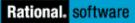
What's New in RSA and RSM 7.5

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IBM Rational Software Development Conference 2008

WHERE TEAMS ARE





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Good News, Bad News Story ...

The good news is that RSA and RSM 7.5 are massively improved in every way imaginable ...



Good News, Bad News Story ...

The bad news is that RSA and RSM 7.5 are massively improved in every way imaginable ...



Good News, Bad News Story ...

- The bad news is that RSA and RSM 7.5 are massively improved in every way imaginable ...
 - It takes 250+ slides to explain the improvements
 - This presentation is therefore a **summary** of the high points
 - The deck contains all of the details, with most of the slides hidden for the presentation to give us a fighting chance

What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY Highlights IBM Rational Software Development Conference 2008 419307 WHERE TEAMS ARE







RSA 7.5 Highlights

- Packaging clarified
 - RSA for Websphere, RSA standard and RSM
- Diagram editing
 - Improved layout, editing, printing, palette
- > UML
 - Editing, compliance, tooling and improvements to sequence and activity diagramming
- Reporting
 - BIRT integration, web publishing, traceability



RSA 7.5 Highlights (2)

> Team development

- Morph deltas, sparse logical model merge, text view mode, delta tree filters, sorters and groupers, pane visibility settings
- Model-driven development
 - Integrate to WBM 6.1.X and SOMA ME
 - Java modeling, visualization and transformation improvements
 - Support for JPA and EJB 3.0
 - Profiles for both
 - New forward and reverse transformations for both
 - SOA transformations enhanced
 - New services transformations for java and session beans



RSA 7.5 Highlights (3)

Model-driven development authoring tools and solutions

- Visual profile development, query-based tooling, per diagram palettes
- Intent-based transform config wizard, cmd line automation, transform instances
- M2M transform mapping types, predef rules, UML support all enhanced
- M2T (JET) authoring and engine both streamlined dramatically
- Patterns tooling enhanced, DevWorks assets migrated
- > RSM / RSD 7.0.5 feature migration
 - Configurable user interface, viewpoints, reminders, rich text
 - Improved UML 2.1 compliance
 - BIRT reporting UML / EMF, model analysis and metrics, UPDM
 - Significant UML model and diagram editing improvements

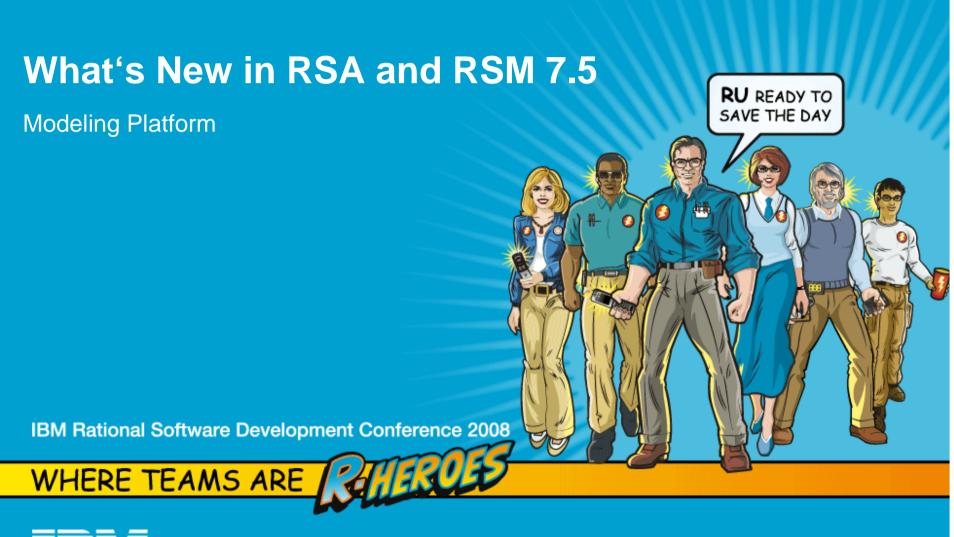


RSA 7.5 Highlights (4)

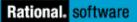
> RSM / RSD 7.0.5 *extensibility* feature migration

- M2M, M2T authoring enhancements, JET syntax aware editor, patterns framework enhancements, significant open source releases for GMF, EMF, UML2, etc
- UML profile tooling generation (palettes, menus, diagram assistants, capabilities, ...)
 - Build UML-based DSLs
- Reminders framework, queries framework
- Viewpoints, configurable modeling UI
- Model analysis/metrics
- Deployment modeling
 - Extensibility framework
 - Topologies

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Diagramming Improvements

- Multi-platform printing with WYSIWYG preview
- Significant layout improvements
 - Routing avoidance, rectilinear everywhere, border nodes
- Significant diagram editor improvements
 - Save As Image in PDF format, also detect and avoid OOM on large diagrams
 - Palette has a new look
 - Group / Ungroup, Snap to grid, Text Alignment, Line Styles



Diagram Improvements: Printing Support

- >Multi-platform printing is now supported.
 - Linux
 - Solaris
 - Windows

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Scaling Image: Adjust to percentage of normal size: 100 Fit to: Pages wide: 1 Pages tall: 1
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OK Cancel



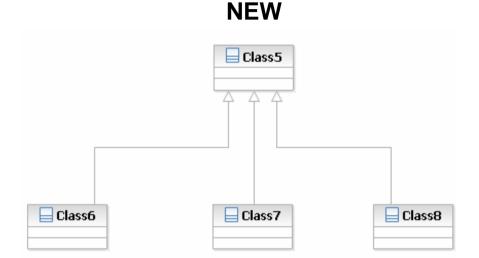
Diagram Improvements: Print Preview

- Print preview is now WYSIWYG.
- Adjustable zoom settings supported.
- Scale to fit supported.

Diagram Improvements: Connection Routing

> Rectilinear Routing

- Line segments movement fixed
- Can move bend points
- Layout enhancements



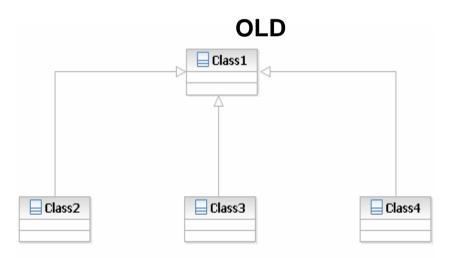
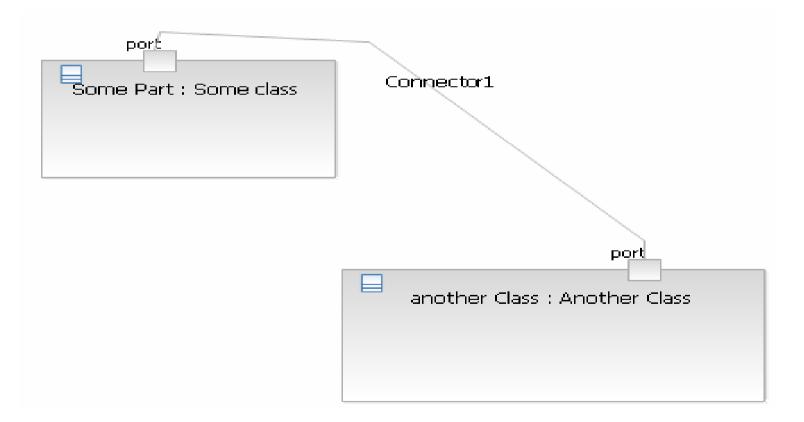






Diagram Improvements: Connection Routing (Cont.)

> Routing of connections between border items



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Diagram Improvements: Arrange All

> Graph layout results are precisely delivered to the diagram.

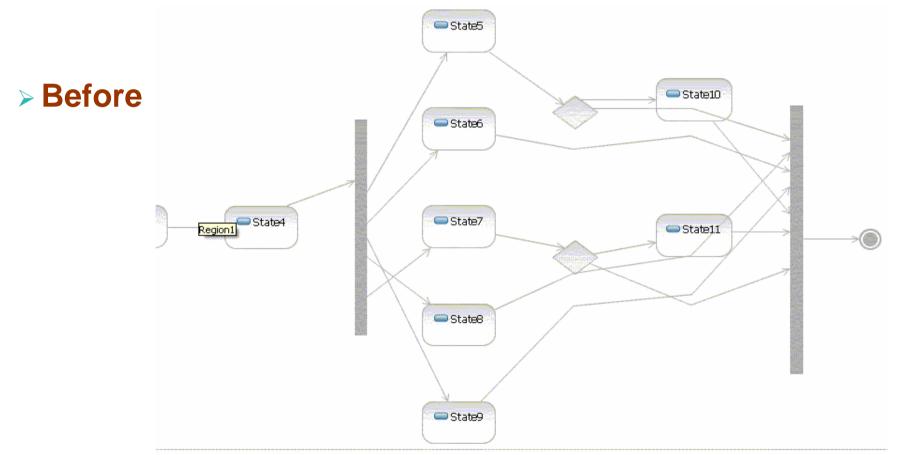




Diagram Improvements: Arrange All (Cont.)

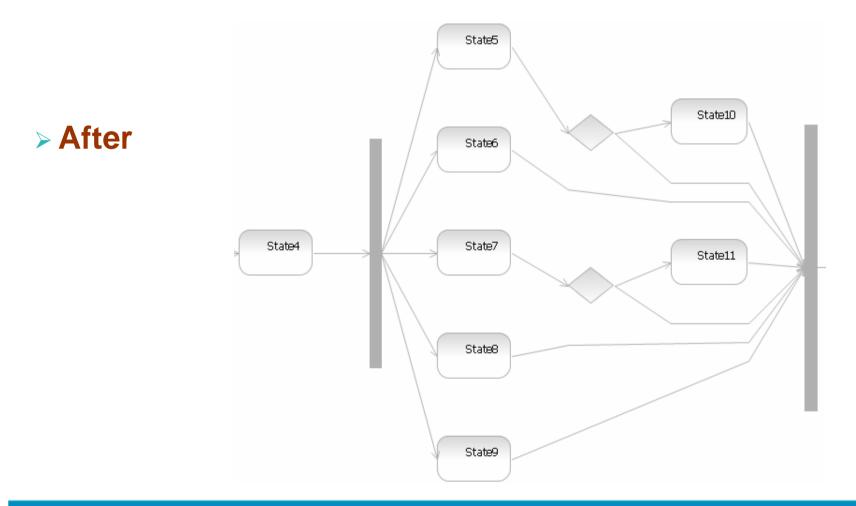




Diagram Improvements: Arrange All (Cont.)

- Support for rectilinear connections
- Support for distinct connection end points

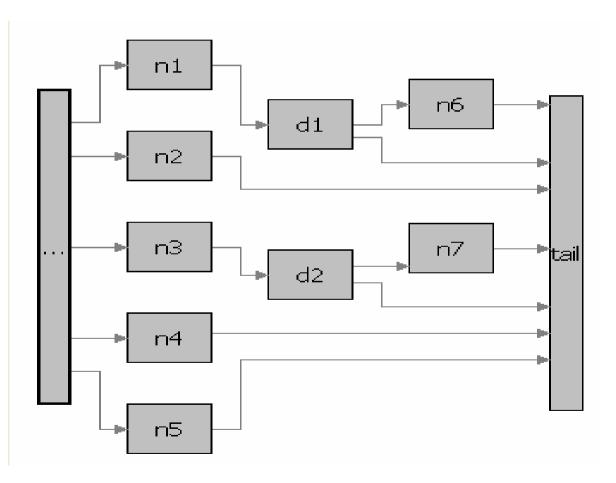
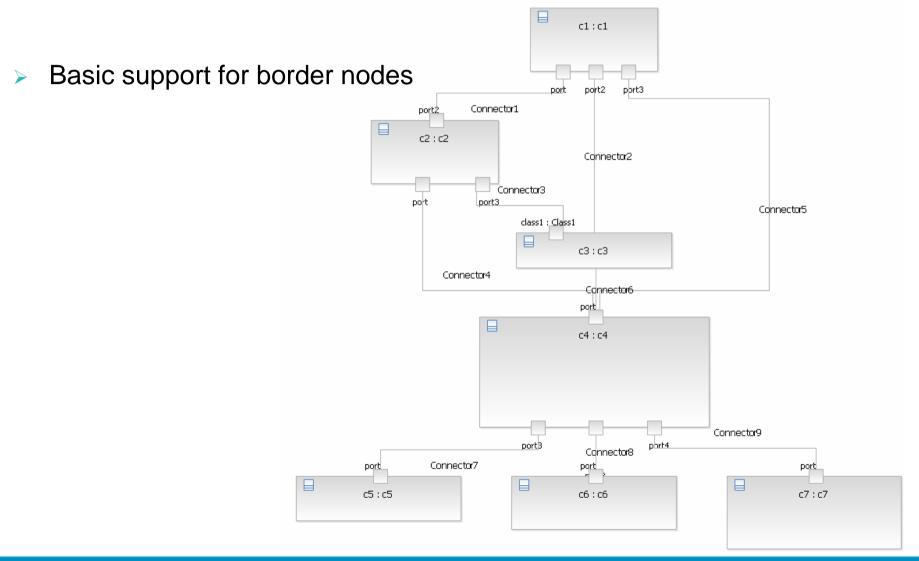




Diagram Improvements: Arrange All (Cont.)



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Diagram Improvements: Save as image

- > PDF format now supported by save as image file command.
- Export to HTML
 - Large diagrams can fail with out of memory (OOM) error.
 - OOM now detected, allowing the diagram to be split into pieces.
 - The diagram can be viewed in an image map in the generated HTML file.

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Image Format: GIF		•
Over <u>w</u> rite existing file without warning		
Export to HTML		
	ОК	Cancel



Diagram Improvements: The Palette's New Look

- > New design for the diagram palette.
- > What has changed:
 - Colors
 - Mouse hover and selected.
 - Pin in and Pin out.
 - Improved icons.
 - Dock and expanded look.
 - Toolbar group
 - New stacks, including flyouts and pinned stack.

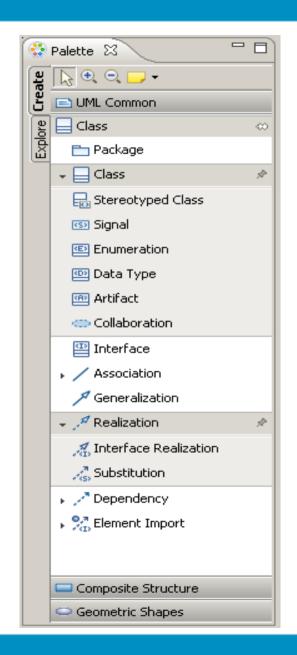




Diagram Improvements: Group / Ungroup

Group and ungroup is now supported.

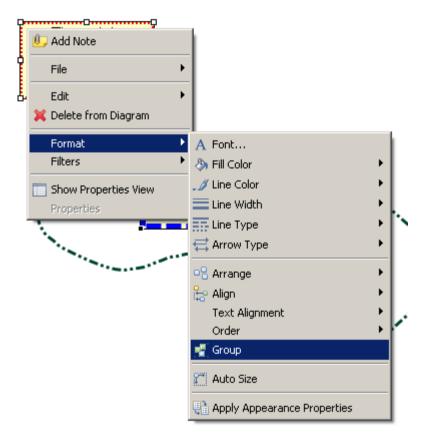




Diagram Improvements: Snap to enhancements

Snap to shape now supported • Align shapes by side or center. Connection bendpoints now can snap to grid Shapes can now be moved using the arrow keys on the keyboard.



Diagram Improvements: Customize Palette

- New customize palette dialog.
- Rename and move palette entries
- > Hide palette entries.

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	OK Cancel <u>A</u> pply



Diagram Improvements: Text Alignment Style

> Text can be left, right or center aligned.

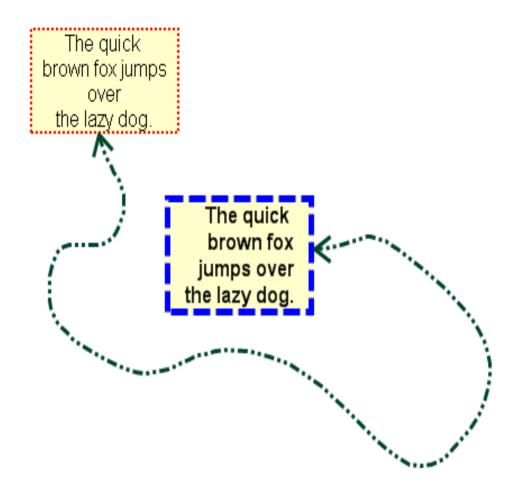
Align Left	Align Center	Align Right
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jumps over the	jumps over the	jumps over the
lazy dog	lazy dog	lazy dog
Align Left	Align Center	Align Right
The quick brown fox	The quick brown fox	The quick brown fox
jumps over the	jumps over the	jumps over the
lazy dog	lazy dog	lazy dog



Diagram Improvements: Line Styles

Line type

- Can now change from a solid line.
- Dash, dot, dash dot, etc.
- Line thickness
 - Lines can be more than one point.
- > Arrow heads
 - Can be added to geometric lines.
 - Solid arrow, open arrow.

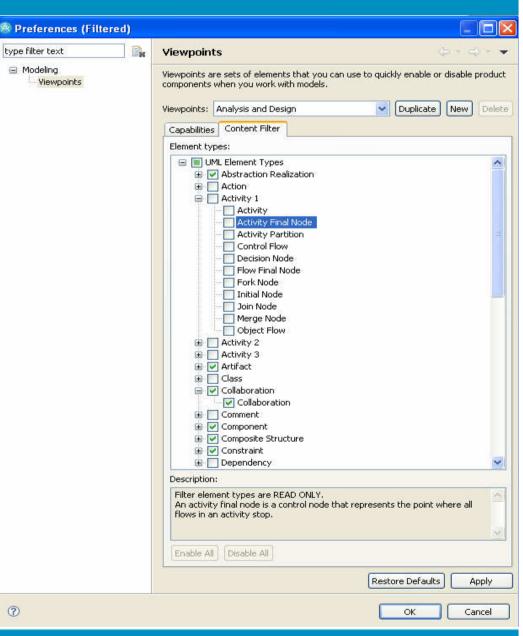


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Viewpoints with Content

- In addition to capabilities, Viewpoints allow reduction of any content
- Can contribute custom content reduction to Viewpoints
- > UML Modeler will reduce Project Explorer content when switching between Viewpoints
- Consider creating viewpoints to match roles, with more or less complex user interfaces





Project Explorer preference page

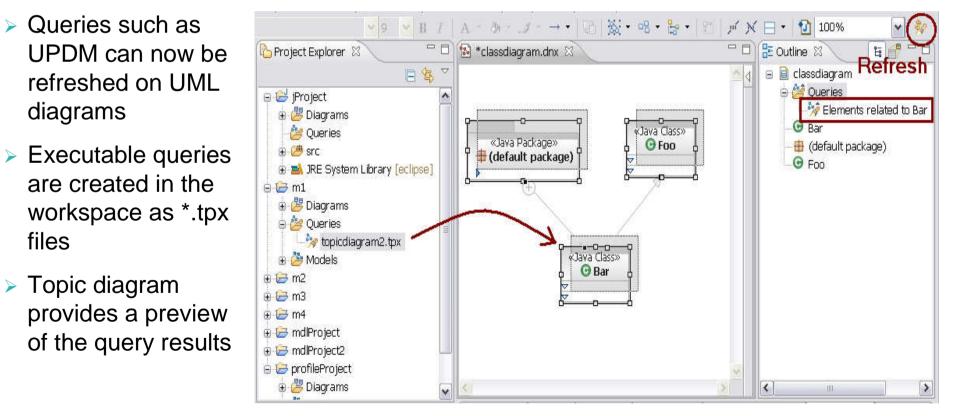
- Improved filtering, UML elements are displayed in a tree structure
- Preference for warning about model move refactoring to active working set

Preferences		
type filter text	Project Explorer	⇔ + ⇔ +
 General Active Correlation Technolo Agent Controller Analysis 	Project Explorer settings Sort by:	
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i Help i Install/Update	Repair: Automatically	~
Internet Java Java JavaScript JET Transformations JPA	 Warn about an intermodel reference to an unsaved model Warn about filtered out element types Warn about active working sets 	
Logging ⊕ Logic Diagrams ⊕ Model Validation	Filters Element types:	
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	Restore Defaults	Apply
0	ОК	Cancel

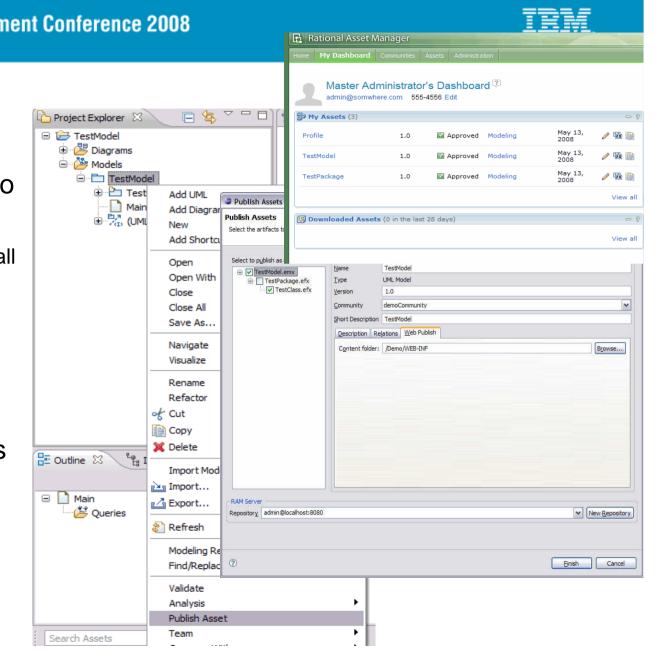


Querying

- Topic diagram wizard shows topic selection page before the context selection page, which is much more user friendly
- Can drag and drop queries (.tpx files) from workspace on a modelling or visualization diagram to show the results



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RAM Integration

Publish Models,Fragments and Profiles toRAM repository

- Asset integrity publishes all required models
- •Separate assets for fragments in a model
- •Publish navigable web version of model.
- Import published assets

•Project independent import

Modify and Republish

•Version maintenance – tracking and up-versioning



RAM Integration: Import Assets

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?	k Next > Einish Cancel	

What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY **UML** Modeling IBM Rational Software Development Conference 2008 WHERE TEAMS ARE





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UML Modeling

> Editing improvements

- Rich text support, improved over 7.0.X
- Refactoring enhancements: include closed models, preview, extendable
- Content assist
- Select element dialog can see into closed models!
- Group / ungroup support
- Activity diagram enhancements / simplification
- Sequence diagram enhancements
- Visualization of stereotype and profile applications



UML Modeling (2)

- > UML compliance improvements
 - Operation exceptions easily added
 - Modeling multi-valued attributes
 - Associating rule with validation failure to improve clarity
 - Improved relationship consumability
 - Enumeration literals



UML Modeling (3)

> Tooling improvements

- Closed models and fragments
- Packages as model roots
- Find and replace improvements
- UML tools for palette explore tab
- Workspace URL support
- Preferences enhancements
- Use existing views setting



Rich Text Support

- > New in RSA 7.5
- First appeared in RSM / RSD 7.0.5; improved in RSA 7.5
- > Available for documentation, notes and comments

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Capabilities	
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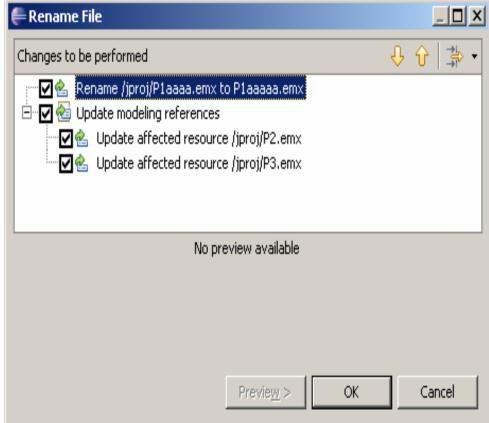


Refactoring enhancements

- > Added Refactor -> Delete (since RSA 7.0.0.7; RSM/RSD 7.0.5.2)
- Refactor -> Rename of operation looks in *closed models*
- > Preview of resources!

