IBM® WebSphere® Business Modeler V6.1

Integration with Rational® Data Architect

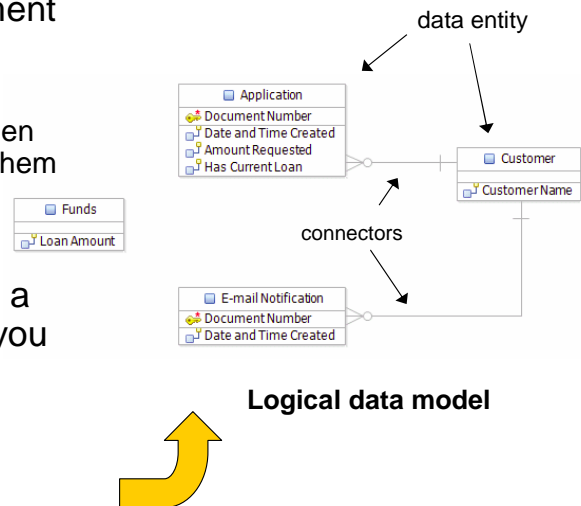This presentation will discuss the support for Rational Data Architect in WebSphere Business Modeler V6.1

What is Rational Data Architect?

- Rational Data Architect is a comprehensive development environment for data modeling
    - Defining relationships between data assets and integrating them
    - Developing database applications.
- Rational Data Architect is a powerful tool that allows you to perform
    - Logical, physical, storage, domain and integration data modeling.

Application
Document Number
Date and Time Created
Amount Requested
Has Current Loan

Funds
Loan Amount

Customer
Customer Name

E-mail Notification
Document Number
Date and Time Created

data entity

connectors

Logical data model

Rational Data Architect is a data modeling tool. A data model documents the data entities within the business domain. When using a data modeling tool like Rational Data Architect, the data entities, their attributes and relationships can be displayed in a graphical format. With data modeling you can create a logical model, a physical model, a storage model or an integration data model. What makes data modeling valuable within the enterprise is the fact that the data entities and their relationships often outlive the applications that use them.

Notice that the relationship connectors are different than the standard business process modeling relationship connectors.

Here the focus is on the data and their relationship to other data elements.

Each of the rectangles represents a data entity.

Relationships that can be expressed are inheritance, containment, and association.

For more information on data modeling and or Rational Data Architect see the Rational Data Architect documentation.

Why integrate with WebSphere Business Modeler?

- Business process and data modeling <u>compliment</u> each other
- <u>Business process modeling</u> captures information about *business items*
  - ▸ Business items can become a basis for creating the logical data model (LDM)
- <u>Data modeling</u> captures business entities, their relationships and business rules.
  - ▸ The *logical data model* can be used as a starting point to the business process modeling
  - ▸ The *logical data model* captures information that is often common to many applications or business processes.
    - It can out live applications or business processes
- Semantic Interoperability
  - ▸ Across the enterprise
  - ▸ Across layers of enterprise architecture

In the SOA world, business process and data modeling are closely related to, and complement each other.

Business process modeling captures key business information as business items during service and process modeling. If a Logical Data Model does not already exist then the Business items can become a basis for defining the Logical Data Models and semantic consistency.

Meanwhile, the Logical Data Model captures business entities, their relationships and business rules.

A well-formed Logical Data Model can provide a quick overview to the key business information in a complex IT environment, which reflects business information requirements.

The data model can outlive many applications, processes and physical data sources. The precise, complete and accurate semantics in the Logical Data Model is a perfect foundation for business items when an organization takes on a business process modeling endeavor.
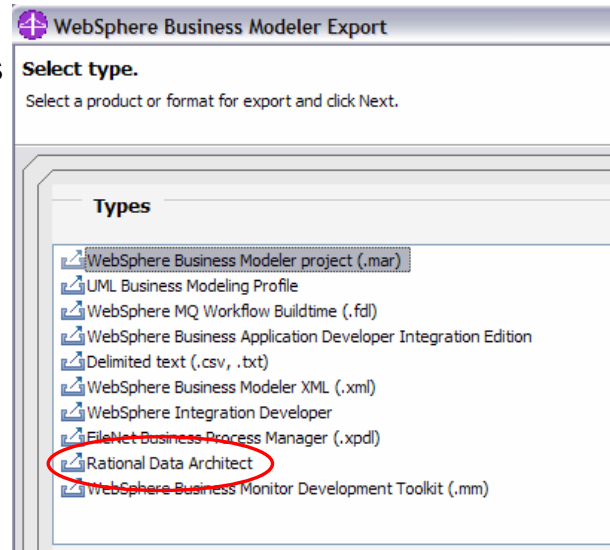
When you combine business process and data modeling in a holistic fashion, the power of SOA is revealed.

