	0
		Login	53	40 false	0	0
		StartupForm	16	1 true	0	0
		Total	121	61	33.33%	1 0
Client_Formatting_I18N	3					
		Client_Formatting_I18N	36	6 true	0	0
		FirstForm	23	21 false	0	0
		ORDERS	23	1 false	1	0
		StartupForm	16	0 true	0	0
		Total	98	28	33.33%	1 0
Client_JavaBean	2					
		Client_JavaBean	36	6 true	0	0
		MoleculeBean	23	17 false	0	0
		StartupForm	0	0 true	0	0
		Total	59	23	50%	0 0
Client_Share_Form	5					
		Client_Share_Form	36	6 true	0	0
		StartupForm	0	0 true	0	0
		fCUSTOMER	16	0 false	2	1
		fCUSTOMERS	16	0 false	1	1
		fOrderJoinOptSalesRep	16	0 false	2	5
		fPART	16	0 false	2	3
		Total	100	6	20%	7 10
Client_Subclass_ContainerEvents	3					
		Client_Subclass_ContainerEvents	90	6 true	0	0
		StartupForm	98	1 true	0	0
		fCUSTOMERS	828	6 false	1	1
		fPART	853	2 false	1	1
		Total	1869	15	33.33%	2 2
Client_Subclass_GridDoubleClick	3					
		Client_Subclass_GridDoubleClick	36	6 true	0	0
		StartupForm	0	0 true	0	0
		fCUSTOMERS	16	0 true	1	1
		fCUSTOMERS_Grid	16	0 false	1	1
		Total	68	6	66.67%	2 2
Client_Subclass_MenuTree	3					
		Client_Subclass_MenuTree	36	6 true	0	0

		PARTS	16	0 false	1	1
		StartupForm	23	2 true	0	0
		fCUSTOMERTREE	33	5 false	5	7
		Total	108	13 33.33%	6	8
Client_Subclass_TextBox	2	CUSTOMERS	16	0 false	1	1
		Client_Subclass_TextBox	36	6 true	0	0
		StartupForm	0	0 true	0	0
		Total	52	6 50%	1	1
Client_Subclass_VariantPanel	3	Client_Subclass_VariantPanel	36	6 true	0	0
		StartupForm	0	0 true	0	0
		fEMPLOYEE	16	0 false	1	2
		fEMPLOYEES	16	0 false	1	2
		Total	68	6 33.33%	2	4
Client_Subclass_WarningMessages	2	CUSTOMERS	502	1 false	1	1
		Client_Subclass_WarningMessages	94	6 true	0	0
		StartupForm	0	0 true	0	0
		Total	596	7 50%	1	1
Client_Tree_Customers	4	Client_Tree_Customers	36	6 true	0	0
		CustOrdersInTree	30	15 false	3	2
		CustomersSearch	37	16 false	1	0
		PartList	23	3 false	1	1
		StartupForm	16	-1 true	0	0
		Total	142	39 25%	5	3
Demo_BusinessObject_Methods	5	DEPARTMENT	16	0 false	2	0
		Demo_BusinessObject_Methods	36	6 true	0	0
		ObjectByFactory	23	24 false	1	0
		ObjectByRow	23	24 false	1	0
		StartupForm	0	0 true	0	0
		fEmpByAttrs	16	0 false	1	0
		Total	114	54 20%	5	0
DepartmentExceptions	2	DepartmentExceptions	94	6 true	0	0
		StartupForm	0	0 true	0	0
		fDEPARTMENT	784	2 false	2	2
		Total	878	8 50%	2	2
JavaExchange	2	JavaExchange	94	6 true	0	0
		StartupForm	0	0 true	0	0
		fJXAppointment	518	0 true	1	0
		Total	612	6 100%	1	0
Layout_Managers	3	Layout_Managers	36	6 true	0	0
		StartupForm	23	0 true	0	0
		fCUSTOMERS	16	-1 false	1	0
		fCUSTOMERS2	16	-1 false	1	0
		Total	91	4 33.33%	2	0
MDI_Application	3	MDI_Application	36	14 true	0	0
		StartupForm	26	10 true	0	0
		fCUSTOMERS	49	11 false	5	0