Extensibility

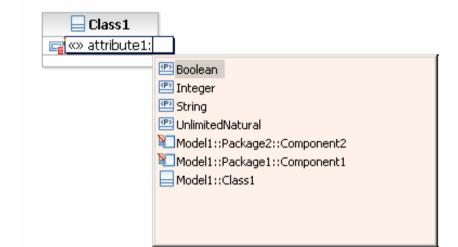
- Support create fragment and absorb fragment participant
- Added refactoring participant example

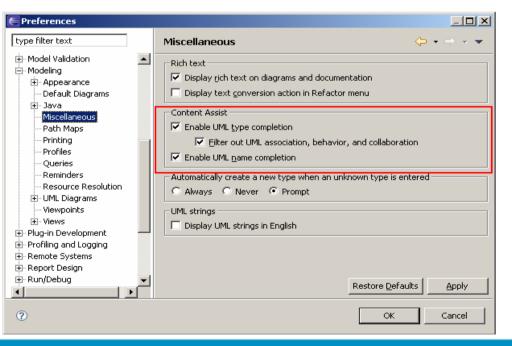




Content Assist

- Display types from model in context and all its imports, including types from closed resources
- > Visibility rules are respected
- Certain types are filtered by default (controlled via preference)







Select Element Dialog

Closed model files are now queried in the search tab, and displayed in the browse tab.

•Can load the files in the browse tab.

>Improved filter consistency for both

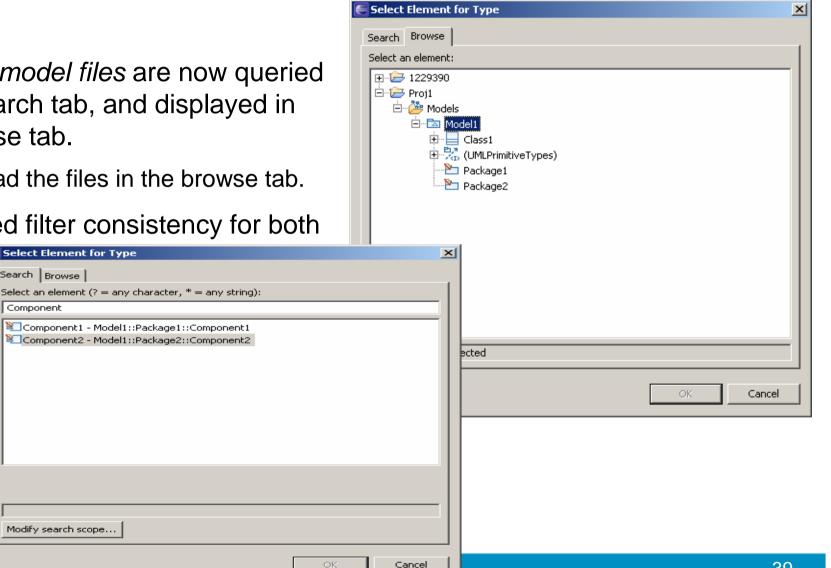
🐑 Component1 - Model1::Package1::Component1

Select Element for Type

Modify search scope...

Search Browse

Component





tabs



Group / Ungroup support

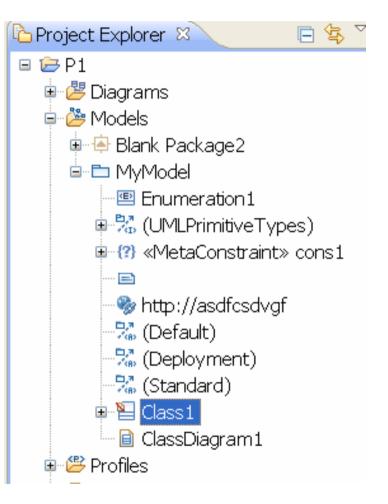
- > Group / Ungroup Support
 - Modeler shapes can be grouped together and operations such as cut/copy, move, delete, can be performed on them.
- Enhanced SRE/SHR support for grouped elements.

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Closed Model Files

 Closed models and fragments now opened through expand gesture in Project Explorer

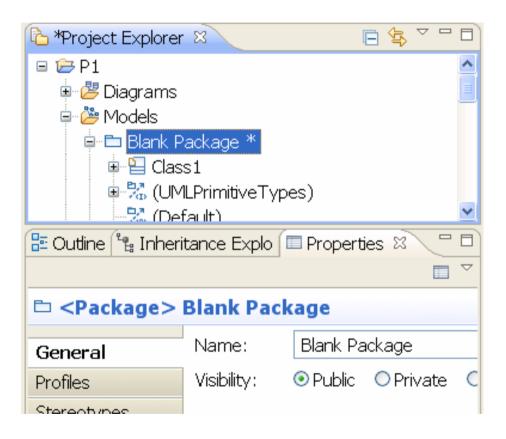




Package as Model Root



- Root package can be morphed into a model
- Model can be morphed into a root package
- These are sharable packages and can be imported into multiple models!
 - Opens new options for model partitioning





Operation exceptions

 Exceptions can now be easily added to an operation

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Exceptions							
Stereotypes							
Documentation							
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Relationships	Add	Remove	Navigate				
Advanced			-				



Enumeration Literals

> Simplified the editor

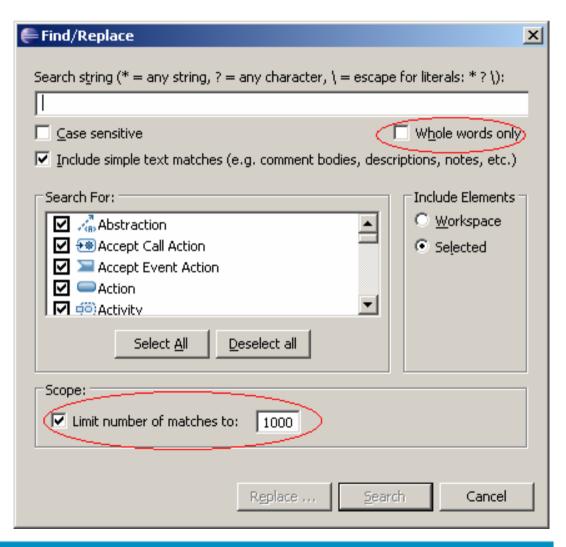
- Define name, value and specification
- Supports add, delete and reorder

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Stereotypes		Literal Integer					
Documentation		Literal String					
Constraints							
Relationships	🕂 Add 🔀 Remove	e 🗘 Move up 🕂 Move down					



Find and Replace improvements

- Improved Find and Replace
 - "Whole words only" option now supported
 - Can now limit the number of search results, improving performance
 - Search and Replace also improved





Visualization of Stereotype and Profile Applications

- Can be visualized from palette
- Profile applications can be visualized from Show/Hide relationships dialog
- Stereotype applications can visualize extended metaclasses

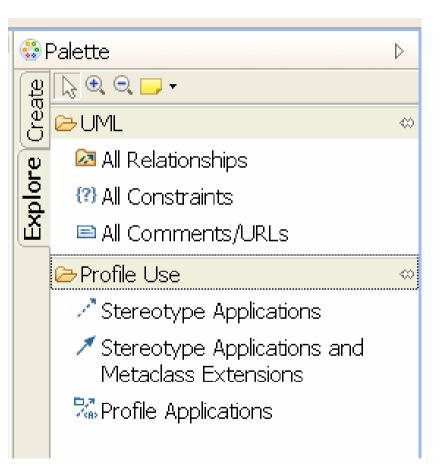
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UML Tools for Palette Explore Tab

- Provided tools for the explore tab in palette to query relationships, constraints, and comments / URLs.
- Visualization of stereotype and profile applications also available through these tools





Improved Relationship Usability

- Create relationship directly from Project Explorer
- Element relationships now displayed in Properties View

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Model Multi-Valued Attributes

 Directly model multi-valued attributes

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Associate Rule with Validation Failure

- Easily identify a rule causing a validation failure
 - Constraint definition ... action
 - From Problems and Tasks view

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Workspace URL Support

Can create a URL using workspace format

🗲 URL Input Dialog	×							
Type the Internet address of a document or folder:								
platform:/resource/								
Use relative path representation for all file references								
✓ Use workspace path								
□ <u>V</u> alidate URL								
OK Cancel <u>B</u> rowse								



Automatic type creation

> User is now prompted on automatic type creation when an unknown type is specified. The prompt is controlled via preference.

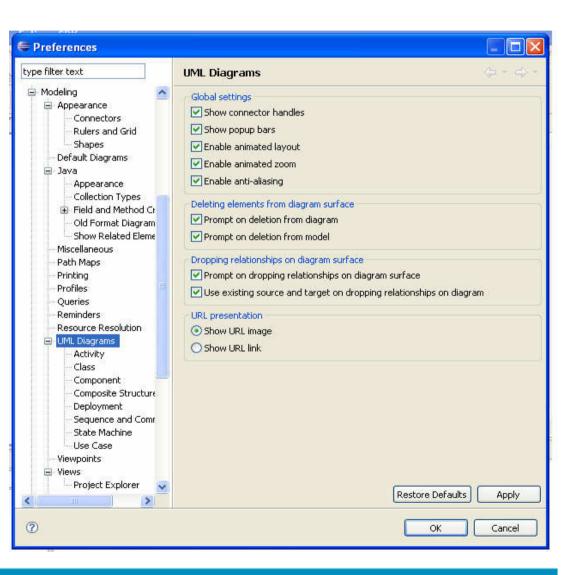


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0	OK Cancel



Modeler Preferences

- Reorganized to minimized the number of preference pages, added new display prefs
 - Classifier Compartment
 - Association
 - Node (shape) Compartment
 - Component Compartment
 - Use Case

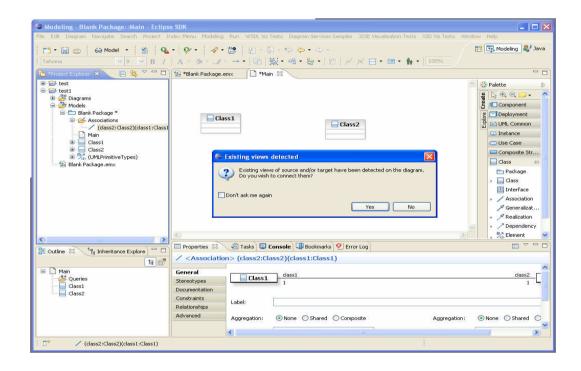




Use existing views setting

> Use Existing Views

- When a relationship is dropped into a modeler diagram with an existing source and/or target views, users could choose to use these views or create new ones.
- This option is controlled by a preference setting.





Model Integrity and Management Improvements

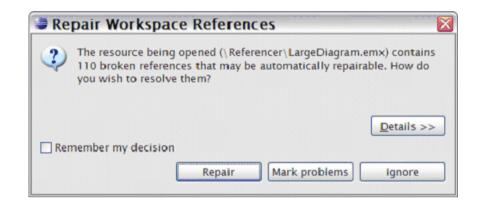
- > Automatic reporting and repair of unresolved references
- Repairing or removing broken profile applications
- Model fragment improvements



Automatic reporting and repair of broken references

New broken references dialog replaces missing resources dialog

Problems also reported in the Problems View with a quick fix



		Repair Workspace Re	eterences	X
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🗇 Properties 🕗 Tasks 😉 Console 🛄 Bookmarks 🧐 Error Log 🚹 P	VUICKTIA	Element	Path	^
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Description *		TestModel_A::B1::Package2	C:\workspaces\runtime=20080505=head\M1\Test	Model_A.
🖶 🥹 Errors (100 of 110 items)	Select a fix:	TestModel_A::B7::Package9	C:\workspaces\runtime=20080505=head\M1\Test	
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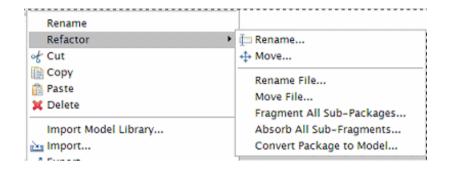
IBM Rational Software Development Conference 2008

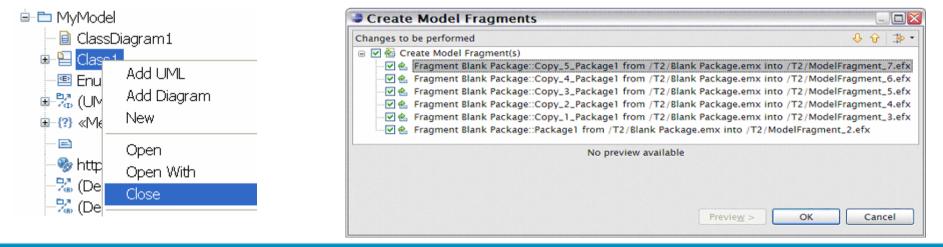


Model Fragments



- Fragment actions are now part of the refactoring menu
- Fast explosion / recombination of model
 - fragment all sub-packages
 - absorb all sub-fragments
- Fragments can be closed







Repair or Remove Broken Profile Applications

- Remove button is now enabled for unresolved profiles
- Repair button is added for unresolved profiles

	Profile	iles applied	in this mode
📴 Defa 📴 Dep	ault loyment ïle (UNR		Add Remove Migrate Repair

Properties	🕗 Tasks 💷 Bookmarks	📮 Cons	sole 🥺 Error Lo	g 🗄 Problems	~
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Sequence Diagram Improvements

- Copy/Paste support
- Refactor support
- Message Arguments UI
- Support for non-Integer types in guard condition
- Gates support



Sequence Diagram Copy/Paste/Refactoring

- Copy/Paste
 - Copy/Paste sequence diagram elements within and between sequence diagrams
 - Copy/Paste Interactions within Project Explorer
 - Context-aware copy operation forming Copy Atomic Set
 - Context-aware paste operation reusing existing lifelines and elements
- Refactoring
 - Refactor sections of a sequence diagram into a new sequence diagram
 - Reference the new sequence diagram through InteractionUse
 - Reusing Sequence Diagram Copy/Paste implementation



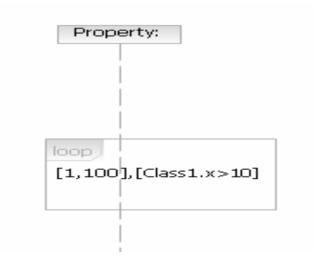
Message Argument GUI Enhancement

- > User friendly GUI to specify message argument values
 - Message Property Sheet: add new property section for message arguments and values
 - Add and Delete argument values
 - Change argument type, For example, from LiteralString to LiteralNull
 - Change argument value: different cell editor for argument with different types (LiteralString, LiteralInteger, LiteralBoolean etc.)
 - Reorder existing argument values
 - Populate argument values for all message arguments
- Enhanced existing message signature and argument rendering on Sequence Diagram.



Editing Guard Condition in Sequence Diagram

- > Added support to specify boolean expression in the guard condition of loop combined fragment
- > Added support to specify opaque expressions for minint and maxint in the guard condition of a loop combined fragment





Activity Diagram Improvements

- Generic Flow (Object vs Control Flow)
- Hiding Pins
- Layout Enhancements



Generic Flow

- > Added a Flow tool to replace separate control and object flow tools
- Flow tool automatically creates the correct flow type
- Reorient flow between object nodes, control nodes and actions by
 - automatically completing the context (i.e. adding pins)
 - morphing object flows and control flows where required
 - note that compare and merge understand this change type

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Hiding Pins

- > Allowed users to hide pins on actions inside activity diagrams:
 - The complexity of the diagram is reduced by not showing pins on actions.
 - The user can choose to connect flows to existing hidden pins.
 - The user can toggle showing pins per activity diagram.



Layout enhancements

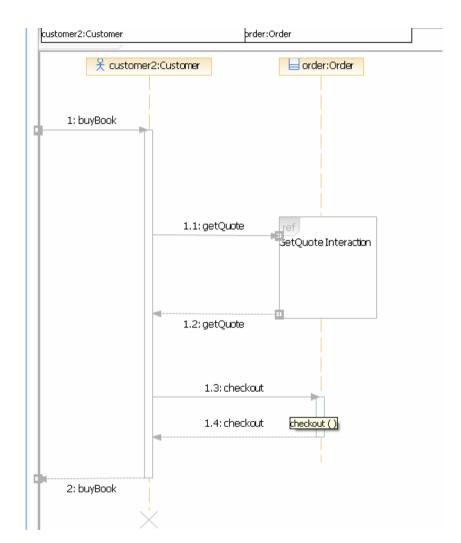
- Enhanced the Arrange All and Arrange Selection behavior in activity diagrams:
 - Invoke Arrange Selection on a selected partition to arrange only the elements inside that partition
 - Invoke Arrange All to arrange the entire activity diagram independently from the selected object
 - Arrange All produces better results as elements do not overlap partitions.



Sequence Diagram Gates

Editor Support

- Formal Gate on Interaction Frame
- Actual Gate on Interaction Use
- Create and Delete Gated Message
- Move Gated Message Up and Down
- Reorder Gated Message
- Number Gated Message
- Validation Rules
 - Formal Gate and Actual Gate Matching
 - Dangling Gate



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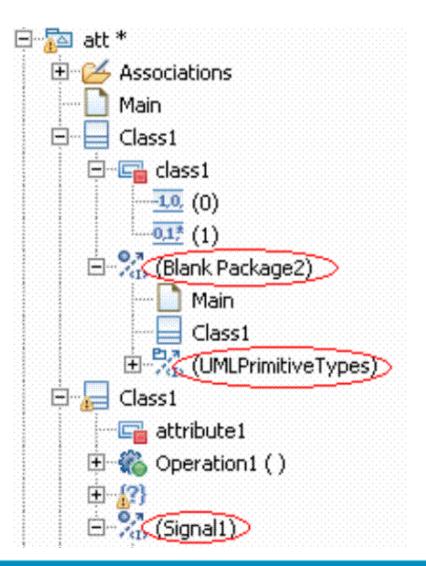
Expand in Place

Expand in Place

 Browse package imports and element imports directly from the Project Explorer or Select Elements Dialog

Acts like a shortcut

•More convenient than having to open multiple models





Working With Slot Values

- Enhanced support for UML primitive types
- Extra delete functionality ("deep" delete and "clear the slot" delete)
- Multi-line text editing now supported
- Bug fixes

Tenders	Usha [
Index	Value	
0	Homer	
1 2	Marge Bart	
3	Lisa	
4	Maggie	
	Maggie	



Modeling Working Sets

- > Add new or existing models to Modeling Working Sets
 - New Model/Profile Wizard
 - New Profile Project Wizard
 - New Modeling Working Set
- Support for Model Refactoring like Move File to Project to fix up the working sets

E New Working Set							
Modeling Working Set							
Enter a working set name and select the working set model resources							
	🖨 New UML Profile						
Working set name:							
	Create a new UML Profile						
Working set <u>c</u> ontents:							
type filter text	Profile Name:						
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Choose d	estination:						
?		Einish Cancel					
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the Project Explorer view.							
✓ Add the element to the active working set							
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Update	references to moved file(s)						
	Preview > OK Cancel	70					
		70					



RSx Performance Improvements...

- ▶ 6% 15% memory use reduction
 - larger models experience the higher percentage of memory savings
- > All indexing operations run 20-50% faster
- > Improved UI Response
- > Ability to manually unload fragments facilitates reduction in runtime memory use
- > 50% memory reduction time during startup
- Heap size increased from 1.5GB to ~2GB
 - handles much larger models

What's New in RSA and RSM 7.5

Reporting and Traceability

IBM Rational Software Development Conference 2008

WHERE TEAMS ARE





RU READY TO SAVE THE DAY AM03



Reporting & Traceability

> Birt

- Improved ODA driver implementation
 - Performance
 - Updated row and column mapping pages
 - Support parameterized sets
- Launch configuration
- ➢ WebPub
 - Interactive tree (dojo toolkit 1.1.0)
 - Property value links
- Traceability
 - Requirement & java type queries



- Improved layout, performance and usability of Data Source Wizard
 - Separate meta-model and profile sections
 - Reference meta-models by nsURI vs. ecore path
 - Faster 'Test Connection'

🖶 New UML Data Source				
Models Specify the URIs of the instance i	models and met	amodels		
Instance models platform:/resource/test/Blank l	Package.emx			Add
Metamodels http://www.eclipse.org/uml2/2 http://www.eclipse.org/gmf/ru		tation		Add Delete
Profiles pathmap://SOFTWARE_SERVIv	CES/profiles/Sol	twareServices.ep	x	Add Delete
			-	Iest Connection
0	< <u>B</u> ack	Next >	Einish	Cancel



- Improved layout, performance and usability of Data Set Row Mapping Page
 - Browse models on demand vs. all at once
 - Customized browse tree for every kind of model
 - Improved XPath proposals

🚝 New UML Data Set		<u>_ D ×</u>
Row Mapping Specify a query for the data set rows		
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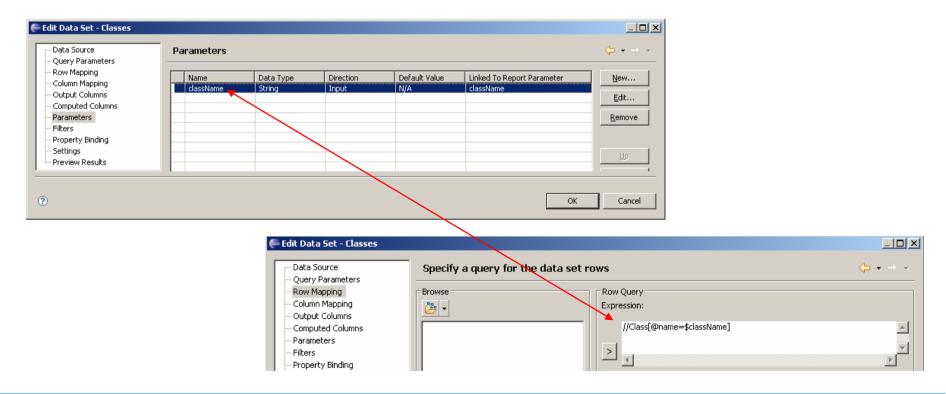


- Improved layout, performance and usability of Data Set Column Mapping Page
 - Browse types on demand vs. all at once
 - Customized browse tree for types and stereotypes
 - Improved XPath proposals

Ilumn Mapping pecify relative queries for the d		t columns			
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umi:class		sibility	@visibility	String	
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· · · · · · · · · · · · · · · · · · ·		isActive	@isActive = 'true'	Boolean	· · · ·
ChangeValu	i email	uri	getURI(.)	String	
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		Measure	getStereotypePropertyVal	String	
		Priority	getStereotypePropertyVal	Integer	
		Add new column			
	ŀ				



Define and include parameters in data sets and bind the parameters from columns in other data sets or from report parameters



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Model Report Launch Configurations

- BIRT and XSLT
- Persist settings such as report parameters and input models
- Generate with data from multiple models and data sources (BIRT)
- Report in word,
 PowerPoint, excel and
 postscript formats (BIRT)

😂 Report		×
Create, manage, and run configura Create a configuration to generate a BIRT re		
type filter text BIRT Report 75_I5_FVT XSLT Report My XSLT Report Configuration	Name: 75_J5_FVT Image: Main ØP Parameters Transform Common Report Built In: Prowse Image: Device State Source Prowse Prowse Image: Device State Source Instance Models: Workspace Model Data Sources: Instance Models: Models/Analysis A.emx Models Data Source Models/Analysis B.emx Add Remove Remove Remove Report Output Location: C:\DOCUME~1\ldamus\LOCALS~1\Temp\myReport60621.PDF Format: WWW hypertext (HTML) Workspace File System Adobe Reader (PDF) Microsoft Excel (XLS) Microsoft Excel (XLS) Microsoft Excel (XLS) Microsoft Excel (XLS) Microsoft PowerPoint (PPT)	
Filter matched 4 of 4 items	Postscript (PS)]
0	Report Close	



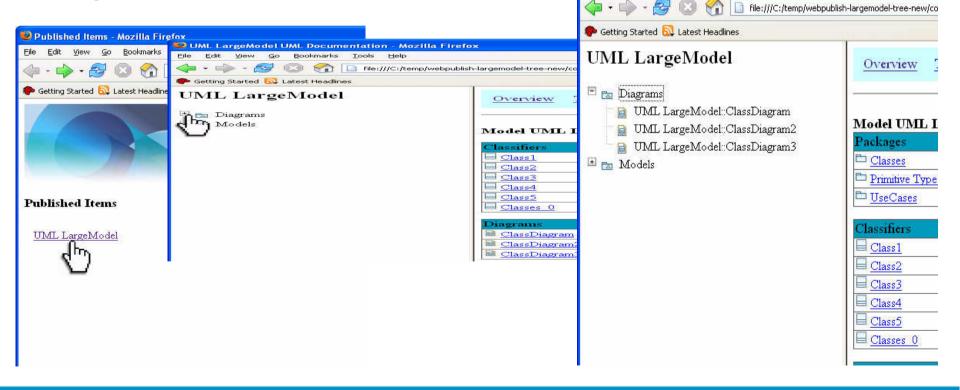
🕑 UML LargeModel UML Documentation - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Web Publish: Scalable Interactive Tree

> Dojo toolkit 1.1.0

The new interactive tree creates tree widgets on demand and loads in seconds!