Combining the two, you achieve <u>semantic interoperability</u> across the enterprise and across the layers of the enterprise architecture.

This provides reusable information services that are useful for multiple processes, with decoupled data semantics.

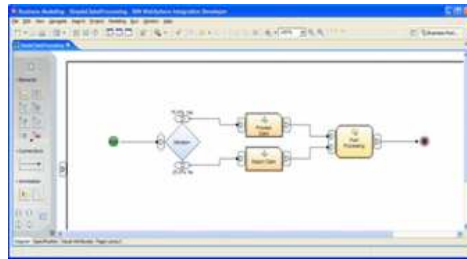# New export type for Rational Data Architect

- Exports the XML schema, which is then transformed to a logical data model when imported to Rational Data Architect.

- Can export an entire catalog or select individual items.

WebSphere Business Modeler Export

Select type.

Select a product or format for export and click Next.

Types

- WebSphere Business Modeler project (.mar)
- UML Business Modeling Profile
- WebSphere MQ Workflow Buildtime (.fdl)
- WebSphere Business Application Developer Integration Edition
- Delimited text (.csv, .txt)
- WebSphere Business Modeler XML (.xml)
- WebSphere Integration Developer
- FileNet Business Process Manager (.xpdl)
- Rational Data Architect
- WebSphere Business Monitor Development Toolkit (.mm)

Integration with Rational Data Architect

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When you want to share the business items that you've defined using WebSphere Business Modeler with Rational Data Architect you export the XML schema using the new Rational Data Architect export type.
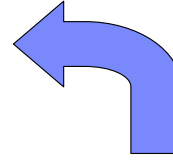
You can export the entire data catalog or specific business items.

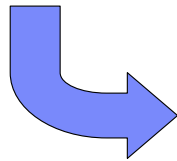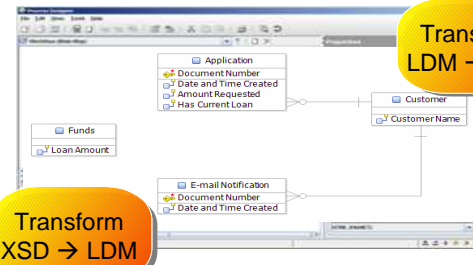# Import and export

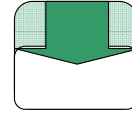WebSphere Business Modeler   Rational Data Architect V7

import

XML schema XSD

export

export

XML schema XSD

import

Transform
LDM → XSD

Transform
XSD → LDM

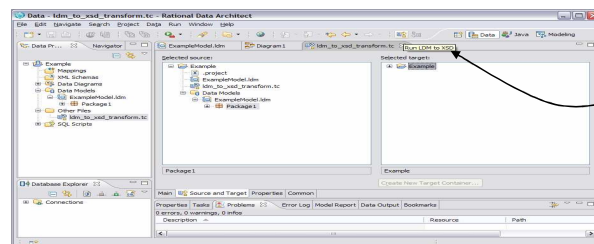Integration with Rational Data Architect   © 2008 IBM Corporation

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The sharing of information is not just one way. You can also take the data entities created in Rational Data Architect and export them as XML schema, which can then be imported into WebSphere Business Modeler.

There are manual transformation steps in Rational Data Architect that transform the XML schema to the logical data model on the import and the logical data model to XML schema on the export. The transformation function is currently an add-on that is installed into Rational Data Architect V7.