	fDEPARTMENT	30	10 false	2	0
	Total	141	45 33.33%	7	0
Server_EventAction_CreateChildren	2				
	Server_EventAction_CreateChildren	36	6 true	0	0
	StartupForm	0	0 true	0	0
	fEMPLOYEES	23	3 false	5	5
	Total	59	9 50%	5	5
Server_EventAction_Email	2				
	CreateLargeOrder	15	2 false	2	2
	Server_EventAction_Email	35	6 true	0	0
	StartupForm	102	0 true	0	0
	Total	152	8 50%	2	2
Server_Event_Commit	2				
	Server_Event_Commit	36	6 true	0	0
	StartupForm	0	0 true	0	0
	fORDERS	23	12 false	2	4
	Total	59	18 50%	2	4
Server_Event_QueryAttributes	2				
	Server_Event_QueryAttributes	35	6 true	0	0
	StartupForm	0	0 true	0	0
	fCustQueryVirtuals	15	0 false	1	0
	Total	50	6 50%	1	0
Server_Extended_Rules_Functions	2				
	ADDORDERS	15	0 false	5	6
	Server_Extended_Rules_Functions	35	6 true	0	0
	StartupForm	0	0 true	0	0
	Total	50	6 50%	5	6
Server_Extended_Rules_Mods	3				
	CUSTOMERS	25	30 false	3	5
	PARTS	15	0 false	1	1
	Server_Extended_Rules_Mods	35	6 true	0	0
	StartupForm	15	0 true	0	0
	Total	90	36 33.33%	4	6
Server_Security	3				
	SECUREDATA	15	0 false	1	0
	Server_Security	35	6 true	0	0
	StartupForm	15	0 true	0	0
	fEMPLOYEES	15	0 false	1	3
	Total	80	6 33.33%	2	3
Server_XDA_CSVfile	2				
	Server_XDA_CSVfile	35	6 true	0	0
	StartupForm	0	0 true	0	0
	XDA_CUSTOMERS	15	0 false	1	0
	Total	50	6 50%	1	0
Server_XDA_StoredProcedure	2				
	EMPLOYEES	15	0 false	3	6
	Server_XDA_StoredProcedure	35	6 true	0	0
	StartupForm	0	0 true	0	0
	Total	50	6 50%	3	6
TestExceptions	2				
	StartupForm	0	0 true	0	0
	TestExceptions	94	6 true	0	0
	fPARTSRECEIVED	582	37 true	1	1
	Total	676	43 100%	1	1

VFC_Swing_Controls	8					
StartupForm	16	-1 true	0	0		
VFC_Swing_Controls	36	6 true	0	0		
demoAutomaticQuery	29	18 false	1	1		
demoChoiceEdit	16	-1 false	1	0		
demoSwingBean	27	19 false	1	0		
demoVSGridTree	16	3 false	5	0		
demoVSScrollPane	16	-1 false	1	1		
demoVSSplitPane	16	-1 false	1	1		
demoVSTreeTable	23	5 false	1	2		
Total	195	47	12.5%	11	5	
_Demo	8					
CUSTOMER	30	5 false	3	0		
CUSTOMERS_Grid	30	20 false	1	0		
EmployeeList	29	10 false	1	2		
OrderJoinSalesRep	16	-1 false	2	2		
PART	16	-1 false	2	1		
ReadMeFirst	16	-1 false	0	0		
StartupForm	16	0 true	0	0		
_Demo	36	8 true	0	0		
fDepartment	16	-1 false	3	4		
Total	205	39	12.5%	12	9	
_Pick	5					
StartupForm	16	0 true	0	0		
_Pick	36	6 true	0	0		
fAddOrder	16	0 false	2	4		
fEmployee	23	2 false	4	6		
fOrderJavaPick	23	7 false	2	4		
fPART_Grid_Pick	16	0 false	1	1		
Total	130	15	20%	9	15	
_Transitions	7					
CUSTOMER	16	0 false	2	1		
CUSTOMERS_Grid	16	0 false	1	1		
ORDER	16	0 false	2	5		
StartupForm	64	0 true	0	0		
_Transitions	36	6 true	0	0		
fEmpHello	16	0 false	1	2		
fFellowEmployeesGrid	16	0 false	1	2		
fORDERS_Grid	16	0 false	1	2		
Total	196	6	14.29%	8	13	
testJDBC	2					
StartupForm	0	0 true	0	0		
fVALID_STATE	419	0 true	1	0		
testJDBC	94	6 true	0	0		
Total	513	6	100%	1	0	
Grand total	102	7767	706	35.29%	267	229