Web Publish: Property Value Links

- Property value links offer a better browsing experience...
 - link an attribute to its type
 - link a lifeline to the type it represents

Datatype	
Default	
Default Value	
Lower Value	<literal integer=""> 0</literal>
Multiplicity	*
Name	contacts
Name Expression	
Namespace	< <u> Class> AddressBook</u>
Opposite	
Owner	< <u> <class> AddressBook</class></u>
Owning Association	
Owning Template Parameter	
Qualified Name	Design::addressbook::A/dressBook
Stereotype	
Template Parameter	
Туре	< <u>Class</u> Contact
Upper	* (^{Im})
Upper Value	<literal committed="" natural=""> *</literal>
Visibility	Private

0	vervi	iew	To	<u>p</u> Pack	age Elem	ent	
Sum	mary:	Attrib	utes	Operations	Specifications	<u>Properties</u>	Detail: <u>Attribute</u>
	ressbo I ss A i	ook ddre s	sBo	ok			
Attı	ribute	es					
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	86 <u>ac</u>	idCon	tact				
	🇞 <u>re</u>	move(Conta	i <u>ct</u>			
Spe	et	Gion	s				
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(12)	Rem	ove co	ntac	t			
0	Add o	ontac	t				

....

Alias

Classifier Behavior

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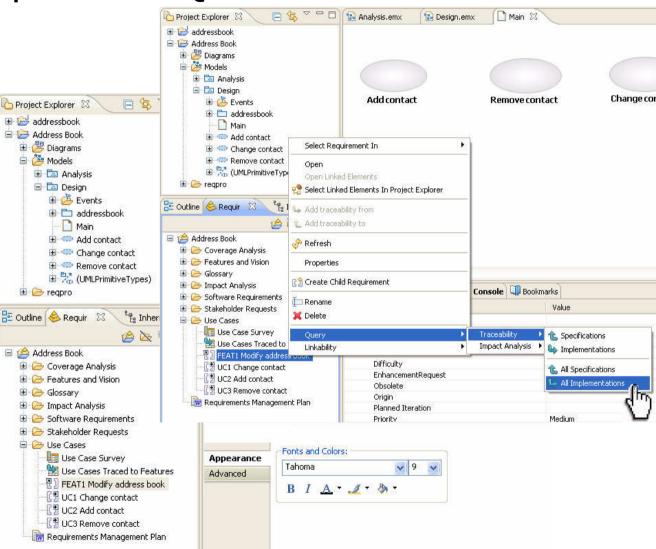
Web Publish: URL Links

- Publishing URL links to external documentation improved
 - Absolute file URLs, when browsing web publish output locally
 - Relative file URLs, when committing web publish output to source control
 - Relative file URLs for files copied to the web publish output folder when moving it to a server



Traceability: Requirement Queries

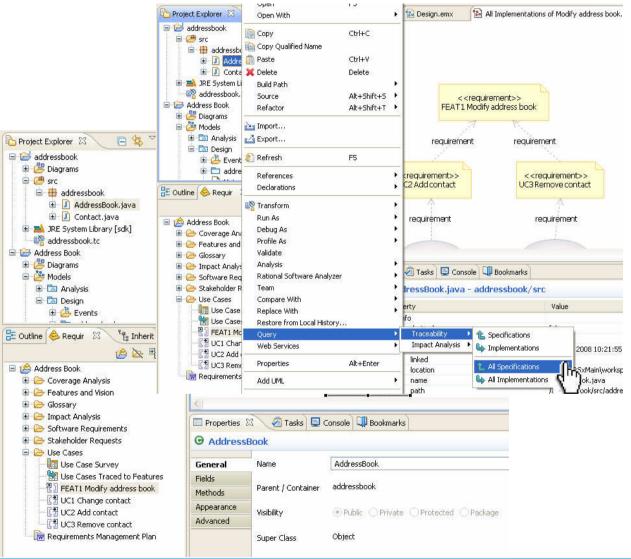
- Traceability and impact analysis queries are available in the requirement explorer
- Explore queries work with requirement views
- The queries return requirement trace to and trace from relationships





Traceability: Java Type Queries

 Traceability and Impact Analysis queries are available in the Package Explorer



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WBM Integration Enhancements

- Support for WBM 6.1.X
- Support for SOMA ME
 - Support global and local "human task"
 - Support global and local "business rule task"
 - Generate comments for the "process" and "task" description

What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY Team Development and Compare and Merge IBM Rational Software Development Conference 2008

WHERE TEAMS ARE





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Rational Modeling Compare Support

- Compare and Merge improvements
 - New morph delta to denote Model to Package, Control Flow to Object Flow and vice versa
 - Sparse Logical Model Merge to handle massive fragmented models
 - Text View Mode for multi line text field to improve usability
 - Delta Tree filters, sorters and groupers to reduce interface clutter
 - Editable custom delta tree filter to tailor to your environment
 - Reorganize contributors before first compare session for efficiency
- Fusion (Structural Merge) improvements
 - Merge as text for text field deltas for Fusion, Compare and Merge
 - Remember pane visibility settings for Fuse



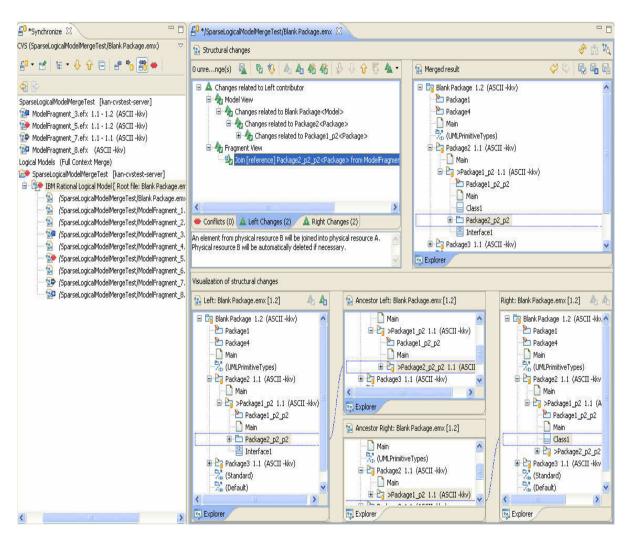
Morph: Compare Model and Package

🚰 Compare ('Blank Package.emx' - 'Blank Model.emx') 🛛	
🔝 Structural changes	S 🔡 🗞
1 vie(s) 📓 🐚 🍫 🗛 🗛 🆓 🐇 🖓 🕂 🏠 🦓	🛦 🔻 🔹 Merged result
Changes related to Left contributor	
Model View Image: An and the second	Blank Model
An element will be converted from an instance of one metaclass to an Visualization of structural changes	Explorer
🔝 Left: MorphTest/Blank Package.emx 🛛 🗛 🧟	🗟 Right: MorphTest/Blank Model.emx 🛛 🗛 🗛
Blank Model	Blank Model
Explorer Explorer	Explorer



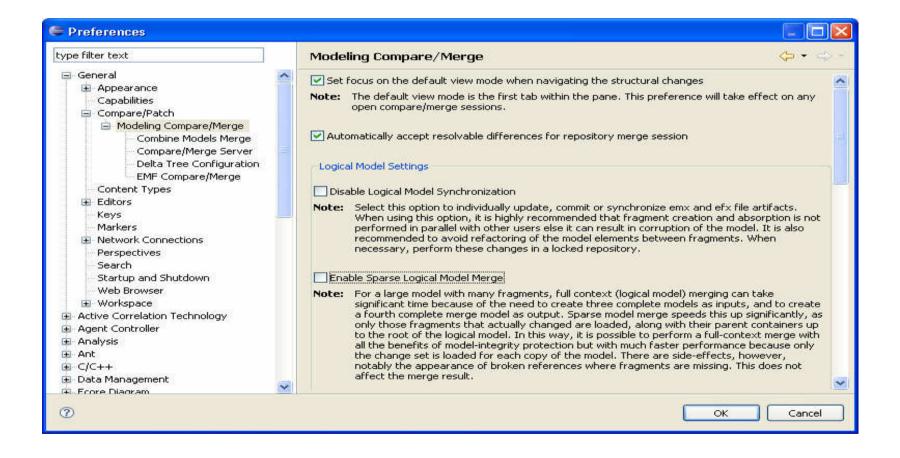
Sparse Logical Model Merge

- Load the modified fragments and their ancestors
- Scales based on change set size, not model size!



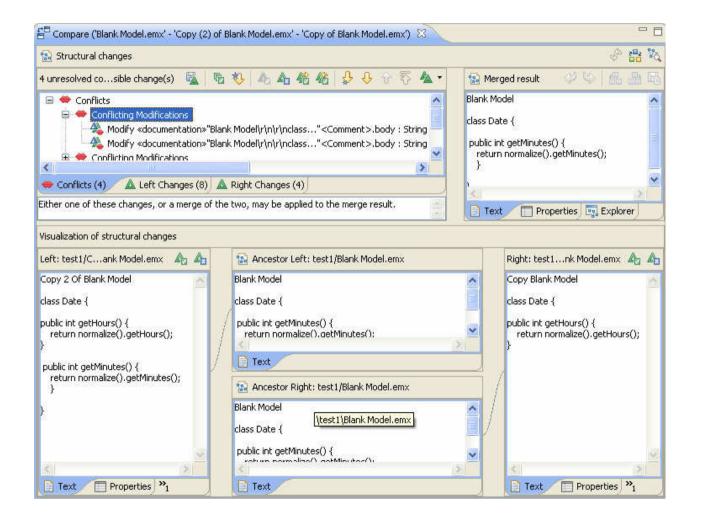


Enable Sparse Logical Model Merge option





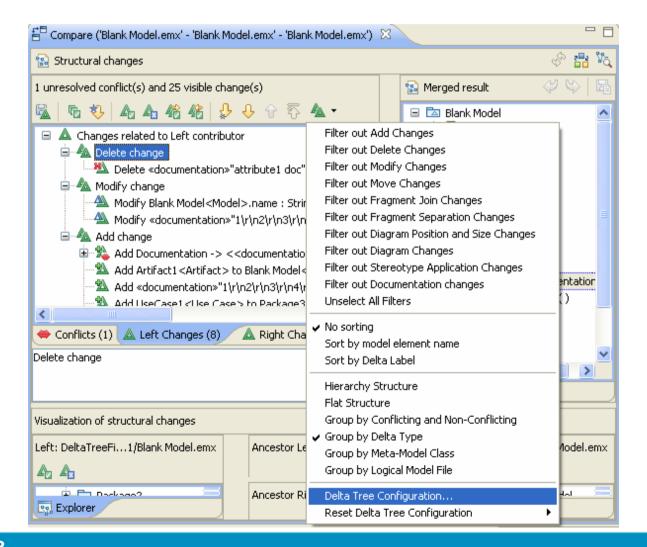
Text View Mode for Multi-line Text Field



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Delta Tree Filters, Sorters and Groupers



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Editable Custom Delta Tree Filter

Can be saved and loaded, thus sharable in team repository

🛢 Delta	Tree Configuration	×
-Filters		
Filter	r out Add Changes r out Delete Changes r out Modify Changes r out Move Changes r out Fragment Join Changes r out Fragment Separation Changes r out Diagram Position and Size Changes r out Diagram Changes	
	Add Remove Edit	
Sorter:	Sort by Delta Label	*
Structure:	Flat Structure	*
	OK Cancel	

	LL Ob	
Filter name: My custom pro	ogrammable filter	
Filter out condition: Match the follo	owing	~
ype of change:		
Add change Delete change Modify change Model Fragment Join change Model Fragment Separation cha	ange	
eta-Model classes of the changed a Name	elements: Package	Path
CallBehaviorAction	uml	org.eclipse.uml2.uml.CallBehaviorA
CallConcurrencyKind	uml	org.eclipse.uml2.uml.CallConcurren
CallEvent	uml	org.eclipse.uml2.uml.CallEvent
		org.eclipse.uml2.uml.CallOperation/
CallOperationAction	uml	
CanonicalStyle	notation	org.eclipse.gmf.runtime.notation.C
CanonicalStyle CentralBufferNode	notation uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBuffer
CanonicalStyle CentralBufferNode ChangeEvent	notation uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent
CanonicalStyle CentralBufferNode ChangeEvent Class	notation uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBuffer org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Class
CanonicalStyle CentralBufferNode ChangeEvent Class Classifier	notation uml uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Classi org.eclipse.uml2.uml.Classifier
CanonicalStyle CentralBufferNode ChangeEvent Class Classifier Classifier	notation uml uml uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Class org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.Classifier
CanonicalStyle CentralBufferNode ChangeEvent Class Classifier Classifier Classifier TemplateParameter Clause	notation uml uml uml uml uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.ClassifierTemp
CanonicalStyle CentralBufferNode ChangeEvent Class Classifier Classifier	notation uml uml uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.ClassifierTemp
CanonicalStyle CentralBufferNode ChangeEvent Class Classifier ClassifierTemplateParameter Clause ClearAssociationAction Search delta label string pattern Class5	notation uml uml uml uml uml uml uml	org.eclipse.gmf.runtime.notation.C org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.Clause org.eclipse.uml2.uml.Clause
CanonicalStyle CentralBufferNode ChangeEvent Classifier ClassifierTemplateParameter Clause Cl	notation uml uml uml uml uml uml uml uml	org.eclipse.uml2.uml.CentralBufferf org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.ChangeEvent org.eclipse.uml2.uml.Classifier org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.ClassifierTemp org.eclipse.uml2.uml.ClassifierTemp



Reorganize Contributors Before Session

- Offers the opportunity to organize the contributors for Eclipse "compare with" commands before starting session
- Cuts time to get files in the right role in half, makes a big difference for massive models

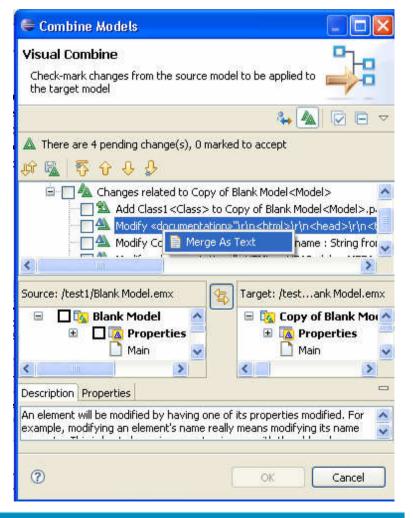
	Preferences	
🖶 Reorganize Contributors 🛛 🛛 🔀	type filter text	EMF Compare/Merge 🔅 🔹 🔿
Left: Right (base): test1/Blank Model.emx test1/Copy of Blank Model.emx OK	 General Appearance Capabilities Compare/Patch Modeling Compare/Merge Combine Models Merge Compare/Merge Server Delta Tree Configuration MF Compare/Merge Content Types Editors Keys Markers Network Connections Perspectives Search 	 Always use reflective names and types in EMF view modes Note: Reflective names and types or names exist. This preference does not affect any open compare/merge sessions. Always expand the model compare editor to fill the application window Display EMF tabs in Compare/Merge Editor Show the Reorganize Contributors dialog before opening the compare session Three-way compare with each other Three-way compare with each other



Merge As Text for Compare Merge and Fuse

Allows any text delta or conflict in either team merge or fusion (combine models command or transform) to be compared or merged recursively

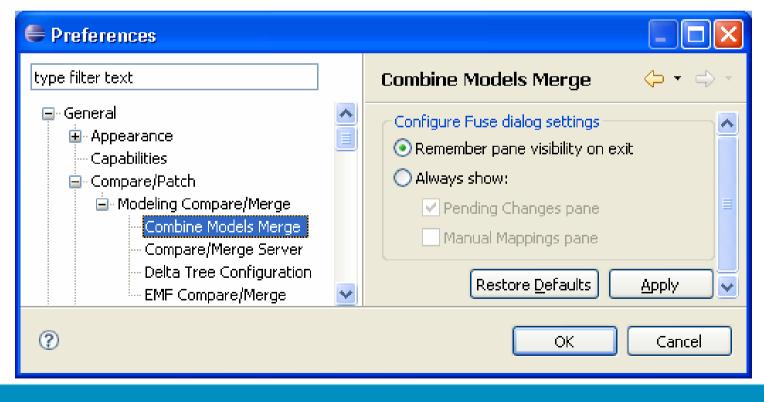
🔝 Structural changes	
4 visible change(s)	
	lodel <model> Blank Model<model>.packagedElement : Pack. html>\r\n<head>\r\n<t"<comment>.body lel>.name : String from "Copy of Blank Model ><head>\r\n<meta"<comment>.body</meta"<comment></head></t"<comment></head></model></model>





Pane visibility settings for Fuse

- Remembers whether pending changes pane and/or manual match pane are visible
- Controlled by preferences



What's New in RSA and RSM 7.5

Model-Driven Development (MDD) Tooling

IBM Rational Software Development Conference 2008

WHERE TEAMS ARE





RU READY TO SAVE THE DAY



Java Modeling

Sequence diagrams

- "Drill-down" selected method calls on a static method sequence diagram
- Create static method sequence diagrams for multiple java methods using a single action
 - API to do the same programmatically
- Copy-paste between static method sequence diagrams and UML diagrams
- Method signature refactoring
- > Visualized java element navigation to project explorer
- > Extend JPA/EJB 3.0 visualizers with existing java modeling functionality
- Harvest documentation on visualized elements
- Simultaneous package and type search



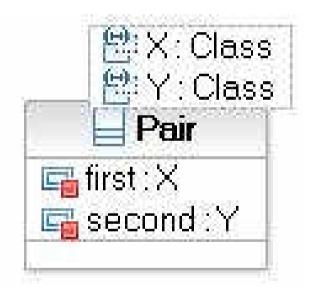
Java Transformations

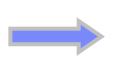
Java generics

- Preservation of fuse filter settings
 - Delta filter settings preserved per transformation configuration
 - Can reset to default settings via menu item
- Finer grained source for Java-to-UML
 - Java project
 - Java source folder
 - Java package
 - Java class/interface/enumeration
- > UML-to-Java supports types defined in XSD data type library



Java Generics Transformation





class Pair<X, Y> {
 private X first;
 private Y second;
}



Custom Enumeration Generation

- Optional extension preserves the UML enumeration literal string name and value in a generated java 5.0 style enumeration
- Java 5.0 enumerations do not preserve the UML literal string
- Both are available as options in the transformation

d		Name		Description	
com.ibm.xtools.patterns.content.qof.transform.gofTra	nsformationExtension5	Design Pattern Content Extensi	on for UML-to-Java 5.0	Handles design pattern content semantics when d	design patterns are applie
com.ibm.xtools.transform.java.enumext.u2j.transform		UML to Java Custom Enumeration	n Extension	UML to Java support for alternate style Java enur	merations
com.ibm.xtools.transform.uml2.ejb3.java5.extension	-0/	EJB 3.0 Extension			12
com.ibm.xtools.transform.uml2.ejb3.java5.jpa.extensi	n	JPA Extension			
			P		
1	Name		Description		
1	E1B 3 0 to UML Exter	scion Enumeration Extension		port for alternate style Java enumerations	
com ibm vtools transform ajb3 um extension com ibm vtools transform java enumext, j2u transform	E1B 3 0 to UML Exter	Enumeration Extension		port for alternate style Java enumerations	
a to UML extensions d loom ihm vtools transform aih3 uml extension com.ihm xtools.transform.java.enumext.j2u.transform com.ihm.xtools.transform.jaa.uml.extension	FIB 3 0 to UML Exter Java to UML Custom	Enumeration Extension		port for alternate style Java enumerations	



Java To UML Associations

- > Link java elements to UML elements
- Enables proper generation of relationships between UML models during Java-to-UML

UMLS.emx I Enumeration1.java Java-to-UML association file name: C:\Aurora\runtime-head\ProjectAssociatio	ns.xmi	>>2 □ □	Add Java-to-UML Association Java Element @ @ JT @ @ Src @ (default package) @ Package1	UML Element B C Muss B C Models B C UMLS C Pockage 1
Java-to-UML Associations Java Element ()JT/src/Package1 ()C:/IBM/RSx-I20080429_0000/eclipse/	UML Element DUMLS /jdk/jre/lib/vm.jar 🛅 UMLS	Add Association Remove Association	🕀 📷 JRE System Library [jdk]	
Main 8, Collections 8, Mapping 8, Jav			π	Invalid element selected



JPA, EJB 3.0 Modeling support

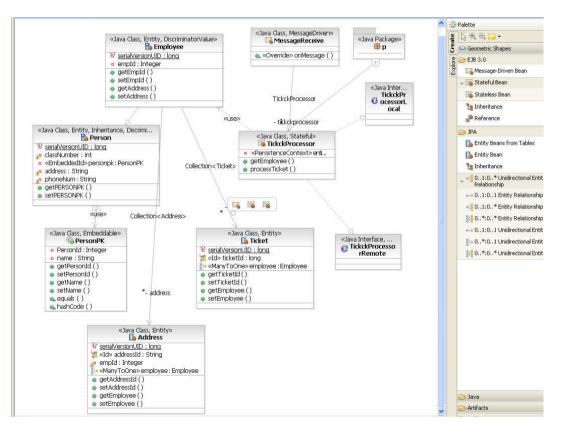
Java visual editing

- Create JPA Entity, JPA Entity from table, Session Bean, Message Driven Bean
 - relationships between JPA Entity beans
 - inheritance relationships between JPA Entity beans
- Create EJB reference relationships
- Common EJB Annotation Settings for Security, Interceptors, Transaction management type/attribute
- Diagrammatic rendering of annotations
- Integration with JPA, EJB 3.0 tooling
 - Show in Deployment Descriptor, Persistence editor
 - Creation of Named Query, CRUD methods
 - Annotations view, JPA Details view