Top-down integration scenario

- Start with WebSphere Business Modeler
  - ▶ Export to Rational Data Architect
- Scenario steps:
  1. Create Business Items in WebSphere Business Modeler
  2. Export Business Items as XML Schema (XSD)
  3. Convert XML Schema into logical data model (LDM) in Rational Data Architect using the XSD-LDM transformation
  4. Create physical data model from logical data model in Rational Data Architect
- Things to consider:
  - ▶ For traceability
    - take care to <u>specify business item names that translate directly to XML Schema names.</u>


Transform
XSD → LDM

In the top-down scenario, the business analyst starts by creating a business model. There is no existing data model to be concerned with.

In order to realize the implementation a data model is required to help create and document the data entities. It might be that a database is required, which means a normalized set of tables will need to be created also.

By importing the business item definitions into Rational Data Architect a physical model can be created. The physical model is then used to create or generate the database definitions.

The common format for sharing information between the two systems is XML schema. XML schema is not the native description language for either tool; therefore care should be taken when naming the business items. You want to be sure that the names used will translate to valid XML schema names.

Bottom-up integration scenario
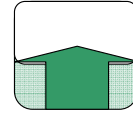
- Start with Rational Data Architect
  - Export to WebSphere Business Modeler

- Scenario steps:
  1. Create logical data model (LDM) in Rational Data Architect
     (or import existing data models from Visio®, ERWin, and others)
  2. Convert the logical data model to XML Schema using the LDM-XSD transformation
  3. Import XML Schema into WebSphere Business Modeler as *Business Items* or as *Business Service Objects.*

- Things to consider:
  - For traceability
    - take care to specify logical data model names that translate directly to XML Schema names
  - In WebSphere Business Modeler, importing XML Schema as business service objects results in a read-only data model element
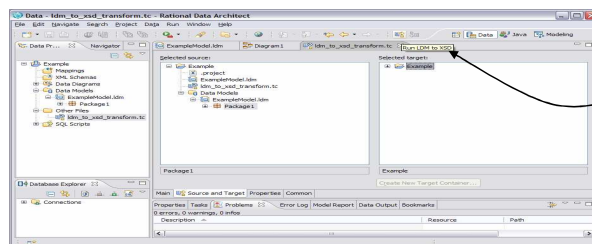
Transform
LDM → XSD

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The bottom-up scenario is the opposite case. Here the data model exists and the business analyst is just beginning a new business process modeling project.

By importing the business item definitions from the data model, the business analyst will save valuable time and the names, definitions and relationships are consistent with the other applications in the enterprise.

As with the previous scenario, you want to be sure that the names used will translate to valid XML schema names.

Additionally, when importing XML schema into WebSphere Business Modeler as service objects, the service objects are imported as read-only objects.

Meet-in-the-middle scenario
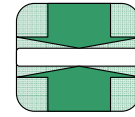
- Iterative development
  - Business process and data models both exist and were reconciled previously
  - Changes to either model must now be reconciled in the other.

- Business process model created without knowledge of the existing data model.

- Merge the models
  - Merge in WebSphere Business Modeler
  - Merge in Rational Data Architect

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The meet-in-the-middle scenario is also very common.

This scenario is applicable when there are updates to either the business process model or the data model after a top-down or bottom reconciliation.

The meet-in-the-middle scenario also occurs when the business model is created without regard to an existing data model and the differences need to be reconciled.

Depending on where the change occurs, you export the model elements that changed and then merge them into the other tool.

When merging into Rational Data Architect you have a graphical compare and merge editor that allows reconciliation of different versions of a logical data model.

When merging changes into WebSphere Business Modeler, you do not have a change and merge utility. The only options available for managing name conflicts are to overwrite the existing element, create a new element with a unique name or ignoring the imported definition.

Summary

- WebSphere Business Modeler V6.1 provides the ability to share data models with Rational Data Architect.

- Data modeling is a powerful tool for understanding and managing applications and business processes in the enterprise.

- With the ability to share the data models between WebSphere Business Modeler V6.1 and Rational Data Architect, the business analyst can now combine both modeling techniques.
  - ▶ Facilitates the creation of SOA applications with reusable services.
  - ▶ Promotes semantic consistency.

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With WebSphere Business Modeler V6.1 you can now share the data definitions between both the data model and the business process models. The ability to create a common data model that can be used with collaborating business processes and other applications within the enterprise facilitates the creation of Service Oriented Architecture applications with reusable services.

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