Other files

File name	Code lines
ComboBoxElementExt.java.java	77
CorpReuseExtRulesDataObject.java.java	420
CustomExceptionHandler.java.java	121
EffectiveDateDataObj.java.java	68
ExcelGateWay.java.java	132

JebExchange.java.java	52
JebExchangeAppointment.java.java	69
JebExchangeContact.java.java	50
JebExchangeMessage.java.java	69
MailEnabledDataObject.java.java	23
SecureDataObject.java.java	123
SprcDataManager.java.java	31
TableElementExt.java.java	150
TestJDBCStatement.java.java	37
WildCardTextElement.java.java	44
XDAConnection.java.java	25
XDAExchangeBridge.java.java	81
XDAExchangeConnection.java.java	57
XDASample1.java.java	84
Total	1713

CUSTOMERS

Repository name :	SampDB1
Repository location :	C:\Versata_55\Samples\SampDB1
Analysis date :	Wed Jul 16 17:05:39 PDT 2003
Analysis run on machine :	TYLER_DELL
Analysis run by user :	Tyler
DataObject Name :	CUSTOMERS
Description :	This is a list of all customers for the company.

Attributes	Caption	Nullability	Persistent	DataType	Business Rule
Name	Customer Name	Required	Persistent	VarChar(50)	None()
ActBalance	Balance	Optional	Persistent	Currency	Sum(hasOrders(ORDERS), OrderTotal, RepositoryName = SampDB1 and AttrName = ActBalance and DataObjectName = CUSTOMERS)
TotalSales	Total Sales	Optional	Persistent	Currency	Sum(hasOrders(ORDERS), OrderTotal, RepositoryName = SampDB1 and AttrName = TotalSales and DataObjectName = CUSTOMERS)
SumAutoBucksEarned	Auto Bucks Earned	Optional	Persistent	Currency	Sum(hasOrders(ORDERS), SumAutoBucksEarned, RepositoryName = SampDB1 and AttrName = SumAutoBucksEarned and DataObjectName = CUSTOMERS)
SumAutoBucksUsed	Auto Bucks Used	Optional	Persistent	Currency	Sum(hasOrders(ORDERS), AutoBucksUsed, RepositoryName = SampDB1 and AttrName = SumAutoBucksUsed and DataObjectName = CUSTOMERS)
CustNum	Cust#	Required	Persistent	AutoNumber	
CreditCode	Credit Code	Optional	Persistent	Integer	Default(2) Formula(if ((Updating and CreditLimit = :Old.CreditLimit) OR CreditLimit IS NULL) AND (Inserting OR ((:Old.MaxCreditLimit != MaxCreditLimit) AND (:Old.MaxCreditLimit = CreditLimit))) then \$value = MaxCreditLimitEnd If)
CreditLimit	Credit Limit	Optional	Persistent	Currency	CodedValueList(VALID_STATE)
State	State	Optional	Persistent	VarChar(12)	Default(False)
IsOnHold	On Hold	Optional	Persistent	Boolean	ParentReplicate(CodeTableCredit(VALID_CREDIT), creditMaxBalance, Maintained)
MaxCreditLimit	Max Credit	Optional	Persistent	Currency	Default('')
Street	Street	Optional	Persistent	VarChar(32)	
City	City	Optional	Persistent	VarChar(24)	
ZIP	Post Code	Optional	Persistent	Long	
Photo	Photo	Optional	Persistent	VarChar(30)	
NumOrdersPaid	# Orders Paid	Optional	Persistent	Integer	Count(hasOrders(ORDERS), RepositoryName = SampDB1 and AttrName = NumOrdersPaid and DataObjectName = CUSTOMERS)
NumOrdersUnpaid	# Orders Unpaid	Optional	Persistent	Integer	Count(hasOrders(ORDERS), RepositoryName = SampDB1 and AttrName = NumOrdersUnpaid and DataObjectName = CUSTOMERS)
LastOrderNum	LastOrderNum	Optional	Persistent	Long	None()