JPA, EJB 3.0 Visual Editing

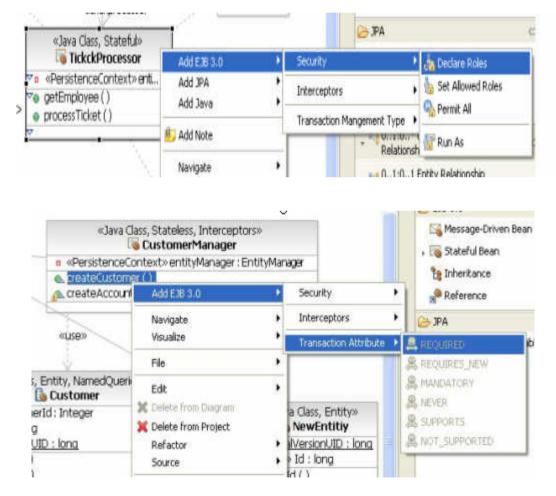
- Layout annotated JPA and EJB 3.0 classes
- Palette for JPA and EJB 3.0 artifacts
- Create and edit relationships
- Set properties in diagram





EJB 3.0 Security and Transaction Support

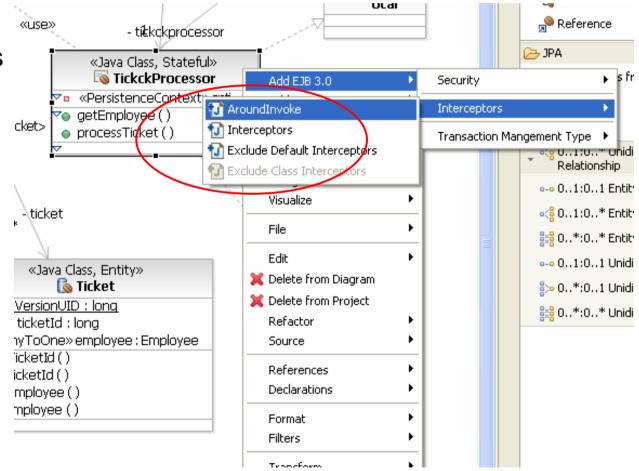
- Easily add security and transaction settings for EJB 3.0 beans
- Hides the annotation notation
- Support for class, field, and method level settings





EJB 3.0 Interceptors

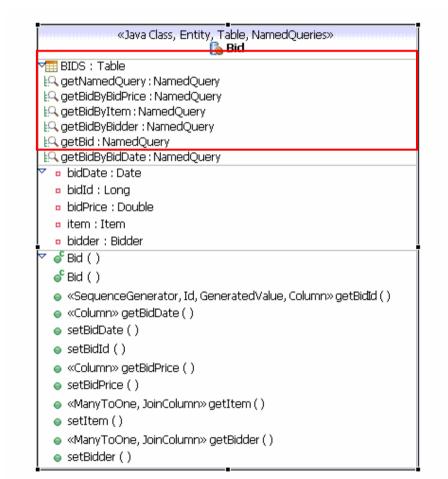
- Selectively add life-cycle inceptors to your EJB 3.0 beans
- Annotations are automatically added in the correct locations





New Annotation Compartment

- Provides a location to visualize classlevel annotation settings
- Annotations are selectable and will drive properties view and other related views





Named Query

- Easily create Named Queries on JPA Entity beans
- Create and edit queries using a query builder
- Annotations are entered and rendered in the annotation compartment

When the still the standownian	🖨 Add Named (
«Java Class, Entity, Table, NamedQueries» BIDS : Table AgetNamedQuery : NamedQuery AgetBidByBidPrice : NamedQuery AgetBidByItem : NamedQuery	Add Named Qu Add filters, order r Result Attributes
tR getBidByBidder : NamedQuery tR getBid : NamedQuery tR getBidByBidDate : NamedQuery	 Select which att Attribute BidDat BidDat BidId Bidder Bidder Item
	Use an existing Query Statement: Named Query Nam SELECT b FROM I

	12	
🖨 Add Named Query —		×
Add Named Query Add filters, order results, and select the attributes i	returned by the query.	ſ
Result Attributes Filter Results Order Results Select which attributes should be returned by the	e query:	
Attribute	Туре	
V bidDate	java.sql.Date	
🔽 🐉 bidId	java.lang.Long	
🔽 🚦 bidPrice	java.lang.Double	
🗹 🚦 bidder	actionbazaar.persistenc	
🗹 🚦 item	actionbazaar.persistenc	Ð
OUse an existing java bean to contain the results	Select Java Bean	
Course Chataman the		
Query Statement:		
Named Query Name: getBid1		
SELECT b FROM Bid b		
0	OK Can	cel



Basic JPA Entity Management with Session Beans

- > Add Create, Read, Update, Delete methods to a session bean to easily manipulate a selected JPA Entity bean
- Enters the necessary EntityManager annotations and invocations to read and persist a selected JPA Entity
- Quickly provides the method generation pattern necessary for interacting with an EntityManager

«Java Class, Stateless, SuppressWarnings» ItemManagerBean	Add EJB 3.0	Þ	🐞 Add CRUD
™ ItemManager : Stateless	Add JPA Add Java	• •	Annotation
✓ of ItemManagerBean () addItem ()	近 Add Note		Security
👞 updateItem ()	Navigate	►	Interceptors
👞 undoItemChanges ()	Visualize	→	Transaction Mangeme
👞 deleteItem ()	File	•	
 «Action» findBidByBidId () «Action» findBidByBidId1() getEntityManager() 	Edit 💢 Delete from Diagram	•	
	💢 Delete from Project		
	Refactor		
	Source	,	
	References	•	
	Declarations	•	



JPA, EJB 3.0 Transformations

- Four new transformations
 - UML-to-JPA
 - UML-to-EJB 3.0
 - JPA-to-UML
 - EJB 3.0-to-UML
- > Implemented as extensions of UML-to-Java and Java-to-UML
 - Contain full UML-to-Java, Java-to-UML feature set
- Profile tooling
 - JPA transformation profile
 - EJB 3.0 transformation profile



JPA Transformations

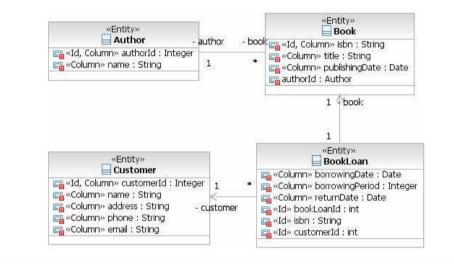
> UML-to-JPA

- Generates JPA annotations for Entity classes
- Supports reapply via JMerge
 - New JMerge rules to handle merging of annotations
- Supports replacement of UML elements
- Supports generation of traceability links
- > JPA-to-UML supports fusion into target model
- Both transformations extendable
- New JPA transformation profile and supporting profile tools



UML-to-JPA

- JPA profile created for modeling JPA concepts
- Transformation for generating JPA
 Entities from UML
 classes
- Palette tools created for working with the JPA profile improves the usability of creating JPA models



* @author mbadr

* @generated "UML to EJB 3.0 (com.ibm.xtools.transform.uml2.ejb3.java.internal.UML2EJB3Transform)"

```
*/
@Entity
```

@NamedQueries(

{@NamedQuery(name = "Author.findByAuthorId", query = "select obj from Author where obj.authorId = :authorId")
,@NamedQuery(name = "Author.findByName", query = "select obj from Author where obj.name = :name")})
public class Author implements Serializable {

```
/**
```

* <!-- begin-UML-doc -->
* <!-- end-UML-doc -->
* @generated "UML to EJB 3.0 (com.ibm.xtools.transform.uml2.ejb3.java.internal.UML2EJB3Transform)"
*/
@Id
@Column(name="AuthodID")
Integer authorId;



EJB 3.0 Transformations

> UML-to-EJB 3.0

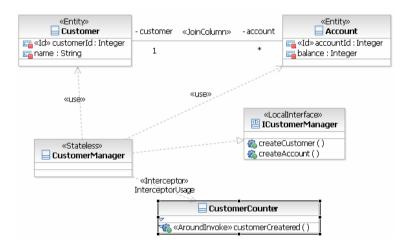
- Generates EJB 3.0 artifacts
 - Session Beans, JMS and non-JMS Message-Driven Beans
 - External elements like Datasource, Topics, Queues
 - Transforms sequence diagrams to initial implementation of operations
- Supports reapply via JMerge
 - New JMerge rules to handle merging of annotations
- Supports replacement of UML elements
- Supports generation of traceability links
- > EJB 3.0-to-UML supports fusion into target model
- Both transformations extendable
- New EJB 3.0 transformation profile and supporting profile tools

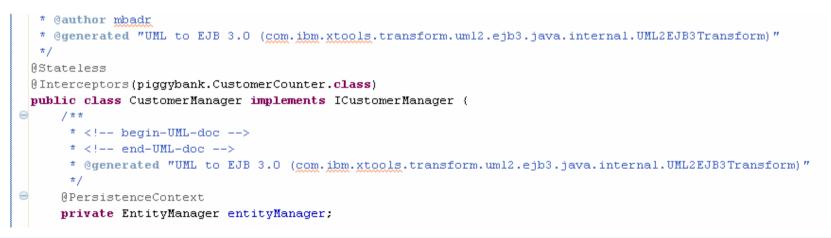
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UML-to-EJB 3.0

- > EJB 3.0 profile created for modeling EJB 3.0 concepts
- Transformation for generating EJB 3.0 beans from UML classes
- Palette tools created for working with the EJB 3.0 profile improves the usability of creating EJB 3.0 models

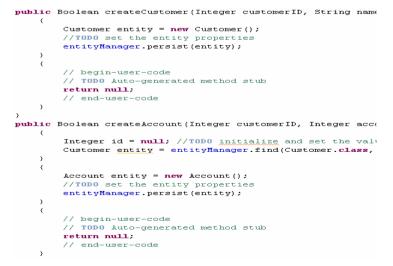


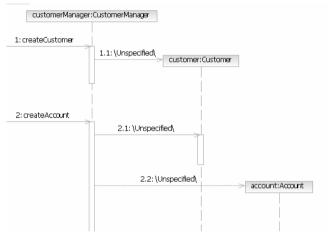




UML-to-EJB 3.0 Interaction Support

- > UML to EJB 3.0 transformation supports interactions described in a sequence diagram
- Generates JPA entity interactions from a Session bean
- Inserts the necessary EntityManager invocations







SOA Transformations

- > XSD visualization of individual XSD files
- XSD-to-UML
- Service modeling transformations
 - Java-to-Service Model
 - SessionBean-to-Service Model
- Software Services Profile tooling
- Merge enhancements
- > UML-to-XSD, UML-to-WSDL configuration enhancements
- > UML-to-BPEL support for Human Task generation
- SOA transformation extension sample



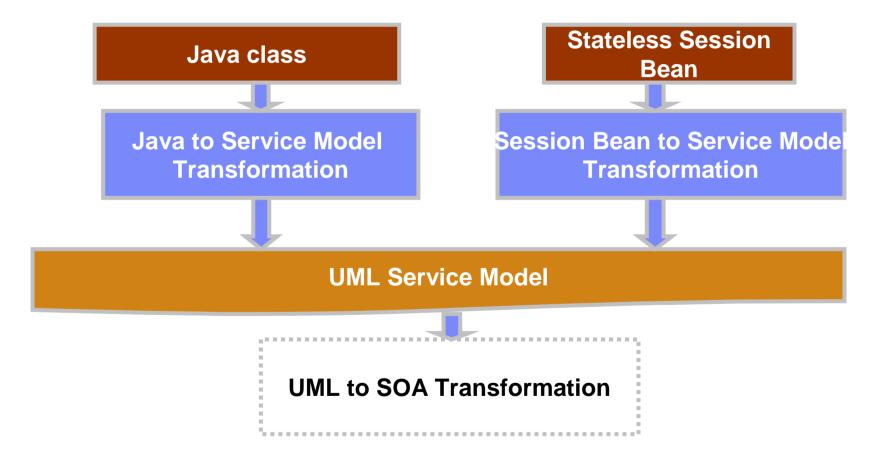
XSD-to-UML Transformation

- > Authored with RSA Modelto-Model transformation authoring tools
- Supports >98% of XSD element combinations
- Output consumable by the UML-to-XSD transformation
- Fusion of generated UML models with existing ones (Automatic, Silent, Overwrite and Visual)
- Map multiple source files to multiple target models