Constraints	When	Constraint	Error Message
AutoBucksExceeded	RejectWhen	SumAutoBucksUsed > SumAutoBucksEarned ActBalance > CreditLimit /* Rules can have cascade dependencies... -- the CreditLimit is entered by the End User, but... -- see the Column Derivation rule for ActBalance */	Sorry, this exceeds Auto Bucks Earned (buy more stuff!)
BalanceExceeded	RejectWhen	CreditLimit <= MaxCreditLimit or (:Old.CreditLimit = CreditLimit and :Old.MaxCreditLimit = CreditLimit)	Sorry - Customer Balance exceeds Credit Limit
ExceededMaxLimit	AcceptWhen	(deleting and :old.IsOnHold = true)	Credit limit too high for the credit code
PreventDeletesIfOnHold	RejectWhen	(NumOrdersUnpaid > :old.NumOrdersUnpaid and IsOnHold = true) /* Note: This will allow a prepaid order to be entered and/or shipped, even if customer is still on hold. Very valuable during a backrupcy proceeding against a customer. */	Customer delete is rejected because the customer is on Hold status.
PreventOrderIfOnHold	RejectWhen	isCurrentEvent('CUSTOMER_Warning') = false AND Street = '1 Elm'	Customer is currently on hold, so new orders are rejected
UnlikelyStreet	RejectWhen		Warning: that is an unlikely street address - press Save to continue, or Undo to cancel

Event Condition Action	Condition	Action
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Parent Relationships	Parent	Child	Enforced
CUSTOMERS_JN_CUSTOMER_USER	CUSTOMERS	CUSTOMER_USER	Enforced
CUSTOMERS_JN_ORDERS	CUSTOMERS	ORDERS	Enforced

Child Relationships	Child	Parent	Enforced
VALID_CREDIT_JN_CUSTOMERS	CUSTOMERS	VALID_CREDIT	Enforced

Indexes	City
CityIndex	

User Defined Methods	Method Signature
beforeDelete	public void SampDB1.CUSTOMERSImpl.beforeDelete(versata.vls.DataObject,versata.vls.Response)
addListeners	public void SampDB1.CUSTOMERSImpl.addListeners() public static SampDB1.CUSTOMERSImpl
getNewObject	SampDB1.CUSTOMERSImpl.getNewObject(versata.vls.Session,boolean)
beforeCommit	public void SampDB1.CUSTOMERSImpl.beforeCommit(versata.vls.Session,versata.vls.Response)

Used By	Used In
CustQueryVirtuals	QUERY
OrderJoinSalesRepCust	QUERY
StateWideBalance	QUERY
CUSTOMERS	FORM Basic_HTML:pCUSTOMERSQBF

CUSTOMERS	FORM Basic_HTML:pCUSTOMERMenuList
CUSTOMERS	FORM Basic_HTML:pCUSTOMER_Orders
CUSTOMERS	FORM Business_Change:pCUSTOMERS_Grid
CUSTOMERS	FORM Business_Change:pCUSTOMERS
CUSTOMERS	FORM Controls_Tree:pCUSTOMERS
CUSTOMERS	FORM Events_Actions:pCUSTOMERS
CUSTOMERS	FORM Events_DataSource:pCUSTOMERS
CUSTOMERS	FORM Events_DataSource:AddCustomer
CUSTOMERS	FORM Events_DataSource:pCUSTOMERS_Grid
CUSTOMERS	FORM Events_Tracing:pCUSTOMERS
CUSTOMERS	FORM Frames_Multiple:pCUSTOMERS
CUSTOMERS	FORM GridDisplayForm:pCUSTOMERS
CUSTOMERS	FORM HTML_Mail:pCUSTOMERS
CUSTOMERS	FORM HTML_Mail:pCUSTOMERS2
CUSTOMERS	FORM Recompute_Derivations:pCUSTOMERS
CUSTOMERS	FORM ShoppingCart:pCUSTOMERS
CUSTOMERS	FORM Show_Dialog:pCUSTOMERS
CUSTOMERS	FORM Suppress_Login:pCUSTOMERS
CUSTOMERS	FORM PDX_Basic_HTML:pCustomerList
CUSTOMERS	FORM PDX_Basic_HTML:pCustomerOrders
CUSTOMERS	FORM PDX_Basic_HTML:pCustomerOrders
CUSTOMERS	FORM PDX_Basic_HTML:pEditCustomer
CUSTOMERS	FORM PDX_Basic_HTML:pCustomerPick
CUSTOMERS	FORM Automation_Demo:pCUSTOMERSQBF
CUSTOMERS	FORM Automation_Demo:pCUSTOMERMenuList
CUSTOMERS	FORM Automation_Demo:pCUSTOMER_Orders
CUSTOMERS	FORM Automation_Demo:pCUSTOMER_Orders
CUSTOMERS	FORM Automation_Demo:pCUSTOMER_Orders
CUSTOMERS	FORM Automation_Demo:pCUSTOMERS
CUSTOMERS	FORM PDX_Basic_Layout:pCUSTOMERS
CUSTOMERS	FORM PDX_Cascading_Picks:pCUSTOMERS
CUSTOMERS	FORM PDX_Conditional_Branching:pCUSTOMERS_Grid
CUSTOMERS	FORM PDX_Inclusion:pCUSTOMERS_Grid
CUSTOMERS	FORM PDX_Inclusion:pCUSTOMERS
CUSTOMERS	FORM PDX_Menu_Tabs:pCUSTOMERS
CUSTOMERS	FORM PDX_Return_Command:gsCUSTOMERS
CUSTOMERS	FORM PDX_Return_Command:pCUSTOMERS
CUSTOMERS	FORM PDX_Return_Command:pCUSTOMERS_ORDERS
CUSTOMERS	FORM SortCombo:pCUSTOMERS
CUSTOMERS	FORM SortCombo:pCUSTOMERS5_Grid
CUSTOMERS	FORM SortCombo:pCUSTOMERS8
CUSTOMERS	FORM _Demo:CUSTOMERS_Grid
CUSTOMERS	FORM _Demo:CUSTOMER
CUSTOMERS	FORM _Transitions:CUSTOMER
CUSTOMERS	FORM _Transitions:CUSTOMERS_Grid
CUSTOMERS	FORM Client_Custom_Login:Customers
CUSTOMERS	FORM Client_Share_Form:fCUSTOMERS
CUSTOMERS	FORM Client_Share_Form:fCUSTOMER
CUSTOMERS	FORM Client_Subclass_ContainerEvents:fCUSTOMERS
CUSTOMERS	FORM Client_Subclass_GridDoubleClick:fCUSTOMERS_Grid
CUSTOMERS	FORM Client_Subclass_GridDoubleClick:fCUSTOMERS
CUSTOMERS	FORM Client_Subclass_MenuTree:fCUSTOMERTREE
CUSTOMERS	FORM Client_Subclass_TextBox:CUSTOMERS
CUSTOMERS	FORM Client_Subclass_WarningMessages:CUSTOMERS
CUSTOMERS	FORM Client_Tree_Customers:CustomersSearch
CUSTOMERS	FORM Client_Tree_Customers:CustOrdersInTree
CUSTOMERS	FORM Layout_Managers:fCUSTOMERS
CUSTOMERS	FORM Layout_Managers:fCUSTOMERS2
CUSTOMERS	FORM MDI_Application:fCUSTOMERS
CUSTOMERS	FORM Server_Extended_Rules_Mods:CUSTOMERS
CUSTOMERS	FORM VFC_Swing_Controls:demoVSSplitPane
CUSTOMERS	FORM VFC_Swing_Controls:demoVSGridTree
CUSTOMERS	FORM VFC_Swing_Controls:demoAutomaticQuery
CUSTOMERS	FORM VFC_Swing_Controls:demoChoiceEdit
CUSTOMERS	FORM VFC_Swing_Controls:demoSwingBean
CUSTOMERS	FORM VFC_Swing_Controls:demoVSScrollPane