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:test="http://www.brvan.com/test"</pre>
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.bryan.com/test">
    <xsd:complexType name="USA Address">
        <xsd:sequence>
            <xsd:element name="name" type="xsd:string" />
            <xsd:element name="street" type="xsd:string" />
            <xsd:element name="city" type="xsd:string" />
            <xsd:element name="state" type="xsd:string" />
            <xsd:element name="zip" type="xsd:decimal" />
        </xsd:sequence>
        <xsd:attribute name="country" fixed="US" type="xsd:NMTOKEN" />
    </xsd:complexType>
    <xsd:element name="usaAddress" type="test:USA Address" />
</xsd:schema>
                                                          «alobal»
                                                       usaAddress
                                                           -£ usaAddress
                                                       «complexType»
                                                       USA_Address
                                                🖂 «attribute» country : NMTOKEN
                                                🖂 «element» name : string
                                                calement» street : string
                                                🔁 «element» city : string
                                                🔁 «element» state : string
                                                🖂 «element» zip : decimal
```



Service Model Transformations



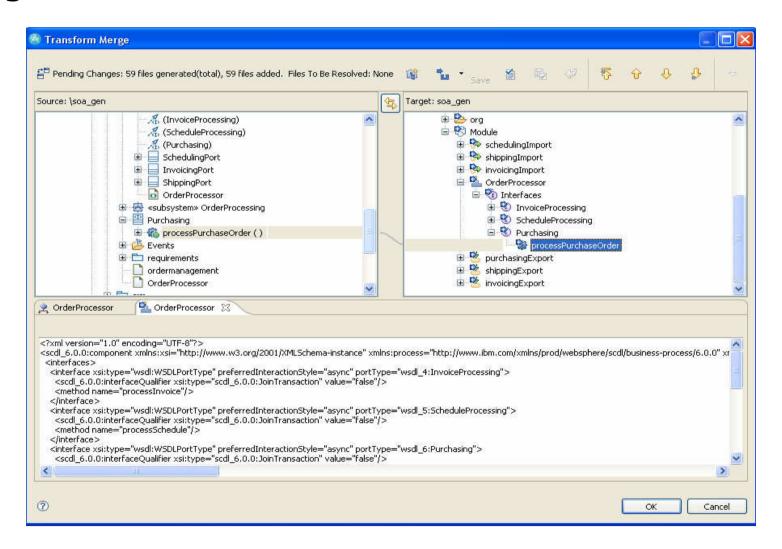


Merge Enhancements

- > New "cross-domain" merge view
- Provides visual mapping of UML source with generated domain elements (XSD, WSDL, SCDL, BPEL)
- Deltas in target elements associated with UML source



Merge Enhancements





Merge Enhancements

purce: \soa gen	Target: soa_gen
 *import» (credit) *import» (crm) InvoiceProcessing ScheduleProcessing OrderProcessor contract purchasing scheduling scheduling schedule schedule schedule grocessPurchaseOrder processSchedule (InvoiceProcessing) 	OrderProcessor Interface Partners purchasingPurchasing invoicingInvoiceProcessing shippingScheduleProcessing shippingScheduleProcessing Reference Partners Reference Partners schedulingSchedulingPartner schedulingSchedulingPartner schedulingSchedulingPartner schedule id schedule processpurchaseorder_customerInfo processpurchaseorder_result processPurchaseOrder
<pre><bpws:import "="" 2001="" http:="" importtype="http://www.w3.org/2001/XMLSchema" location="//P</pre></td><td>urchaseOrderProcess/org/crm/Manifest.xsd" namespace="http://org/crm/" schemas.xmlsoap.org="" wsdl="" www.w3.org="" xmlschema"=""></bpws:import> urchaseOrderProcess/org/crm/domain/PurchaseOrder.xsd" namespace="http://org/crm/d urchaseOrderProcess/org/crm/Invoice.xsd" namespace="http://org/crm/"/> .inkType="ns:PurchasingPLT"/></pre>	

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UML-to-XSD Configuration Enhancements

New Output Options tab

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Com.ibm.test::data http://com.ibm.test/data/ 🗁 /UML Source Project/schema 🗎 data	File e xsd xsd xsd Edit Output Location xsd Edit File Name
Main Source and Target Coutput Options Properties Common	Restore Defaults



UML-to-WSDL Configuration Enhancements

New Output Options tab

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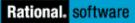
What's New in RSA and RSM 7.5

Model-Driven Development (MDD) Authoring Tools and Solutions

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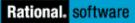
What's New in RSA and RSM 7.5

Domain-Specific Modeling

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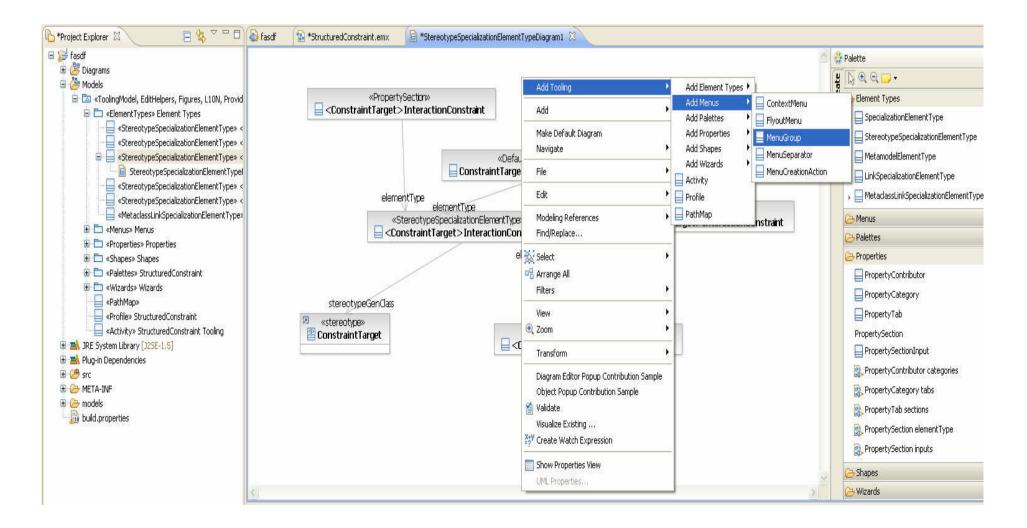
Profile Tooling Enhancements

>Generate deployed profiles or profiles outside of the workspace

- New visual editing approach
 - •Tooling architects customize their tooling using diagrams, palettes, menus etc
- >Query-based profile tooling diagrams give tooling architects an easy way to visualize their tooling
- Generated code supports palettes and menus per diagram
- >New custom property section support for generated tooling code



Profile Tooling Enhancements



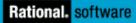
What's New in RSA and RSM 7.5

Transformation Core Technologies

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Transform Wizard Simplification

> Drive a Transform Configuration by Intent

- Specifies the "type" of modeling (Design Contract Modeling Protocol) intended conceptual or sketch modeling, mixed modeling or reconciled modeling
- DCMP selection drives other transformation configuration properties.

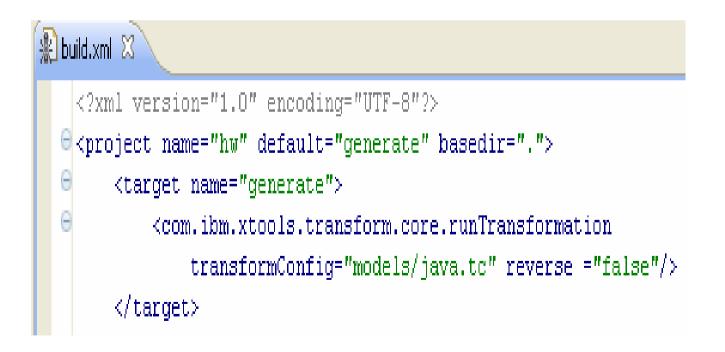
📳 javaToUML.t	tc 🛛		
-Forward trans	sformation	Reverse tra	nsformation
Name:)	þava to UML	Name:	UML to Java
Description:	This transformation converts a Java elements to a UML model.	Description:	This transformation converts UML2 model elements to Java code.
Author: 1	IBM Corporation	Author:	IBM Corporation
Id: (com.ibm.xtools.transform.java.uml.Java-to-UML	Id:	com.ibm.xtools.transform.uml2.java5.internal.UML2JavaTransform
Version:	1.0.0	Version:	7.0.0
Profiles:		Profiles:	Java Transformation
Keywords: 3	Java, UML, Transformation	Keywords:	UML2, Java5, Transformation
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Protocol		Documentatio	n:
Conceptu Mixed	target artifacts to the source artifacts which enables you to reconcile changes. Use this option when the architecture		
Main 📑 Sourc	e and Target Extensions E Collections E Java to UML Options E	Java-to-UML A	ssociations





Transform Automation at Command Line

- Can run a transformation from command line using ANT
- > Very useful for builds and other automatic tasks





Transform Instances

> Transformation extensions configurable in a transform configuration

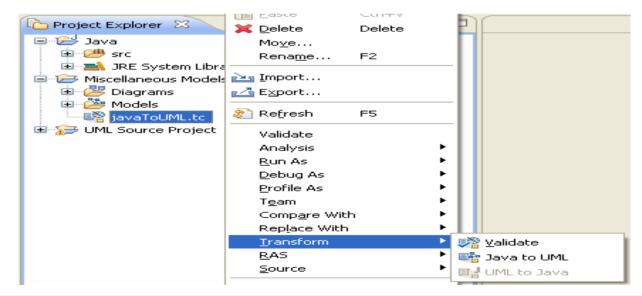
- Introduces the concept of a "transformation instance" usable separately
- Contribute tabs to the user interface
- Participate in the transformation context validation
- Enable or disable extensions for an instance at any time

	Name		Description		
.com.ibm.xtools.transform.java.enumext.j2u.transf	orm Java to UML Custom E	Enumeration Extension	Java to UML support for altern	ate style Java enumerations	
o Java extensions		Name		Description	
) Java extensions om.ibm.xtools.patterns.content.gof.transform.gol	fTuppformationEutopsionE	Name Decise Battern Content 5	Extension for UML-to-Java 5.0	Description	semantics when design patterns are applied



Transform Core

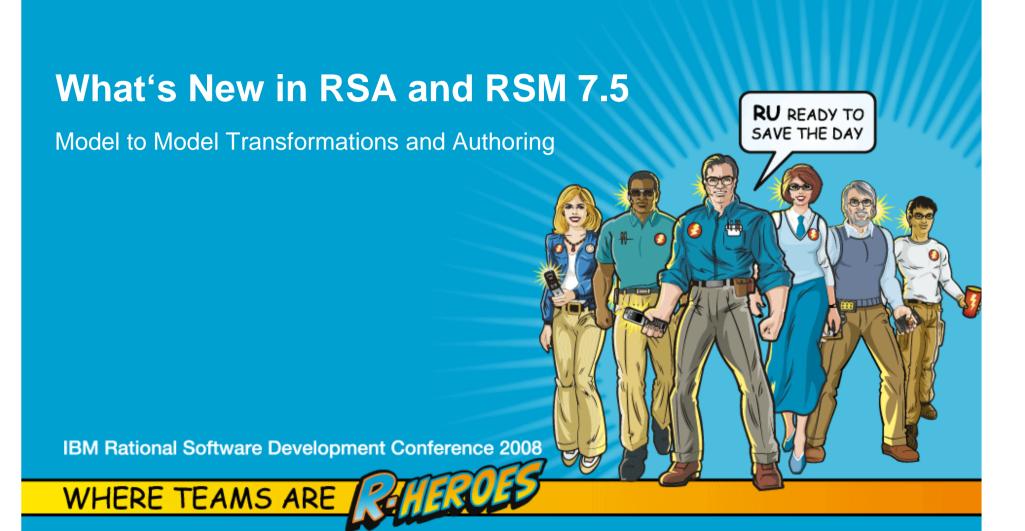
- New documentation property for transformation configurations
- Transformation configurations can be programmatically loaded from any URL
- > New context menu to validate a transformation configuration
 - Editor loads much faster



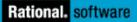


Other Transform Core Improvements

- > Optionally displays log at transformation completion
- Mapping utility now uses workspace paths to locate mapping models instead of file system paths
- Collections and Maps can be transformation properties
- Introduced headless application for transformations. Previous application had a workbench dependency, preventing its use in some contexts.
- Lazy initialization of transformation configuration properties improves responsiveness
 - Property values are proxies until resolved by a fetch
 - No longer resolves entire configuration to retrieve a property value
 - Long operations such as opening models delayed until required









M2M Transform Authoring Improvements

- > Additional mapping types and predefined rules
- More extensive UML profile support
- Many usability improvements
- Flexible transformation source code generation



M2M: Additional mapping types and predefined rules

- Custom sub-maps simplify the task of generating objects in the target model that don't have explicit corollaries in the source model
- ChainRule supports connecting one transformation to another

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elementImport	ElementImport []		nameExpression	StringExpression
packageImport	PackageImport []		elementImport	ElementImport []
ownedRule	Constraint []		packageImport	PackageImport []
owningTemplateParameter	TemplateParameter		ownedRule	Constraint []
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M2M Extensive UML profile support

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property1

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property3

101 ID

EAnnotation []

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Class 1

×

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 Mappings with stereotype properties whose type is a stereotype or profile defined class

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Inherited Maps 🔻 🖄

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Submap 🔻

Submap 🔻

Class «Stereotype 1»

eAnnotations

property1

property2

property3

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 Mappings with stereotype elements

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M2M Usability Improvements

- > Paths to mapped models are now editable post-project creation
- > New version of the New Transformation Authoring Project Wizard

New Transform	nation Authoring Pr	oject That Uses a Tr	ansformation Mapping 🗐 🔲 🔯		New Transformat	tion Authoring	g Project That	Uses a Trans	formation Ma	oping 💷 🗖 🔯
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					Target model type:	resource				
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	Specify the URI				Version:	1.0.0		Author:		
Add Model		n the Model URI field, spe e model, you must also sp	cify the location of an Ecore model or a UML ; ecify a generator model.	profile.	Description:			Keywords	:	
Mapping outputs: E Model Name N	Model name: Namespace URI: Model URI:	uml http://www.eclipse.org/u	ml2/2.1.0/UML ise.uml2.umi/model/UML.ecore	Browse	Reverse transformation Supports silent mode					
		pathmap://SOFTWARE_SI	ERVICES/profiles/SoftwareServices.epx	Browse		Name	Value	MetaType	Read Only	Insert
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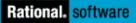
M2M Flexible Transform Source Code Generation

- Target user customized transformation framework
- Set workspace defaults as well as project specific code generation properties

Va package that contains the ge Use the default class names in	enerated transformation source code:	my_m2m_project				
	erated transformation source code		- 7			
Transformation provider:	com.ibm.xtools.transform.auth	oring.TransformationProvider	-			
Transformation validator:	com.ibm.xtools.transform.auth	oring.TransformationValidator				
Transformation GUI:	com.ibm.xtools.transform.auth	oring.TransformationGUI	-			
Transformation registry:	com.ibm.xtools.transform.authoring.Registry					
Root transformation:	com.ibm.xtools.transform.auth	oring.RootTransformation				
Main transform:	com.ibm.xtools.transform.auth	oring.MainTransform				
Transform:	com.ibm.xtools.transform.auth	oring.MapTransform				
Create rule:	com.ibm.xtools.transform.auth	oring.CreateRule				
Instance condition:	com.ibm.xtools.transform.auth	oring.InstanceOfCondition				
Move rule:	com.ibm.xtools.transform.auth	oring.MoveRule				
Custom rule:	com.ibm.xtools.transform.auth	oring.CustomRule				
Submap extractor:	com.ibm.xtools.transform.auth	oring.SubmapExtractor				
	110					

What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY Model to Text Transformations and Authoring IBM Rational Software Development Conference 2008 WHERE TEAMS ARE







JET Authoring Next Steps Wizard

- > Avoids ~20 minutes of manual steps in developing a UML interface to a JET transformation.
- > Equivalent to running four other wizards

🖨 New UML Interfa	ice to a JET Tran	sformation 📃 🗖 🔀				
UML Interface to a JET Transformation Create the project infrastructure for a UML interface to a JET transformation.						
JET project name: Transformation name: Common solution prop Solution name: Project name prefix: Solution pro <u>v</u> ider:	•	Browse				
Solution elements	r name: ormation apping project name: ET input model tructure	com.zyx.beans.profile com.zyx.beans.frontend com.zyx.beans.model com.zyx.beans-feature				
®	< <u>B</u> ack	Next > Einish Cancel				



JET Authoring Common Tasks Streamlining

- > 'Actions' may now be conditional
- > New JET project wizard now includes prompts for more information

		Sew JET Transformat	tion Project 📃			
		JET Transformation Pro	operties			
and the second second		Enter the data required to ge	enerate the JET transformation	-		
🖨 New JET Transfor	mation Project	Transformation (plug-in) Pro		🖙 New JET Tra	nsformation Project	
		Transformation ID: Transformation name:	'ny.jet.project		N	Concerning of the second second
JET Transformation	Project	Transformation description:		Transformation	n Scope 🖓	
	•	Template loader:	my.jet.project.compiledjet_transformation	the set for the fight of the set of	a second and a second	
Create a JET Transforma	tion Project in the workspace.			Select the scope of	of the exemplar by selecting one or more projects.	
				100		1
				8		A.
				Exemplar scope:	com.zyx.beans	1001
Project name: my.jet.p	project					
					🗁 😂 foo.bar	
Use default location		(2)	< Back Next > Doish Can		🗁 😂 foo.bar.tests	
					- 🔁 fvt.jetenh.exemplar	
Location: C:\usr\works	paces\rt-rmpt-mapping\my.jet.project	Browse			fvt.jetenh.generator	
Project Settings					- 😂 fvt.jetenh.generator.model	
Template folder:	templates				🗁 🗁 my.uml	
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JET Engine (Open Source)

> Improved performance

- No file writes without change
 - Improved compatibility with pessimistic locking repositories like ClearCase
- Many hot spots removed
- > User-driven improvements
 - Sort function
 - Support more XPath axes
 - Improved testability of JET functions producing random values
 - Output indentation tags

What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY **Model-Operative Patterns** IBM Rational Software Development Conference 2008 4. 930 7 WHERE TEAMS ARE

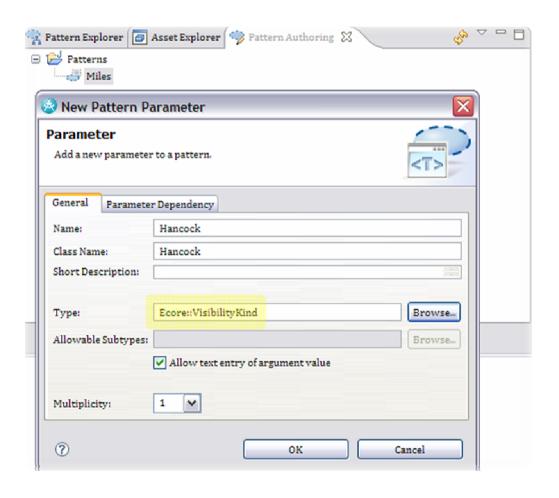






Patterns Enhancements I

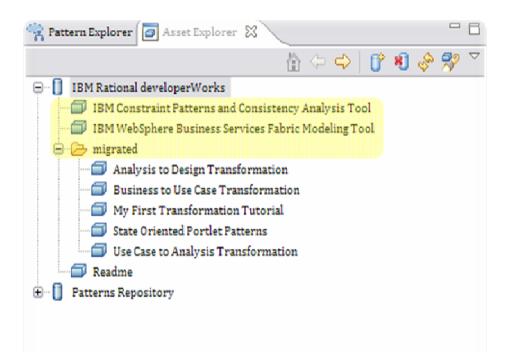
- Design pattern content now uses the specialized pattern framework which enables better handling of read-only pattern argument model elements during pattern application
 - Pattern instances now own the trace relationships to involved elements
- > UML profile support at authoring and application time now allows profile enumerations to be used as pattern parameters





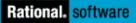
Patterns Enhancements II