ORDERS

Repository name :	SampDB1
Repository location :	C:\Versata_55\Samples\SampDB1
Analysis date :	Wed Jul 16 17:05:39 PDT 2003
Analysis run on machine :	TYLER_DELL
Analysis run by user :	Tyler
DataObject Name :	ORDERS
Description :	Orders taken from customers

Attributes	Caption	Nullability	Persistent	DataType	Business Rule
OrderNumber	Order#	Optional	Persistent	AutoNumber	Formula(If (IsPaidByAutoBucks = true) Then \$value = Freight + TaxElse \$value = Freight + Tax + AmountItemsEnd If)
OrderTotal	Order Total	Optional	Persistent	Currency	Default(False)
OrderPaid	Paid	Optional	Persistent	Boolean	Sum(OrderItems(ORDERITEM), Amount, RepositoryName = SampDB1 and AttrName = AmountItems and DataObjectName = ORDERS)
AmountItems	Amount	Optional	Persistent	Currency	Formula(If (Inserting OR (AmountItems <> :Old. AmountItems)) Then \$value = AmountItems * TaxRate(getplacedByCustomer().getState(), getPlacedDate()) End If /* or, you could code this....If (Inserting OR (AmountItems <> :Old. AmountItems)) Then \$value = AmountItems * GetSqlValue(('select taxrate as taxrate from state_tax_schedule where State =' + getState() + ' ' and DateHighRange >= ' ' + getPlacedDate().toDefaultSQLServerTimeStampFormat(getMyLocale()) + ' ' order by datehighrange'), (taxrate')) see corp re-use... */))
Tax	Tax	Optional	Persistent	Currency	Formula(If (AmountItems <= GetFreightBulkDiscountValue()) Then \$value = AmountItems * 0.20Else \$value = AmountItems * GetFreightBulkDiscountRate() /* eg, 10% */End If /* For GetFreightBulk..., use Repository Explorer (File View). and examine the CorpReuseExtRulesDataObject */))
Freight	Freight	Optional	Persistent	Currency	Default(False)
ShippedFlag	Shipped	Optional	Persistent	Boolean	Sum(OrderItems(ORDERITEM), AutoBucksEarned, RepositoryName = SampDB1 and AttrName = SumAutoBucksEarned and DataObjectName = ORDERS)
SumAutoBucksEarned	Auto Bucks Earned	Optional	Persistent	Currency	Formula(If (IsPaidByAutoBucks = True /* Yes */) Then \$value = AmountItems /* discount does not apply */Else \$value = 0End If)
AutoBucksUsed	Auto Bucks Used	Optional	Derived	Currency	Default(False)
IsPaidByAutoBucks	Use Auto Bucks	Optional	Persistent	Boolean	Default(date())
PlacedDate	Placed Date	Optional	Persistent	DateTime	Formula(if inserting and DueDate IS NULL then \$value = Add_Months(PlacedDate , 1)end If)
DueDate	Due Date	Optional	Persistent	DateTime	
ShipDate	Ship Date	Optional	Persistent	DateTime	
CurrentYear	This Year	Optional	Persistent	Boolean	Formula(InCurrentYear(PlacedDate))
SalesRepID	SalesRep ID	Optional	Persistent	Long	
EmpType	Employee Type	Optional	Derived	VarChar(1)	ParentReplicate(SalesRep(EMPLOYEES), EmpType, Maintained)
CustNum	Cust#	Required	Persistent	Long	

Constraints	When	Constraint	Error Message
NoDeleteShipped	RejectWhen	Deleting AND isCurrentEvent('ORDERS.Purge') = false AND :Old.ShippedFlag != false AND :Old.OrderPaid	
NoRemovalUnpaid	RejectWhen	Deleting and :Old.ShippedFlag != false and :Old.OrderPaid = false	Shipped order may not be deleted, only purged after payment.
OnlySalesRepsHaveOrders	AcceptWhen	EmpType = 'C' /* Commission */	Orders cannot be deleted or purged if they are shipped but not paid Sorry, Only Sales Reps Can Place Orders