- RSx developerWorks RAS repository migration completed for the relevant and most popular assets
 - Two newly published assets are also available related to constraint patterns and business fabric modeling
- Minor incremental pattern authoring user interface enhancements



What's New in RSA and RSM 7.5 RU READY TO SAVE THE DAY RSM and RSD 7.0.5 Features Migrated to RSA in 7.5 IBM Rational Software Development Conference 2008 WHERE TEAMS ARE







7.0.5 Feature Highlights

- Diagramming improvements
- Rich text support for documentation, notes and comments
- Configurable modeling UI, viewpoints
- Modeling reminders
- Model management improvements
 - Support for diagram fragments
- > UML 2.1 support improvements
 - Support information flow elements (UPDM requirement)
 - Deployment diagram and sequence diagram enhancements
 - Query-based diagram population



7.0.5 Feature Highlights

- > BIRT-based reporting for UML/EMF models
- Model analysis and metrics
- > UPDM support (beta 1 spec)
- Improvements to reapply/reconcile scenarios in transformations



7.0.5 Extensibility Feature Highlights

- > Ability to generate tooling from a UML profile
 - Palettes, menus, diagram assistants, capabilities, ...
 - For building UML-based DSLs
- Reminders framework
- Queries framework
- > Viewpoints
- Configurable modeling UI
- Model analysis/metrics



7.0.5 Extensibility Feature Highlights

- Model2model transformation authoring enhancements
- Model2text transformation authoring enhancements
 - JET2 syntax/content aware editor
- Model operative patterns framework enhancements
- Significant improvements in open source components (GMF, EMF, UML2 ...)

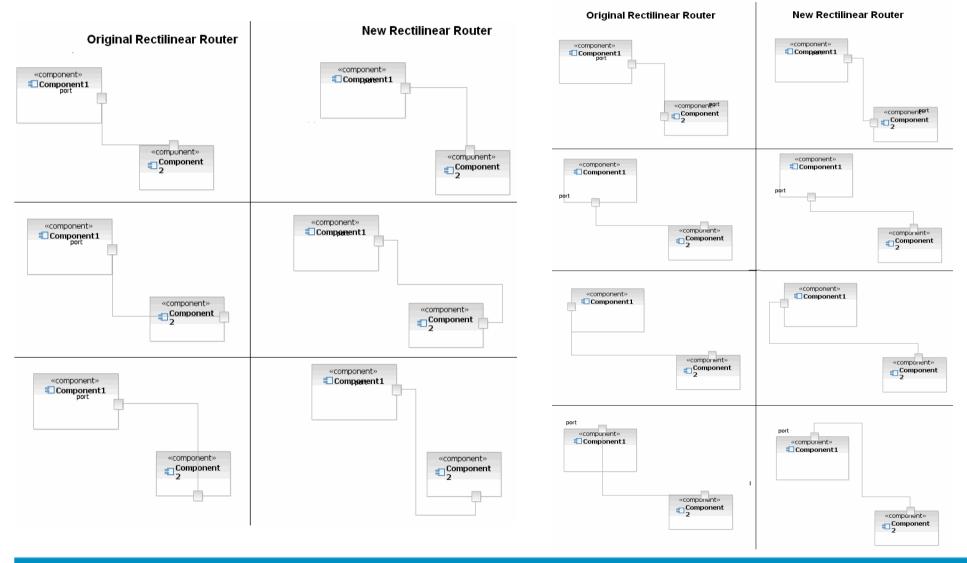


Rectilinear Routing Enhancements

- Improved rectilinear routing
 - Connectors no longer overlaps shape edges
 - Connectors no longer overlap other connectors
 - Connector between ports/pins no longer cross shapes owning the ports/pins
 - Smarter connector endpoint placement on ports/pins



Rectilinear Routing Improvements



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New Model and Model Project Wizard

> New Model Wizard with a new page add modeling capability context to the

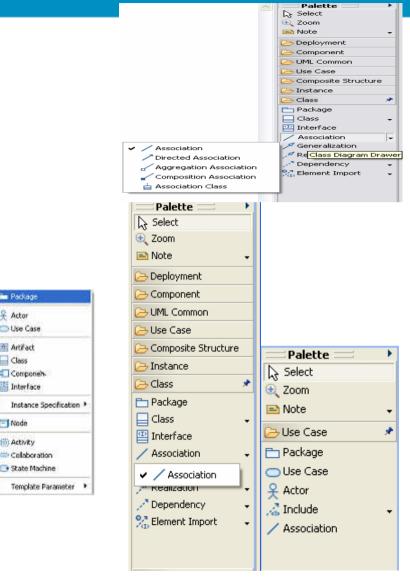
new model

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	Create Model	-		
<u>W</u> izards:	Create a new model.			
new model				
🖃 🧁 Modeling	Create new model from: Standard template	Rew Model		
	O Existing model	Create Model		
New Moder Project	Template Description	Create a new model from a stand	lard template	
	Creates a new model from a standard template.			
	F New Model Project	Categories:	Templates:	
	New Model Project	Analysis	Blank Model	
	Project name must be specified	General Purpose	Sa Blank Rose Model	
			Se Enterprise IT Design Model	
	Project name:		Service Design Model	
		Template Description:	E New Model	
Show All Wizards.	Use default location	Create a blank UML model.	– Model Capabilities	72
	Location: D:/rworkspaces/rm1		Select the capabilities to associate with the new model.	
	Create new model from:			
0	Create new model in project Standard template	, File name:	Capabilities:	
-	O Existing model	Blank Model1	Capabilities	
	Template Description	Destination folder:	Activity Diagram	-
	Creates a new model from a standard template.	Miscellaneous Models	Class Diagram	
		Show All Templates.	- 🗹 Component Diagram	
			Deployment Diagram FreeForm Diagram	
		•	Sequence Diagram	
			Description:	
			Adds Class diagram from the Project Explorer context menu.	
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Configurable Modeling UI

- New Model wizard contains various model templates, each with preset modeling capabilities
 - UI components configured: Palette, content menus and action bar
 - Use can configure via modeler capabilities page
- Existing templates that can be shared among team members

🖬 Package	
🕺 Actor	
🖶 Subsystem	
🔿 Use Case	
🕮 Artifact	
Class	
Component	🖿 Package
Enumeration	😤 Actor
Interface	C Use Case
🖭 Data Type	1.0.5
🔄 Primitive Type	Artifact
😇 Signal	Class
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State Machine	Template Pr
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🔏 Template Binding	
Template Parameter	



Palette Blank Model vs. Blank Rose Model vs. Use case Model

Context menu: Blank Model vs. Blank Rose Model



Viewpoints Properties Page





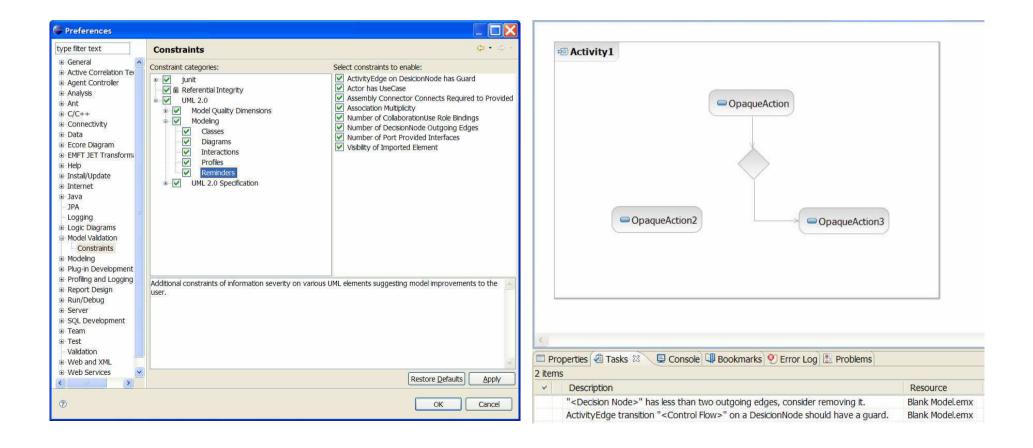
Rich Text Support

- Rich Text Support added to
 - Documentation tab
 - Note & Comment shape

🔲 Properties 🛛	🖉 Tasks 🖳 Console 🛄 Bookmarks	~ - 8
Model> Rick	TextModel1	
General		_
Profiles	Vormal Text	
Stereotypes	Bold & Italic	
Documentation	1. List 1	
Constraints	2. List 2	
Capabilities	◆ Bullet 1	
Advanced	Bullet 2	
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	Center Aligned	



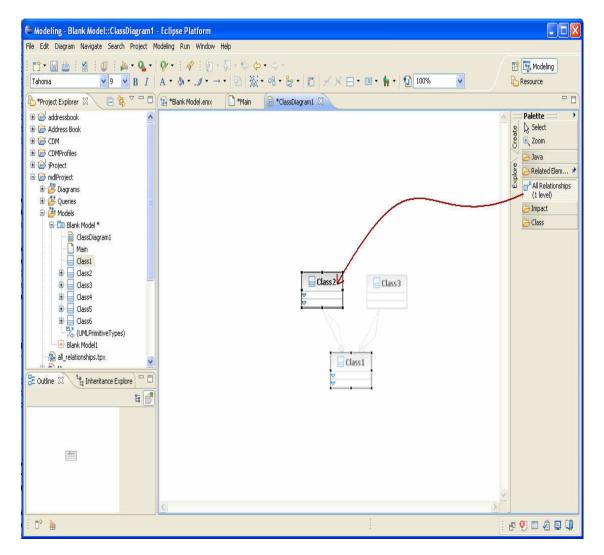
Modeling Reminders





Build Diagram using Queries

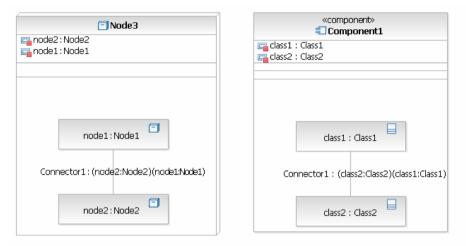
- Tabbed Palettes
- Creation and Explore Palette
- Explore Palette with Query Tools
- Trace, Java and Domain Modelers planning to use the explore palette to contribute existing topic presets.

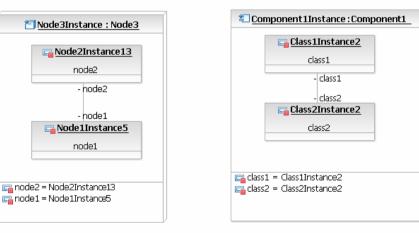




Deployment Diagram Enhancements

- Support for Slot Structure Compartments in Node Instances and Component Instances
- Support for Slot Values for attributes with multiplicity more than 1.
 - Specifying values for attributes whose multiplicity is > 1 is now supported
 - Specifying values for attributes that aren't typed by primitive types (e.g. integer, string) is now supported.
- Enhancement to Link Creation and Slot Value Settings
 - Link source and targets are now set to the source and target object instances.
 - Link ends now correspond to the typing association's role ends
- Improved Modeling Assistant Capabilities
 - Added Dependency to the list of valid choices in the diagram assistant for instance modeling.
 - Diagram assistant support for <<deploy>> is now enhanced.
 - Improved Show/Hide relationships on <<deploy>> and <<dependency>> for deployment/instance diagrams.
- Improved Usability Enhancements
 - Added Dependency tool to the Deployment palette
 - Link is auto-populated when possible; otherwise, default select element behavior is used.
 - Support creating nodes as parts of nodes (disallow creation of parts typed by other classifiers).



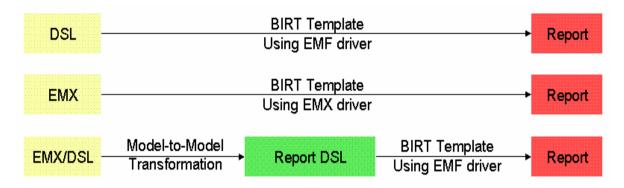




BIRT Model Reporting

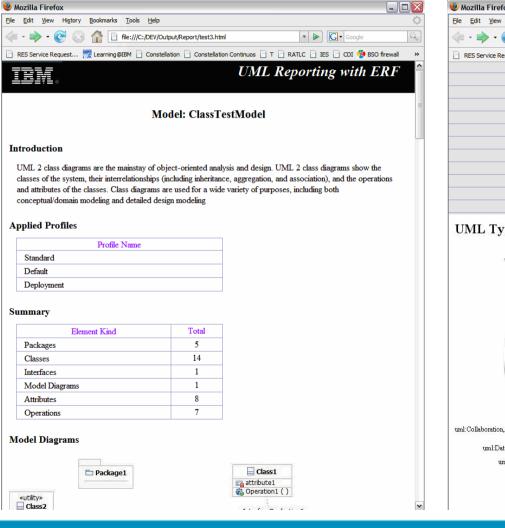
>ODA driver for EMFfriendly access to data

- •OCL and XPath as query languages
- >ODA driver for EMX access to UML schema + profiles, notation, requirements...etc
- Handles complex projections or computations with BIRT scripting and M2M transform as first phase



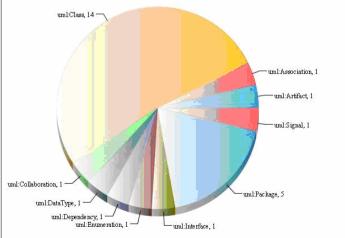


Sample UML report



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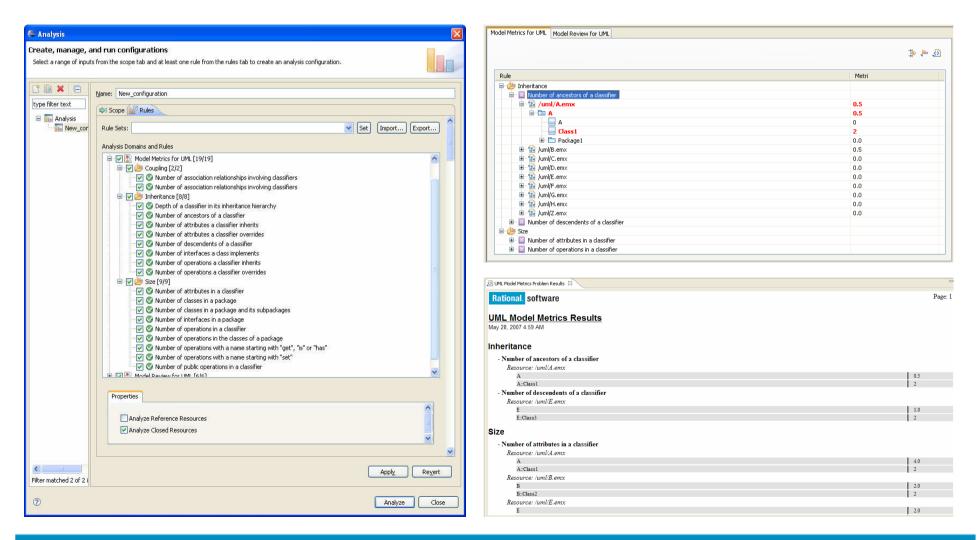


Model Analysis

🖨 Analysis	Model Metrics for UML Model Review for UML
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Model Metrics



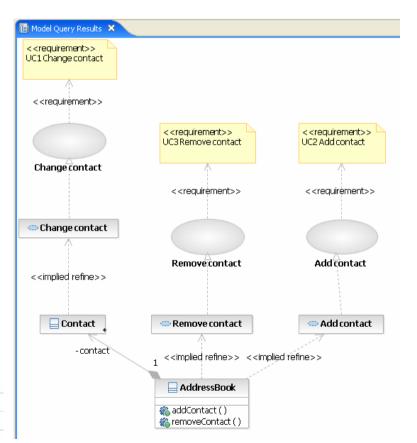


Traceability

- > Traceability queries
 - All Specifications, Implementations or both
- Impact Analysis queries
 - All Causes of Change, All Effects, or both
- Results displayed in editable topic diagram
- Queries search closed resources and referenced resources
- Specifications and Implementations supported by Web Publishing

Specifications	
Specification	Trace Relationship
○ <u>Add contact</u>	Add contact)

Generate Report			
Model Query 🔰	Traceability	۲	Cuery All Specifications
UML Properties	Impact Analysis		📑 Query All Implementations
	-		Query All Specifications and Implementations
l Linkability 🕨			





UPDM – UML Profile For DoDAF And MODAF

- > UPDM 1.0 supports general Enterprise Architecture designs
 - UPDM is model (semantic) centric and not view centric like DoDAF
 - UPDM does not limit the views to DoDAF or MODAF
 - UPDM has hooks for Service Oriented Architecture designs
- > UPDM profile is complex but has built in validation rules
 - 165 stereotypes (extending both classifier and relationship meta-classes)
 - 8 data types and classes (defined in a UPDM class library)
 - over 100 attributes (many of which define relationships with other elements)
 - 62 specific relationship based stereotypes (associations, dependencies, realizations)
 - over 260 OCL constraints



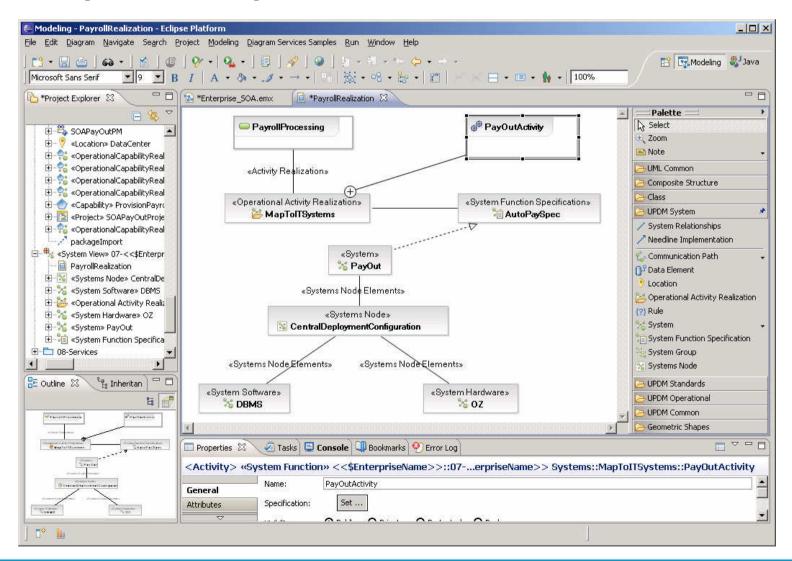
UPDM (continued)

- RSx supports UPDM basic tools for creating elements and relationships
 - no support yet for reporting or creating specialized views
- UPDM element types logically divided into 10 architectural modeling phases (capabilities)
- > UI contributions organized by capabilities
 - separate diagram palette drawers
 - separate context menus
 - integrated into new RSx UI reduction framework
 - smart "relationship" creation tools that determine possible UPDM relationships which can be created between two classifiers
 - power tools perform multiple modeling steps automatically

E Advanced Capabilities Settings	×
<u>C</u> apabilities:	
 UPDM Modeling Capabilities UPDM Asset and Materiel Modeling UPDM Enterprise Modeling UPDM Operational Modeling UPDM Organizational Modeling 	
 UPDM Performance Modeling UPDM Project Planning UPDM Service Modeling UPDM Strategic Planning UPDM Strategic Planning UPDM System Modeling UPDM Technical Standards Modeling 	-
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Enabling this capability will allow the architect to create elements for modeling the basics of a Service Oriented Architecture. Elements available include Service Specification, Service, Service Consumer and Service Provider.	
OK Cancel	



UPDM (continued)



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Java Transformation enhancements

- > <JavaArray> & <JavaCollection> stereotype support in Java transform
- GUID support in both forward and reverse Java transform.
- Raised exception, documentation, limited keyword support added to Java transforms.

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Carl Contract Contrac	«JavaCollection» myM	ар
General	Property	Value
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Documentation	collectionType	java.util.WeakHashMap
Constraints	keyType	java.lang.String
Advanced	🗄 UML	

Transformation options
○ No action
Create source to target relationships
O Replace UML elements



C++ Modeling

- > Support for CDT 4.0
- > Ability to delete C++ Elements from diagram
- Properties view for C++ Elements
- > C++ Source code documentation in Properties view



UML2C++ Transformation Enhancements

- Support STL types in the C++ transform
- GUI option for the "Exclude path for Includes" in the transformation configuration.
- > CDT 4.0 migration
- > Ability to specify separate output folders for generated source & headers



UML2C# Transformation

- Support for GUID based Reapply
 - Uses "source to target" relationship to map model elements to code and vice versa
 - Supports more intelligent refactoring
 - Rename or move model or code elements without losing user code
- Basic use case
 - Class1 has Operation1
 - Run UML-to-C# transform to generate code, "source-to-target" relationship on
 - Add code to Class1::Operation1
 - Rename Class1 to Class2 in the model
 - Reapply UML-to-C# transform
 - Class2 will contain Operation1 with user added code preserved

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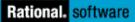
What's New in RSA and RSM 7.5

New Extensibility Features

IBM Rational Software Development Conference 2008

WHERE TEAMS ARE

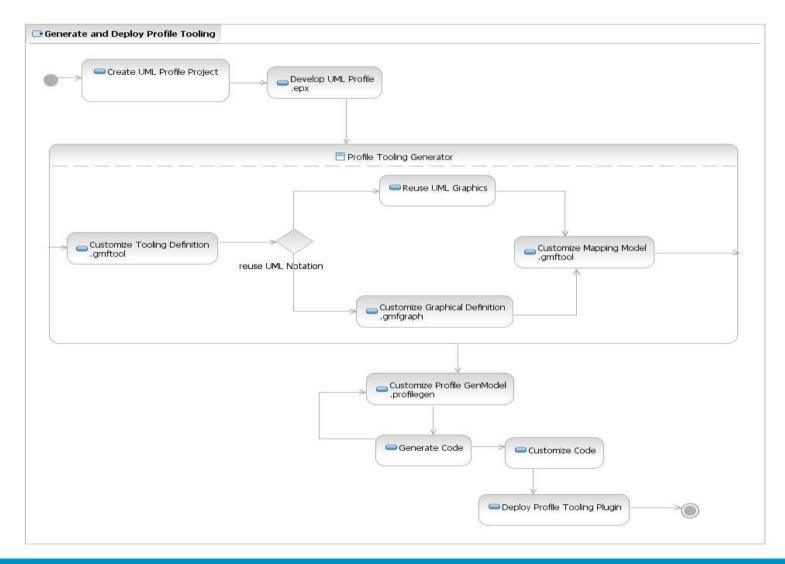




RU READY TO SAVE THE DAY



Generate Profile Tooling



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Business Modeling Profile Tooling Example

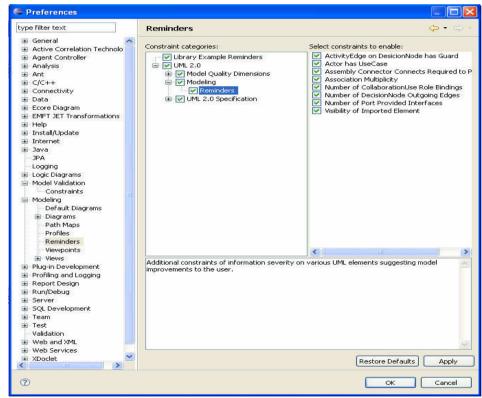
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Reminders Framework

- Built on EMFT Validation Framework, and Model Indexing.
- Reminders integrate into Tasks View
- Reminders are always live, keep the user informed about the missing items (best practices, incomplete model) in the model.
- Unlike Live Validation Rules where the client has to implement lots of notification handling code, this framework provides an easy xml based registration of target based validation rules.
- Providers Filtered Reminders Customization Page.





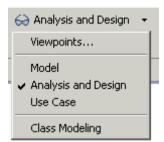
Queries Framework

- Contribute to Explore Palette using System Queries
- Creation Executors for custom query types
- Create or reuse result presenters for custom query types



Configurable Modeling UI

- Use Eclipse capabilities for context based Reduction of Modeling tools
- Facilitates creation of Domain Specific Editors by reusing RSA Editors.
- Helps user reduce the clutter of tools on a per model basis (model specific UI configuration)
- User defined Viewpoints enables user to reduce modeling tools further. (User Specific Reduction)
- Contribute and customize Viewpoints (collection of capabilities) using view points preference page,
- Viewpoints toolbar for switching viewpoints





Model Analysis and Metrics

- > Framework is implemented at the EMF level
- > Two kind of providers are supported: rule based and metric based
- Provides abstract implementations for provider, rules, quick fixes, templates, exporters, viewers..etc
- > Provide useful utilities to be used by concrete implementations
- Providers can analyze closed resources and referenced resources
- > Rules and metrics have configurable parameters
- Provides quick fixes
- Supports BIRT reporting



Transformation Authoring enhancements

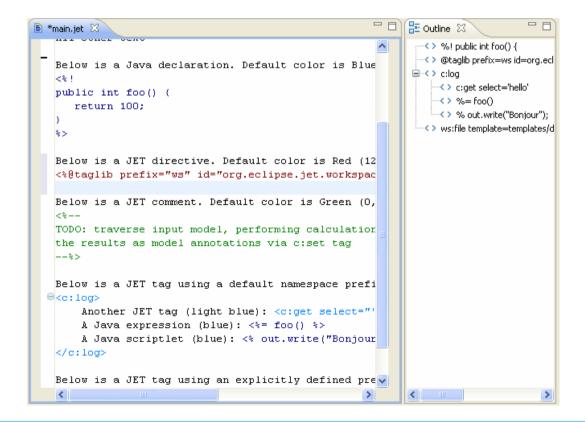
Mapping Model Extensions

- Map Inheritance simplifies mappings and generated transform source code
- Many-to-1 and 1-to-Many Maps support now "built-in" (custom code not required)
- Map Abstract Targets generated transform code handles references to abstract types
- Mapping Editor Usability Improvements
 - Java Source Code Integration parameter discovery and class creation wizards
 - Error Recovery more resilient to changes in mapped metamodels
 - Map Validation and Problem Reporting more context specific and detailed messages
- Transformation Authoring Runtime
 - Finer Grained Extensibility less effort to customize generated transform source code
 - Simplification of Inter/Intra-Model Reference Resolution "built-in" multi-map resolution
 - Transformation Chaining simple to invoke another transformation



JET Template Editing

- > JET now has a real editor
 - Syntax highlighting, content assist, outline view and folding

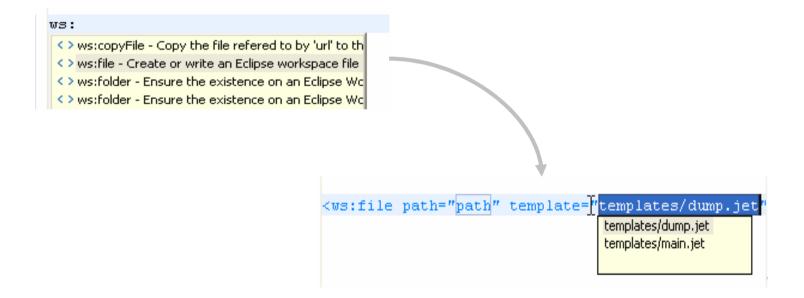




JET Template Editing

Content Assist

- Editor templates for all tags
- Content Proposals for XPath and Template references





Patterns Framework Enhancements

- Patterns framework modularity is now offered providing a means for pattern authors to easily publish their own framework extensions that are seamlessly plugged in to the patterns authoring experience. Since the governing patterns framework is made on a pattern library basis each pattern author can choose the patterns framework that best suits the needs of their pattern library. It is possible to for the pattern author to create a new patterns framework that provides or changes the standard framework behavior by providing an Eclipse extension implementation to the "com.ibm.xtools.patterns.core.framework.implementation" extension point and choosing which connection points to override. The code generation process recognizes these patterns framework implementation extensions as well as their connection points to the core framework notions. A patterns preference is provided to select the default patterns framework implementation to use for new pattern library creation time via the provided new pattern library PDE wizard user interface option.
- Given the ability for multiple patterns frameworks to coexist, a new specialized patterns framework is available for use by pattern authors. The historically available patterns framework is referred to as the "Generalized UML Patterns Framework" and the new framework is named the "Specialized UML Patterns Framework". The specialized patterns framework extends from the generalized patterns framework and provides two key features: pattern participant role markings (via model element keywords) and pattern participant role traceability (via UML <<trace>> abstraction relationships).
- Patterns authoring and application now recognizes and supports UML profile concepts and types. A pattern library can be associated with multiple UML profiles with the pattern author using stereotypes to further constrain the types of elements that can be bound to a parameter at pattern application time.
- The patterns explorer and patterns authoring views are enhanced to optionally display the parameter details alongside the parameter nodes in the tree view. These additional parameter details are comprised of the parameter type and parameter multiplicity. A new pattern preference is available to toggle the enablement of this new feature and by default the additional parameter details are shown.
- Pattern authoring view context-sensitive navigation is improved now supporting library node to source code navigation via either a doubleclick or context-menu action. Context-sensitive parameter node to source code navigation now directly jumps to the parameter class source code as opposed to the previous behavior of jumping to the parent pattern class source code.
- Pattern reference models are now preserved upon re-generation allowing user-created diagrams and other model elements to be dependably stored in these reference models.



Transformation Framework

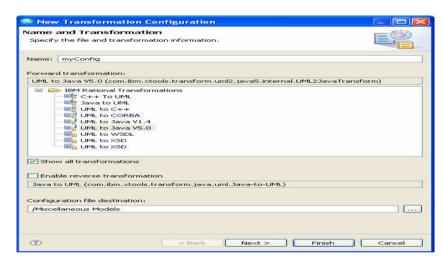
- Transformation authors can now add "constraints" to transformation properties to specify what valid property values are.
- The constraints are evaluated when the configuration is validated. Issues are reported in the problems view.

Problems 🔀 Error Log		⊉ ▽ □ □
1 error, 0 warnings, 0 infos		
Description 🔺	Resource	Path
😑 🔚 Errors (1 item)		
😣 Transformation: The property prop1 must be a String with no more than 3 characters.	myConfig.tc	Miscellaneous Models



Transformation Framework

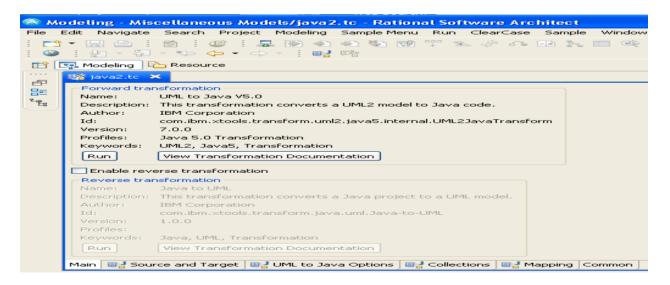
- The transformation user interface has been integrated with the Eclipse capabilities framework. Users can now filter out UI contributions at the transformation level.
- The new transformation configuration wizard by default does not show disabled transformations. The user can specify to show all transformations.
- Menu items for disabled transformations do not appear in the workbench.





Enhanced main page of the transformation configuration editor

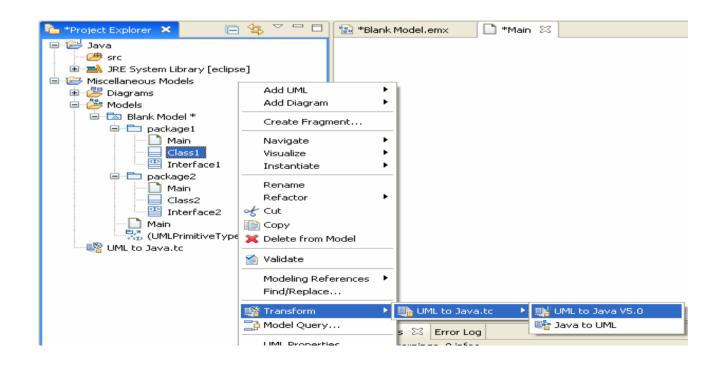
The user can run the forward or reverse transformation from the main page of the transformation configuration editor.





Transformation Framework

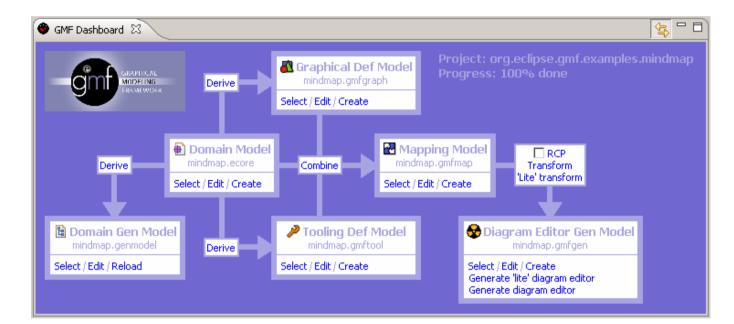
A transform context menu has been added to the project explorer (previously only transformation configuration files had a transform context menu).





GMF 2.0 Overview

- GMF provides an MDD approach to generating graphical domain editors.
- > GMF has two main components:
 - GMF Generation Toolkit
 - Models used to define graphics, tooling, mapping to domain
 - Various options to generate code for your graphical editor.
 - GMF Runtime:
 - A framework to binds EMF and GEF.
 - Provides significant diagramming capabilities out of the box.
- Diagrams in the Rational Design Products are based on the GMF Runtime.

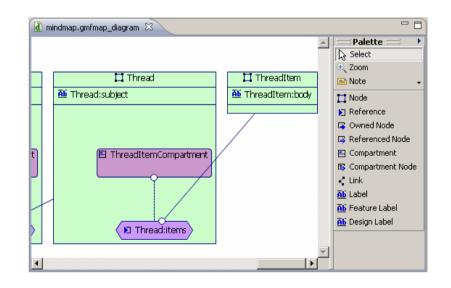




GMF 2.0 Generation Toolkit Enhancements

- > Ability to generate an Eclipse RCP application.
- Project Navigator support for diagrams and models.
- > Diagram preferences generation option.
- > Enhanced properties view generation support.
- > xPand template engine.
- Graphical mapping model editor and graphical definition editor improvements.
- Rebuilt tooling wizards.
- Improved Mapping Model Visual Editor (built using GMF).
- Improved Graphical Definition Visual Editor (built using GMF).

Create GMFMap model				
elect Domain Model				
oad domain model and select element	for canvas mapping.			
Model URI:		Browse File System	Browse Workspace	Find In Workspace
platform:/resource/org.eclipse.gmf.		p.ecore		Load
Use one of the predefined models:				
Package: mindmap				-
Class: DocumentRoot				
Map Relationship				
Thread ThreadRem				
Topic				
20		< Back	Next >	ntetr Cancel





GMF 2.0 Runtime Improvements

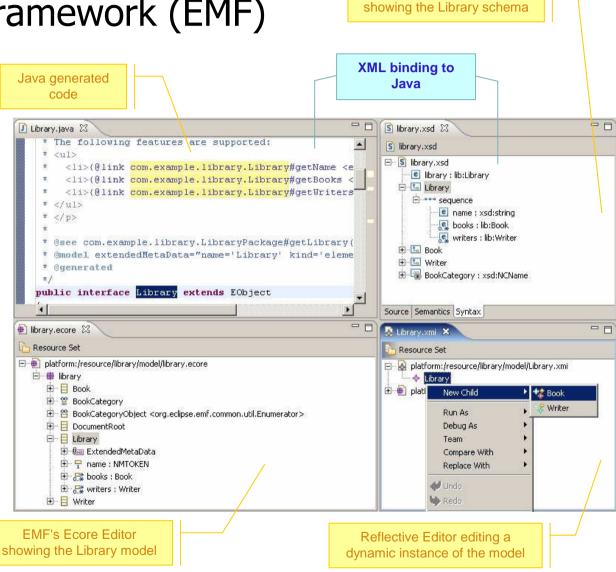
- > Printing improvements:
 - Issues with paper sizes and large diagram output resolved.
- Snap to grid improvements.
- > Rectilinear router improvements for connections.
- > Diagram export to image file improvements.
- > Compartment scrolling improvements.
- Improvements for path maps and linked resources.
- > Added improved Notational MetaModel Extensibility.
 - Ability to add generic styles.
- > 342 Bugs fixed since GMF 1.0.
- > No API breakages from GMF 1.0 Runtime.
- > No "provisional" APIs, all non-API code in "internal" packages.



EMF's XML Schema Editor

Eclipse Modeling Framework (EMF)

- Provides a uniform mechanism for describing and accessing all data to facilitate sharing
- Supports conversion to and from different models descriptions
- Developer can focus on the creative tasks rather than repeating the mundane tasks again and again
- The merging generator supports alternating between modeling and programming
- Full support for Java 5





Eclipse Modeling Framework (EMF)

- EMF 2.3 News and Noteworthy
 - Java 5.0 support
 - Allows developers to exploit Java 5 concepts and features in their models, since Generics are now fully supported in EMF's metamodel, Ecore, and in the EMF code generator
 - Other important Java 5 language features are also supported, including enumerated types, annotations, and the enhanced for loop
 - Developers still have the option to generate 1.4-compatible code, which can be run on the EMF 2.2 runtime
 - Complete Ecore model validation
 - Reference keys, which provide a more robust alternative to the default index-based reference serialization
 - EMF 2.3 will be delivered in fine-grained features, allowing for more flexible use in projects and products, without introducing unwanted code, user interface, or dependencies



UML2 2.1

Eclipse 3.3 / EMF 2.3 Compatibility

- Many methods within the UML API are now specified using Java 5.0 generics and are consistent with EMF's changes for Java 5.0. This could have potential impact on users calling the UML API, for example when working with lists of a specific meta-type.
- Users can convert UML models with templates to Ecore models with generics and vice versa. UML concepts such as templates, template bindings, etc., have a direct impact on the resulting Ecore model and ultimately the generated code. Likewise, Ecore models with EGenericTypes or ETypeParameters (new meta-types in the Ecore metamodel) can be converted to UML models that make use of the corresponding UML concepts.

> Ant Task for Ecore Importer

 A new Ant task has been created that allows users to generate code based on a UML model. From the Ant task, users can provide UML-specific code generation options for the generator model, generator package, and converter, in addition to passing an input UML model. The user is then one click away from running the Ant task and generating code directly from a UML model.



UML2 2.1 (Continued)

Create Child/Sibling Menu Reorganization

- The 'Create Child' and 'Create Sibling' menu items in the UML Editor menu have been reorganized so that sub-items are grouped by feature.
- Static Profile Definition
 - Users now have the option to convert their profiles to Ecore just as they would any other model. They can then generate code from that model and provide implementations for operations and derived features. If the model is then registered in the generated package registry, the UML API will discover the Ecore definition instead of looking for it in an annotation; in such a scenario, the "define" step on the profile is not needed - the conversion to Ecore replaces it.
- New API to Create Usage Dependencies
 - An additional convenience method has been introduced to create usage dependencies on named elements. Although the ability to create usage dependencies existed in the past, this new convenience method makes it even easier.



UML2 2.1 (Continued)

- OCL Integration
 - Now users can specify invariant constraints or operation bodies in Java or OCL and have code generated from the expressions entered in the UML model.
- > Updated Schema
 - The namespace URI for the UML metamodel in UML2 2.1 has been changed to (<u>http://www.eclpse.org/uml2/2.1.0/UML</u>). IMPORTANT: The source for annotations such as those used to store the dynamic Ecore representation of defined profiles still use the original annotation (<u>http://www.eclpse.org/uml2/2.0.0/UML</u>).
 - This change was required to reflect changes to the metamodel to remove the bidirectional associations between Vertex::incoming/outgoing and Transition::source/target and between ConnectableElement::end and ConnectorEnd::role.
- Export Wizard Improvements
 - The UML export wizard used to output new resources for every nested Ecore package in a model. This
 no longer is the case. Also, if the ecore model that is being converted contains references to types in
 other metamodels, the corresponding UML representation of that referenced metamodel will also be
 generated.



EMF Query, Transaction, Validation 1.1

- > Validation Enhancements:
 - Constraint Filtering
 - Allows clients to opt out of selected constraints
 - Constraint Listeners
 - Clients are notified of changes in the ConstraintRegistry, including constraint enablement changes, constraint registration changes, constraint category changes
 - Extensible Constraints Preference Page
 - The preference page is refactored and provides new API for clients to create their own preference pages
 - Custom Validation Event Types
 - Simplifies the triggering of "live" validation constraints by computing more abstract events according to rules provided by clients
 - Constraint Violation Reporting
 - Constraints have more control over the reporting of problems, including which elements are involved and even reporting multiple discrete results as a multi-status
 - OCL Integration
 - The support for OCL as a constraint specification language is updated for OCL 1.1 to support Ecore and UML metamodels
 - New API for applications to create OCL constraints in customized OCL environments



EMF Query, Transaction, Validation 1.1

- Better support of EMF resources lifecycle, including disconnecting them from the transactional editing domain
- Complete Programmer's Guides to the Query, Transaction, and Validation APIs

EMF Model Query Developer Guide E Programmer's Guide

Programmer's Guide

- Model Query Overview
- Basic Conditions
- 🗎 Value Adapters
- 🗎 Conditions on EObjects
- 🗎 Conditions on Features
- 🗎 Executing Queries
- 🗎 Pruning the Search Tree
- 🗎 Querying with OCL
- 🗄 💷 Tutorials
- 🗄 💷 Examples Guide
- 🗄 💷 Reference

Creating Transactions
 Transaction Options
 Sharing Transactions with Other Threads
 Listening to Changes
 Implementing Triggers
 Transaction Nesting
 UI Utilities

😑 💷 Programmer's Guide

- 🗎 Workspace Integration Overview
- Working with Workspace Editing Domains
- Working with EMF Operations

EMF Model Transaction Developer Guide

Working with Transactional Editing Domains

Transactions Overview

- The Resource Undo Context
- 🗎 Implementing Undo/Redo Actions
- 🖻 💷 Advanced Topics
 - Extending the Transactional Editing Domain
- 🖽 💷 Tutorials
- 🗄 💷 Examples Guide
- 🗄 💷 Reference

EMF Validation Framework Developer Guide 😑 💷 Programmer's Guide Validation Framework Overview The Validation Service 🖻 💷 Contributing Constraints Overview of Constraints Static Constraint Providers. Dynamic Constraint Providers Using OCL Binding Constraints to Applications Validation Listeners and Problem Reporting 🖻 💷 Advanced Topics Constraint Languages Traversal Strategies Defining Custom Notifications 🗄 🛄 Tutorials 🗄 🛄 Examples Guide

🗄 💷 Reference

What's New in RSA and RSM 7.5

Deployment Architecture Platform

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WHERE TEAMS ARE





RU READY TO SAVE THE DAY

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Outline

- Goals and Vision
- Key Model Concepts
- Platform Values and Functionality
- > Product Integrations





- > Are diagrams your primary documentation mechanism?
 - Microsoft Visio?
 - PowerPoint?
 - Whiteboards?
- > Do you struggle to keep diagrams current?
- Do you find information is not always consistently represented across diagrams?
- > Do you often see constructs within diagrams being misinterpreted?
- Do you have trouble defining recommended or approved IT stacks that provide a given set of services which can be reused in solutions?









Goals and Vision

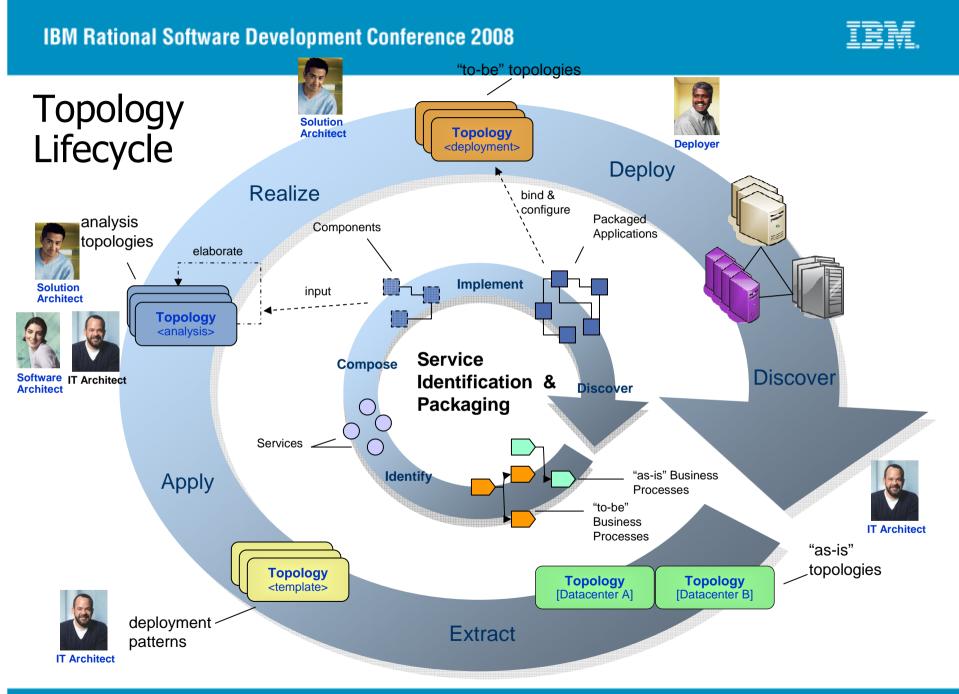
What is the deployment architecture platform trying to achieve?



Goal of Rational Deployment Architecture Platform

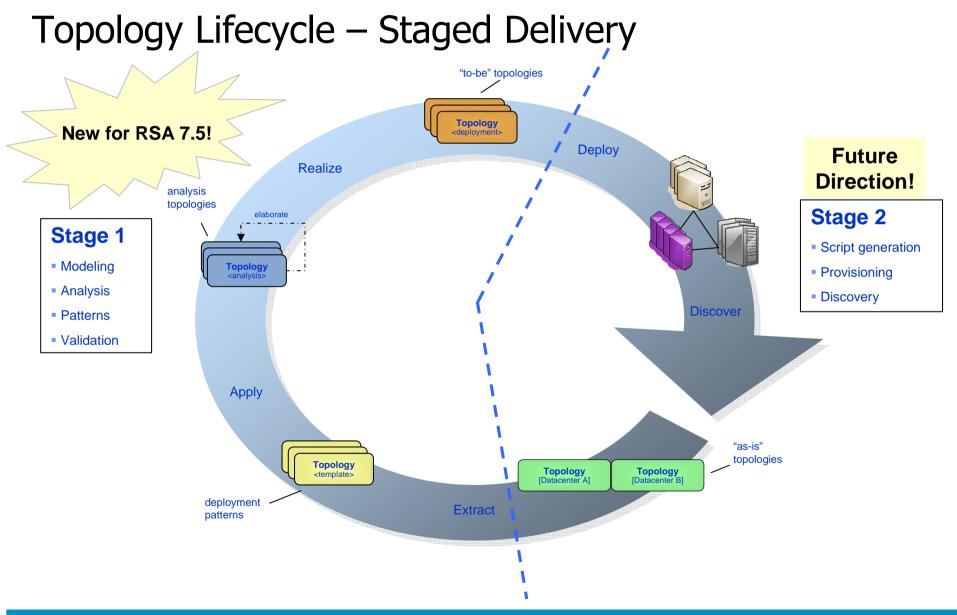
- Define a common language and tooling platform to allow the creation of semantically rich IT deployment architectures.
- Document business and IT deployment needs in a way that can be validated and executed.