Event Condition Action	Condition	Action
bigOrder SetLastOrder	OrderTotal > 20000 and (Inserting or :Old.OrderTotal < 20000) and isNull('SalesRepID') = false Inserting	sendMail(getSalesRep().getEmail(), getSalesRep().getReportingDepartment().getManagedBy().getEmail(), 'Large Order from ' + getplacedByCustomer().getName(), 'Congratulations go to ' + getSalesRep().getName() + ' for closing a deal worth \$' + getAmountItems().toString() + '!' (Order Number: ' + getData('OrderNumber').toString() + ' ' , 1); getplacedByCustomer().setLastOrderNum(OrderNumber);getplacedByCustomer().save()

Parent Relationships	Parent	Child	Enforced
ORDERS_JN_ORDERITEM	ORDERS	ORDERITEM	Enforced

Child Relationships	Child	Parent	Enforced
CUSTOMERS_JN_ORDERS	ORDERS	CUSTOMERS	Enforced
EMPLOYEES_JN_ORDERS	ORDERS	EMPLOYEES	Enforced

Indexes	CustNum PlacedDate
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User Defined Methods	Method Signature
addListeners	public void SampDB1.ORDERSImpl.addListeners()
getNewObject	public static SampDB1.ORDERSImpl SampDB1.ORDERSImpl.getNewObject(versata.vls.Session,boolean)
beforeCommit	public void SampDB1.ORDERSImpl.beforeCommit(versata.vls.Session,versata.vls.Response)
sendBigOrderMail	public void SampDB1.ORDERSImpl.sendBigOrderMail(long,long,long) throws versata.vls.ServerException

purge	public void SampDB1.ORDERSImpl.purge()
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Used By	Used In
CUSTOMERS	Sum OrderTotal
CUSTOMERS	Sum OrderTotal
CUSTOMERS	Sum SumAutoBucksEarned
CUSTOMERS	Sum AutoBucksUsed
CUSTOMERS	Count
CUSTOMERS	Count
EMPLOYEES	Sum OrderTotal
ORDERITEM	ParentReplicate ShippedFlag
OrderJoinOptSalesRep	QUERY
OrderJoinSalesRep	QUERY
OrderJoinSalesRepAndMgr	QUERY
OrderJoinSalesRepCust	QUERY
OrderJoinSalesRepForTree	QUERY
OrdersNoVirtuals	QUERY
OrderTotalSalesByCust	QUERY
ORDERS	FORM Controls_Date:pORDERS
ORDERS	FORM Controls_Tree:pORDERS
ORDERS	FORM Events_Actions:pORDERS_Grid
ORDERS	FORM Events_Tracing:pCUSTOMERS
ORDERS	FORM Events_Tracing:pORDERS
ORDERS	FORM ShoppingCart:pORDERS
ORDERS	FORM PDX_Basic_HTML:pCustomerOrders
ORDERS	FORM PDX_Basic_HTML:pCustomerOrders
ORDERS	FORM PDX_Basic_HTML:pEditOrder
ORDERS	FORM PDX_Basic_Layout:pCUSTOMERS
ORDERS	FORM PDX_Basic_Layout:pCUSTOMERS
ORDERS	FORM PDX_Conditional_Branching:pORDERS4
ORDERS	FORM PDX_Dynamic_Hide_Show_Style:pORDERS_Grid
ORDERS	FORM PDX_Groups:pEMPLOYEES
ORDERS	FORM PDX_Inclusion:pORDERS8_Grid
ORDERS	FORM PDX_Inclusion:pORDERS
ORDERS	FORM PDX_Menu_Tabs:pEMPLOYEES
ORDERS	FORM PDX_Menu_Tabs:pCUSTOMERS
ORDERS	FORM PDX_Menu_Tabs:pORDERS
ORDERS	FORM PDX_Return_Command:pCUSTOMERS_ORDERS
ORDERS	FORM PDX_Return_Command:pORDERS
ORDERS	FORM PDX_Return_Command:gsORDERS
ORDERS	FORM SortCombo:pORDERS_Grid
ORDERS	FORM _Pick:fEmployee
ORDERS	FORM MDI_Application:fCUSTOMERS
ORDERS	FORM MDI_Application:fCUSTOMERS
ORDERS	FORM Server_Event_Commit:fORDERS
ORDERS	FORM Server_Extended_Rules_Functions:ADDORDERS
ORDERS	FORM VFC_Swing_Controls:demoVSGridTree
ORDERS	FORM VFC_Swing_Controls:demoVSGridTree
ORDERS	FORM Client_Formatting_I18N:ORDERS

```
//NOTE Test SUM on Attribute Name TotalSales
```

```
ASSERT $CUSTOMERS.TotalSales IS NOT NULL
```

```
IF $CUSTOMERS.TotalSales IS NOT NULL
```

```
// Testing Sum value $CUSTOMERS.TotalSales
```

```
    ASSERT $CUSTOMERS.TotalSales = sum("ORDERS", "OrderTotal", "CustNum = $CUSTOMERS.CustNum")
END IF
```

```
//NOTE Test SUM on Attribute Name SumAutoBucksEarned
```

```
ASSERT $CUSTOMERS.SumAutoBucksEarned IS NOT NULL
```

```
IF $CUSTOMERS.SumAutoBucksEarned IS NOT NULL
```

```
// Testing Sum value $CUSTOMERS.SumAutoBucksEarned
```

```
    ASSERT $CUSTOMERS.SumAutoBucksEarned = sum("ORDERS", "SumAutoBucksEarned", "CustNum =
$CUSTOMERS.CustNum")
END IF
```

```
//NOTE Test SUM on Attribute Name SumAutoBucksUsed
```

```
ASSERT $CUSTOMERS.SumAutoBucksUsed IS NOT NULL
```

```
IF $CUSTOMERS.SumAutoBucksUsed IS NOT NULL
```

```
// Testing Sum value $CUSTOMERS.SumAutoBucksUsed
```

```
    ASSERT $CUSTOMERS.SumAutoBucksUsed = sum("ORDERS", "AutoBucksUsed", "CustNum =
$CUSTOMERS.CustNum")
END IF
```

```
//Parent Replicate: is maintained? true
```

```
IF $CUSTOMERS.MaxCreditLimit IS NOT NULL
```

```
    // CUSTOMERS $CUSTOMERS. , $CUSTOMERS.MaxCreditLimit , MxCrdtLmt= $CUSTOMERS.MaxCreditLimit
    FETCH FROM VALID_CREDIT INTO MxCrdtLmt WHERE creditMaxBalance = $CUSTOMERS.MaxCreditLimit AND
storedValue = $CUSTOMERS.CreditCode
    ASSERT $MxCrdtLmt IS NOT NULL
END IF
```

```
//NOTE Test COUNT on Attribute Name NumOrdersPaid
```

```
ASSERT $CUSTOMERS.NumOrdersPaid IS NOT NULL
```

```
IF $CUSTOMERS.NumOrdersPaid IS NOT NULL AND $CUSTOMERS.NumOrdersPaid > 0
```

```
// Testing Count $CUSTOMERS.NumOrdersPaid
```

```
    ASSERT $CUSTOMERS.NumOrdersPaid = count("ORDERS", "CustNum = $CUSTOMERS.CustNum AND
OrderPaid != false")
END IF
```

```
//NOTE Test COUNT on Attribute Name NumOrdersUnpaid
```

```
ASSERT $CUSTOMERS.NumOrdersUnpaid IS NOT NULL
```

```
IF $CUSTOMERS.NumOrdersUnpaid IS NOT NULL AND $CUSTOMERS.NumOrdersUnpaid > 0
```

```
// Testing Count $CUSTOMERS.NumOrdersUnpaid
```

```
    ASSERT $CUSTOMERS.NumOrdersUnpaid = count("ORDERS", "CustNum = $CUSTOMERS.CustNum AND
OrderPaid = false")
END IF
```