- Define parameterized IT topologies to improve reuse and reduce duplication.
- Provide first-class integration with the Rational modeling platform and other complementing Rational products.





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Key Model Concepts

The deployment architecture platform defines a language for identifying capabilities and requirements and their linkages.



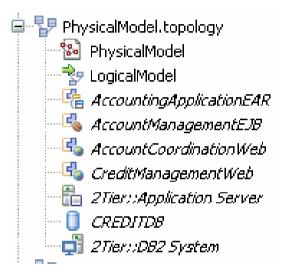
Common Language: Simple base concepts

- > Topology is the resource container.
- > Unit defines containership, and has 0..*:
 - Capabilities which expose consumable function
 - Requirements which consume function of other Units
 - Constraints which capture and enforce architectural decisions
 - Artifacts associate on disk or external resources associated with the Unit
- > Relationships
 - A Unit may be hosted on another Unit to indicate executes and installs on semantics
 - A Unit may be realized to another Unit to constrain a more detailed version of the original Unit
 - A Unit may depend on another Unit to consume a peer's function
 - A Unit may be a member of another Unit to express grouping semantics
 - A Unit may be constrained by a relationship to another Unit



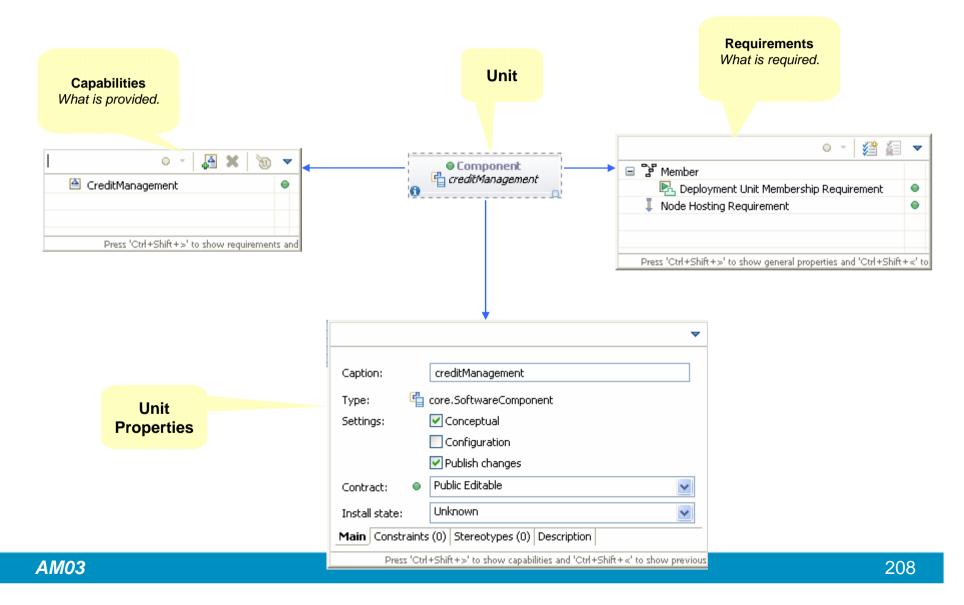
Topology

- Container for Units and Links
- May import other Topologies for reuse
 - Stores overridden attribute values
- Controls visibility through contract settings





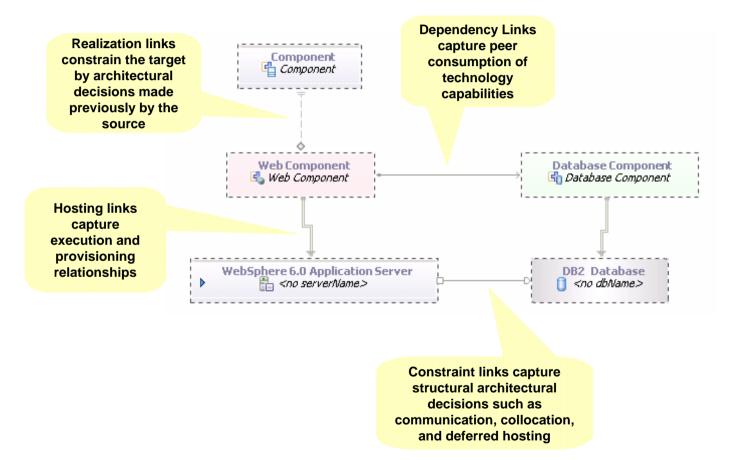
Common Language: Unit is the common base type





Common Language: Links

- Requirements are fulfilled by capabilities
- Fulfillment is accomplished via links
- Link Types
 - Dependency
 - Hosting
 - Membership
 - Realization
 - Constraint







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Deployment Architecture Platform

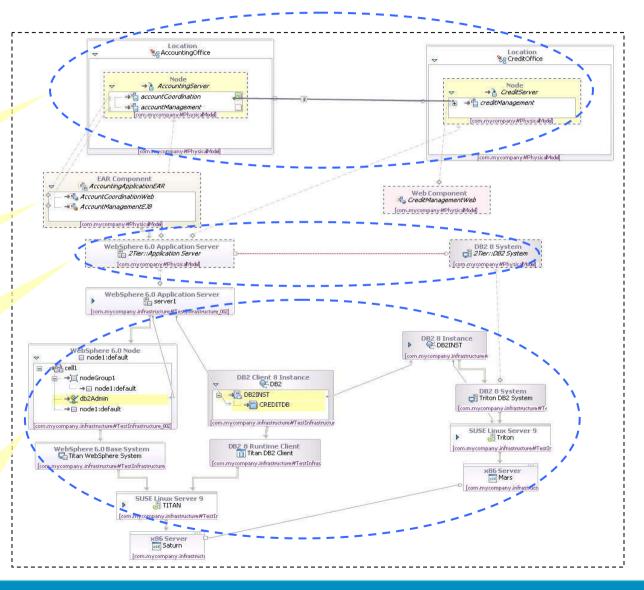
Analyze Logical Operational Model with Locations, Nodes, Components, and Actors

Capture relationships of Logical model to specific Technology artifacts (Physical Model)

Constrain final deployment environment to a best practice pattern

Map Physical Model to concrete IT Systems for Test or Production environments using type specific model for technologies like WebSphere Application Server and DB2

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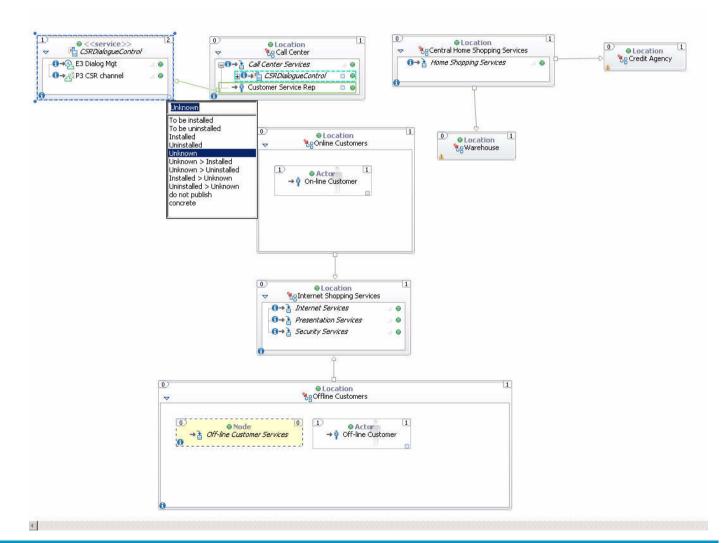
Deployment Architecture Platform Highlights

- Common language for communicating requirements and capabilities between IS and IT organizations
- Rich technology domains for an improved modeling experience
- Constraints and validations to ensure architectural decisions and requirements are fulfilled (we can show how validations are shown in the diagram with resolutions).
- > Diagramming support (multiple diagrams and flexible diagramming options)
- Topology visibility settings to control topology reuse
- Support for topology imports to allow governance and reuse
- Capture standard hosting stacks and configurations and deployment patterns using Topology Templates
- Integration with other Key Products
 - Rational Asset Manager
 - Rational ReqPro

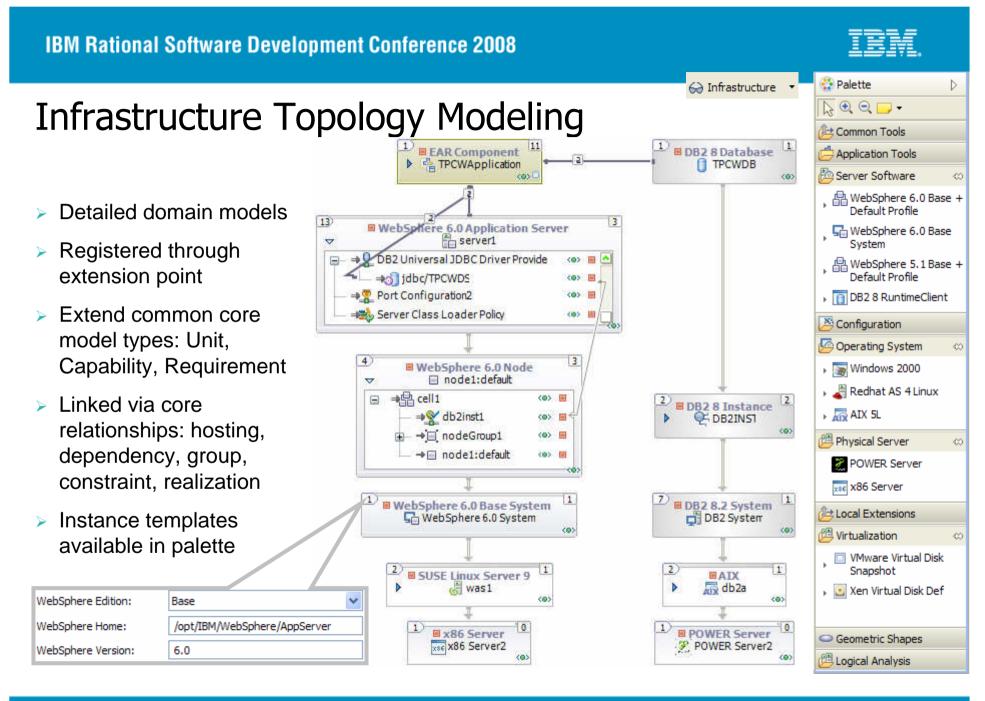


Logical Operational Modeling and UML Integration

- Analysis Domain to express operational modeling concepts
 - Locations, Nodes, Components, and Deployment Units for Non-Functional Requirements
- Multiple Layout options
- Reason about UML Component deployment instances
- Quick Action toolbars for creation of new content



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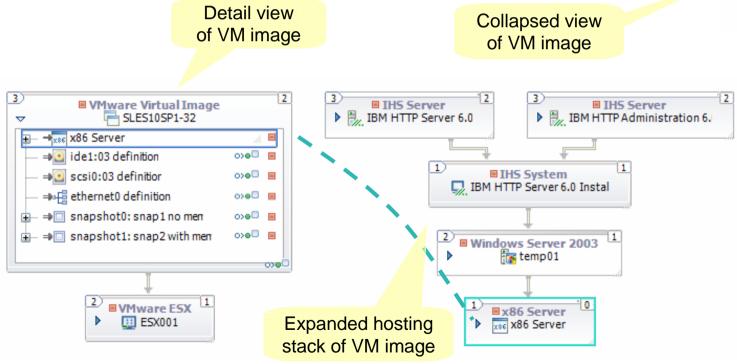
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Modeling elements for virtualization

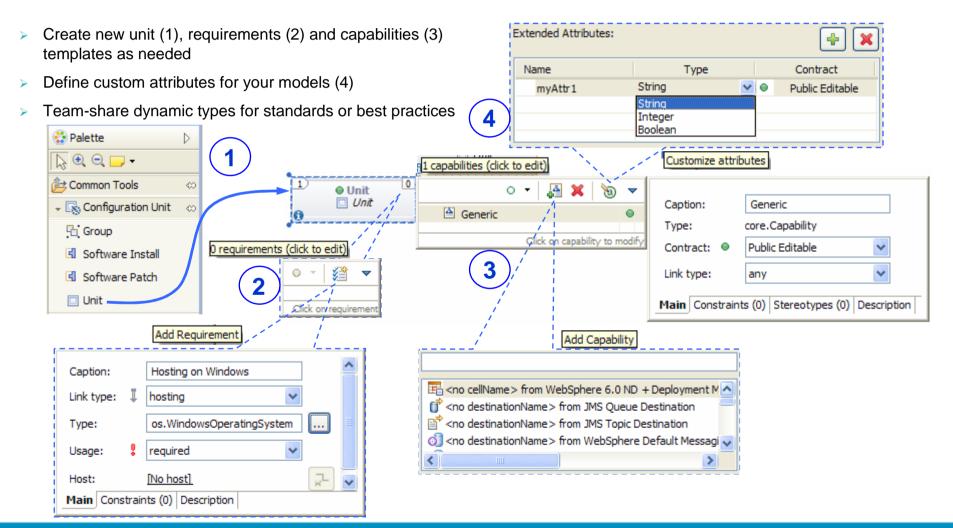
- Elements to enable detailed modeling of virtualized infrastructure
- A virtual machine image description model may be associated with a detailed model of the content of image







Rapid Prototyping with Generic Units



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Specify source

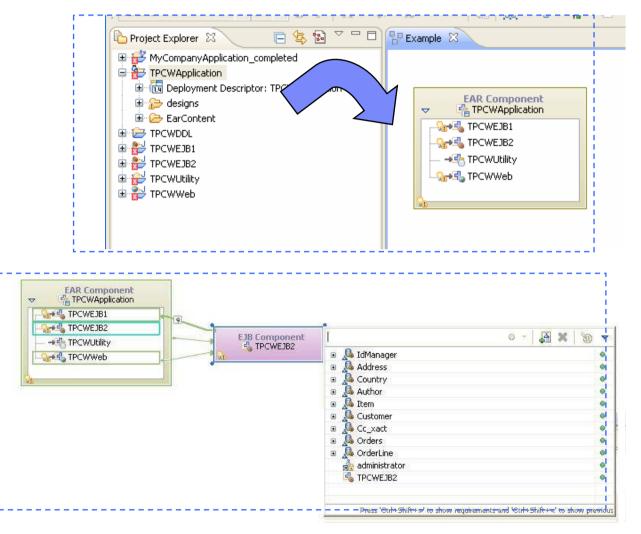
Topology Creation

Organized by	New Topol Topology Select a name, se	ogy ource folder, and a namespace for the new topology.		folders for containment
Namespace with content assist	Name:* Source Folder:* Namespace:	Example AmgroSystem/topologies amgro.analysis	Browse	Type indicates intended use for this Topology
amgro.analysis amgro.deployments amgro.infrastructure		<blank> A topology type that will not constrain the elements in any</blank>	<blank> <blank> Analysis Business Appli Deployment Template Des</blank></blank>	
	Contract: Description:	Make All Units Public-Editable By Default	Make All Units Make All Units Make Concept	Public-Editable By Default Public-Editable By Default Public By Default Public By Default Private By Default Private By Default
	Option:	Add topology to palette < Back	Cancel	Contracts govern user's ability to customize or change the Topology when imported



Unit Creation from Artifact Data (Java EE, DDL)

- Units for Java EE Components and *.ddl files can be created from the Project Explorer
- Extensible provider mechanism provides support for Java EE projects and archives by default
- Deep introspection reads deployment descriptor information and creates appropriate model elements





Quick Property Flyouts

- Seamless editing experience in-canvas which improves usability by focused navigation and removing the need to leave the diagram
- > Tabbed folders for organization and incorporated toolbars to identify layered model modification actions
- Instant synchronization with models and validation

	Node 1		o 🗸 📮 🗙 🕲 🗻
0	a Node	🝏 <no destinationname=""> from WebSphere Default Me</no>	essaging Topic Destination 🛛 🏓
			Click on capability to modify
		-	
		Caption:	<no destinationname=""> from WebSphere Default Messaging Topic Destinatior</no>
		Type: v	was.WasDefaultMessagingTopicDestination
		Contract: •	Public Editable 💌
		Link type:	any 💌
		Destination Name:	
		Jndi Name:	
		Connection Delivery Mode:	▼
		Message Live Time:	
		Message Priority:	
		Topic Name:	
		Main Constraints (0) Stereotypes	s (0) Description



Property Sheet consistent with Quick Flyouts

- > Property sheet reuses the same views as the Quick Flyouts giving the tooling a consistent look and feel
- Gives a holistic view of the model's attributes while providing model navigation and editing ability through tabs and table selection

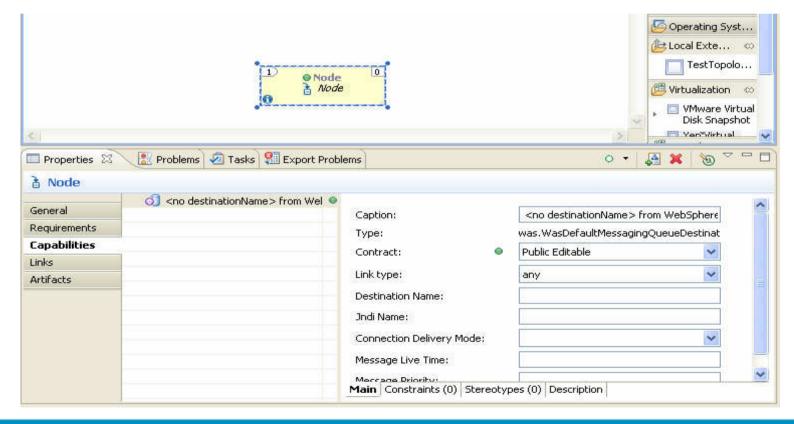




Diagram Flexibility: Figure Detail

- Figure details can be customized to suit the model.
- And the level of detail can be set for all topologies or per diagram or per figure.

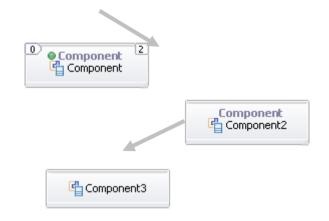


Figure color and font can also be set per figure.

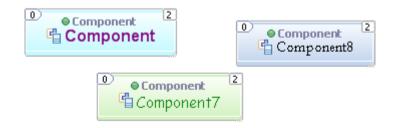
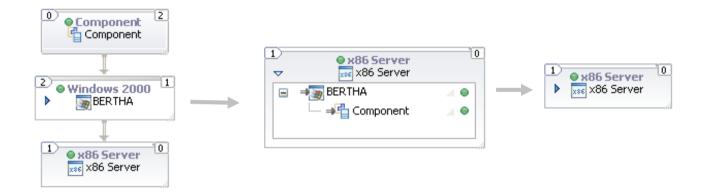




Diagram Flexibility: Support for Large Diagrams

> Linked figures can be converted into trees and collapsed to minimize diagram congestion.



> Trees can also be converted into shape containers to suit the type of model.

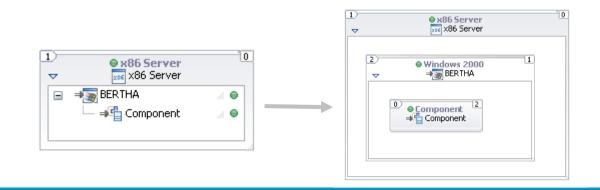




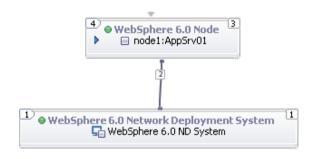


Diagram Flexibility: Support for Large Diagrams

Selected figures are highlighted to stand out in a congested diagram.

	13) ● WebSphere 6.0 Application Server	[
13) ● WebSphere 5.0 Application Server Server1	4 • WebSphere 6.0 Node orde1:default	• • WebSphere 6.0 Base System • WebSphere 6.0 Base System
	1) WebSphere 6.0 Base System G WebSphere 6.0 System	WebSphere Deployment Manager WebSphere 6.0 Deployment Manager
	2) • Windows 2000 1 • >	

Multiple links between the same two figures are consolidated into one link.



Links to figures outside of the screen are labeled with the target of the link.



 Links cross underneath any intervening figures.

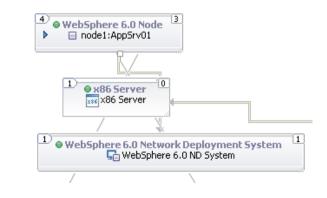
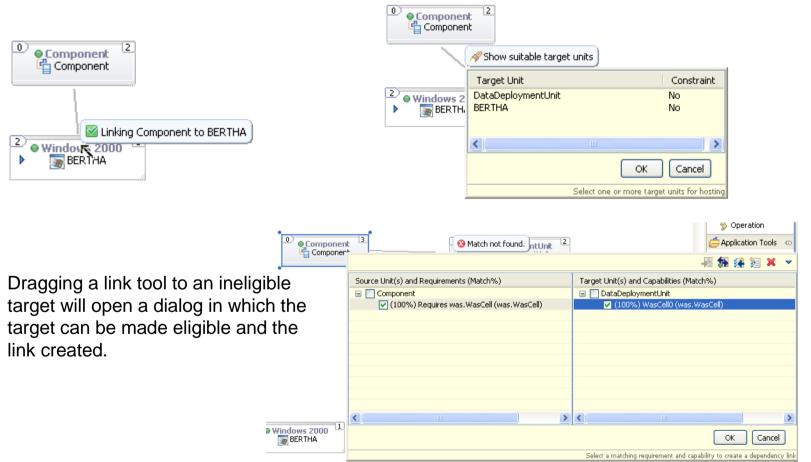




Diagram Flexibility: Support for Link Creation

 Links can be created by dragging a link tool between figures. Or by dropping the link tool on the diagram to search the model for eligible targets.

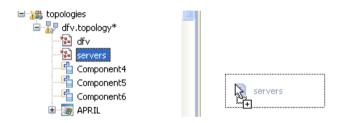


 \succ



Diagram Flexibility: Multiple Diagrams

- Large diagrams can be split up into smaller diagrams.
- Any external diagram can be added to the current diagram by dragging it from the Project Explorer:
- Links can then be created to any figure in this diagram figure:

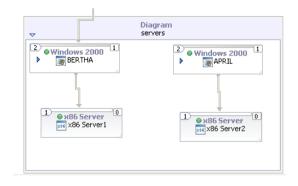


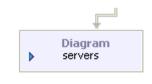


- These external diagrams can be shown as space saving trees:
- > Or as the original diagram:

> Or collapsed:

Diagram	
📮 🔜 x86 Server1	<i></i>
🔬 🚽 🚛 BERTHA	
🖅 🔜 🛛 😨 😨 😨	

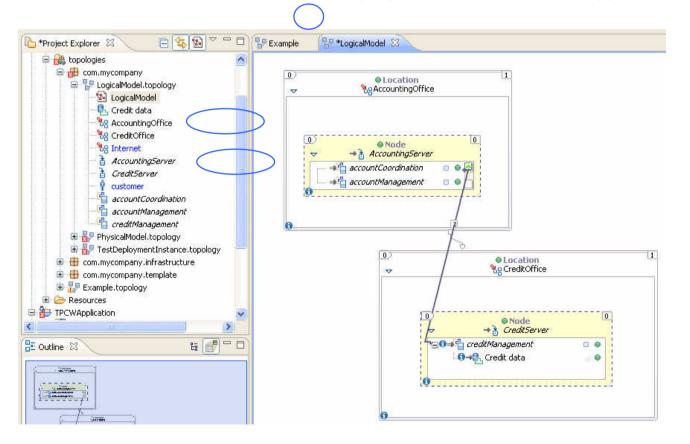






Highlight Non-Visualized Elements in Topologies

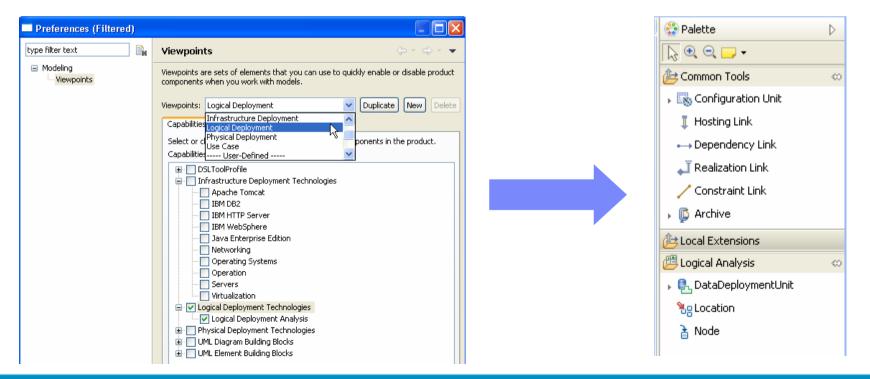
- > Easily see which model elements are not shown in a diagram
- > Elements which are not visualized are highlighted in blue when the toggle is depressed





View Point Integration for Palette Filtering

- Ability to filter palette entries based on view point selection
 - Logical filters on UML, Analysis and Core Models
 - Physical Deployment Technologies filters based on domains participating in physical topology creation
 - Infrastructure Deployment Technologies filters based on domains participating in infrastructure topology creation



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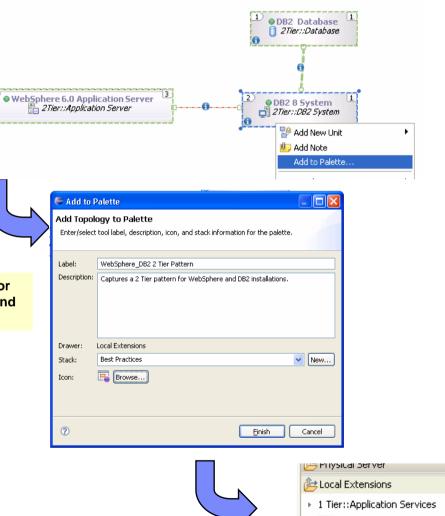


Topology Templates capture standards and common patterns

- Create a pattern that is commonly used or a best practice for your organization (e.g. a Model Snippet)
- Create templates on the fly
 - Select the related elements on the canvas
 - Right-click on one of the selected Units and choose "Add to Palette..."
- Define a new topology as a template
 - Select the "Add topology to palette" option in the topology wizard
 - Enter palette information

See RAM integration section for template topology publishing and import.

- When applied, diagram formatting and layout options are preserved
- When the project is team shared, the palette entries will be available for other users as well
- Changes made to the original template will only apply to new applications; not in cases where the template was applied previously

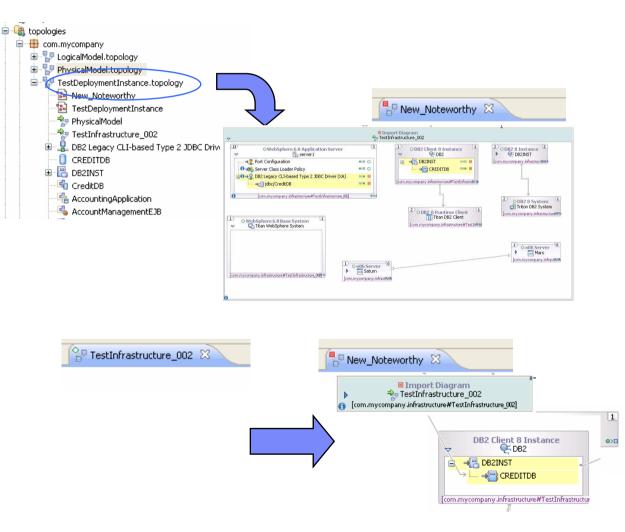


🧱 WebSphere_DB2 2 Tier Pattern



Model Reuse and configuration with Model Imports

- Allows a Topology to be referenced directly
- Modifications can be made per the governance of the Topology contract
 - Designers can hide Units, fields, etc
 - Consumers can set specific values only if allowed by the contract
- Imported elements can be customized locally without affecting the original contract and the differences are highlighted





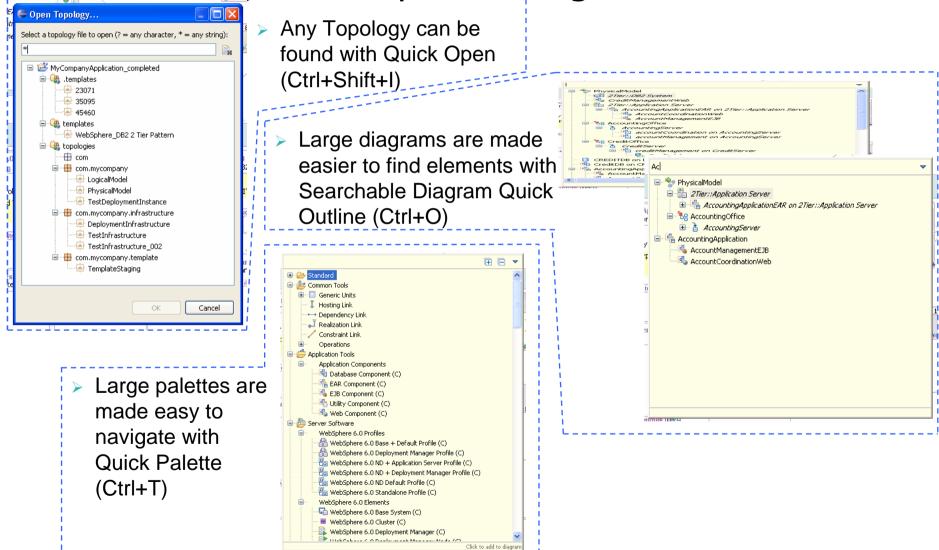
Model Sharing with Topology Export

- Multiple outputs available
- Export engines can be added for greater flexibility

Topology Exp	oort	
Export Topolo Export a topolog	gy y and its resources as a compressed file	
This exporter e	Doc DB2 8 Template Html Topology Exporter exports the contents of the topology along with a htm gy contents for illustration.	I file that
Export sour Overwrite e Ignore valid Create bind Include the	existing file	Browse
0	Einish	Cancel



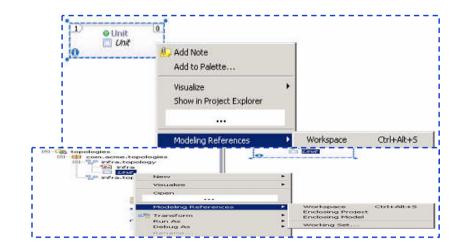
In-place Navigation helps with large models





Topology Search and References

- Search for references for Topology model elements
- Invoke search from the Topology editor or the Project Explorer
- Search results similar to the existing UML Search Results view

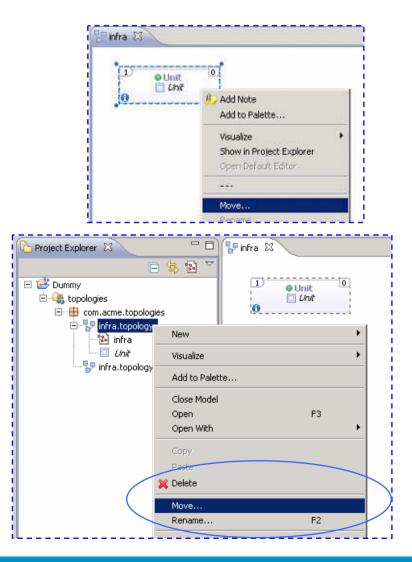


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Match type	Found		Referencer URI
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Reference to	🔲 Unit		🔲 Unit

IBM.

Topology Refactor Support for Move/Rename/Delete

- Integration with Refactor participant support in base Eclipse
- Move, rename, or deletion of Topology resources automatically propagates that change to referencing models and diagrams
- Individual Units can be moved out of one Topology into another
- Topology namespaces are also properly updated for move, rename, and deletion

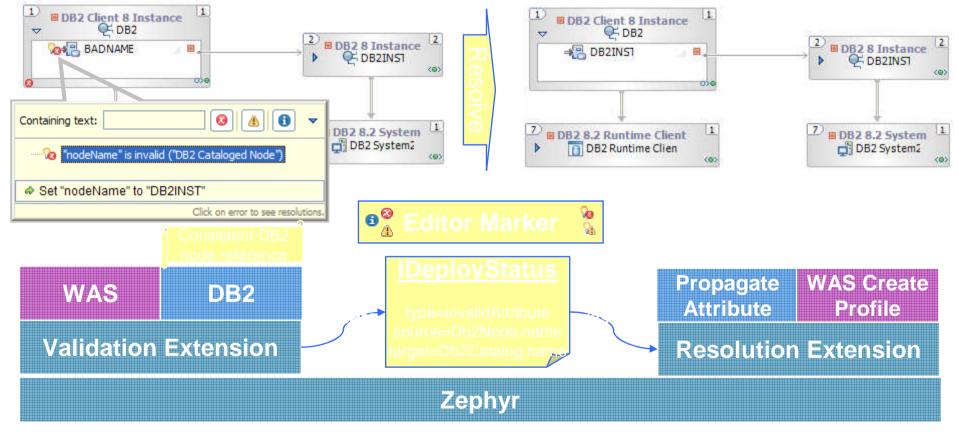




Topology Validation & Resolution

- Rich domain semantic validation
- Extensible registration
- Rich status information generation

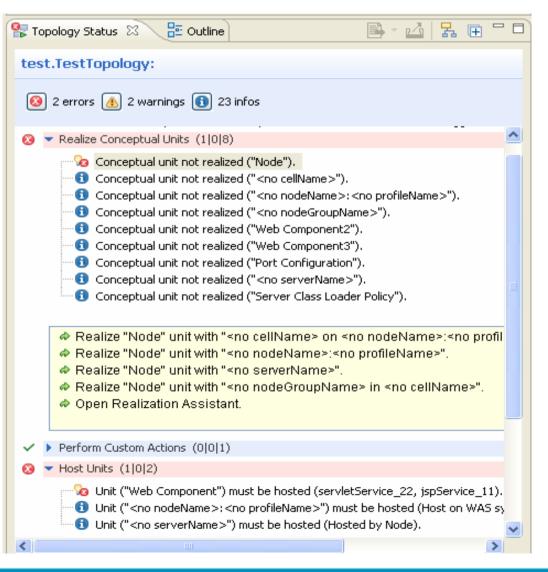
- Resolutions register for known status
- Available to users or automation
- Operate on model to effect consistency





Topology Status View

- Provides a complete overview of the topology execution state
- Prioritizes and categorizes based on problem severity in order to guide the user to resolve problems efficiently
- Extensible to support value-add from other providers via hyperlinks and resolutions
- Filtering based on problem severity
- Navigates visual models by selecting problem unit on status





Attribute Value Constraints

- Dynamic validation logic \geq
 - Instance associated with model object
- Constraint unit or capabilities attributes \geq
 - From changes or values set during elaboration •
- Constraint requirement target \geq
 - E.g. host, group, dependency target
- Constraint instances can be parameterized \geq
 - E.g. Attribute equals constraint: architecture=intel •
- Platform supports basic set of constraints \geq
 - Extensible by third north rolus inc

Equals Editor Equals Validator Constraint Extension Deployment **Architecture Platform**

Attribute Defined Constraint

 Extensible by third pa 	ny piug-ins		Attribute Propagation Constraint
2 ■ Windows Server 2003 V Winhost ■ ⇒ Administrators (●) ■ → Administrator (●) ■ (●)	O ▼ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Constraints All are required cpuArchitecture = intel 1024 < memorySize	Enumeration Constraint Equals Constraint Exclusion Constraint Not Boolean Operator OCL Constraint Or Boolean Operator Range Constraint Type Constraint Version Constraint Xor Boolean Operator Select constraint to a

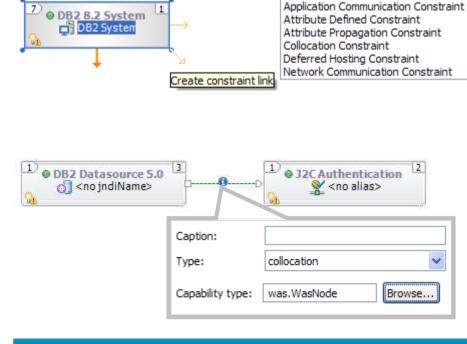
IBM Rational Software Development Conference 2008

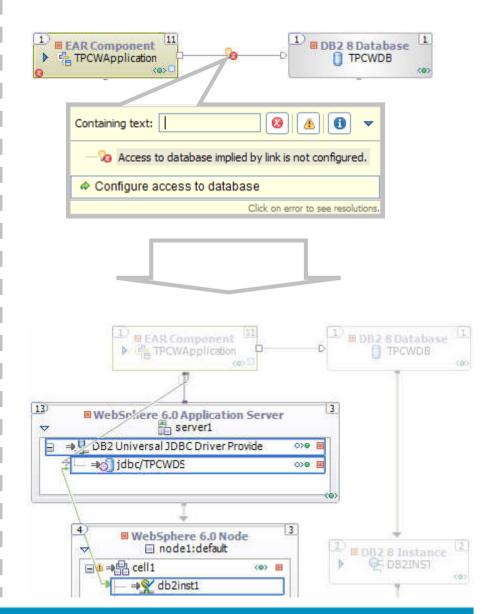
Anti-Collocation Constraint



Structural Constraints

- Binary constraints over model objects
- Contained on requirement, semantic link, or constraint link
- Constraint object configurations, or linking
 - E.g. attribute propagation, anti-collocation

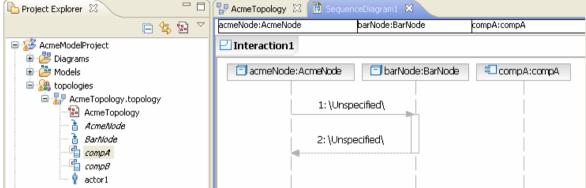




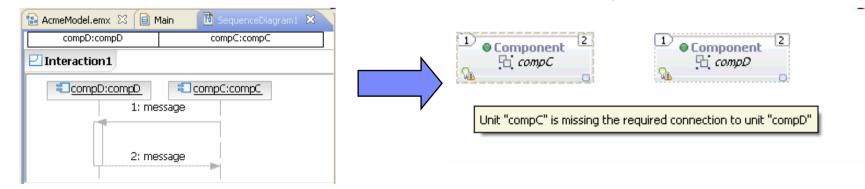


UML Interaction Models enforced in Deployment Architectures

Deployment topology units may be visualized in UML interaction diagrams



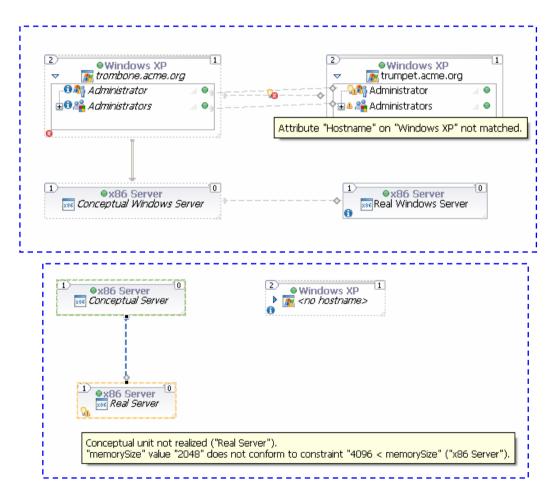
- > Topologies may then be constrained by the UML modeled communications
 - Validate relationships prescribed in a sequence/interaction diagram



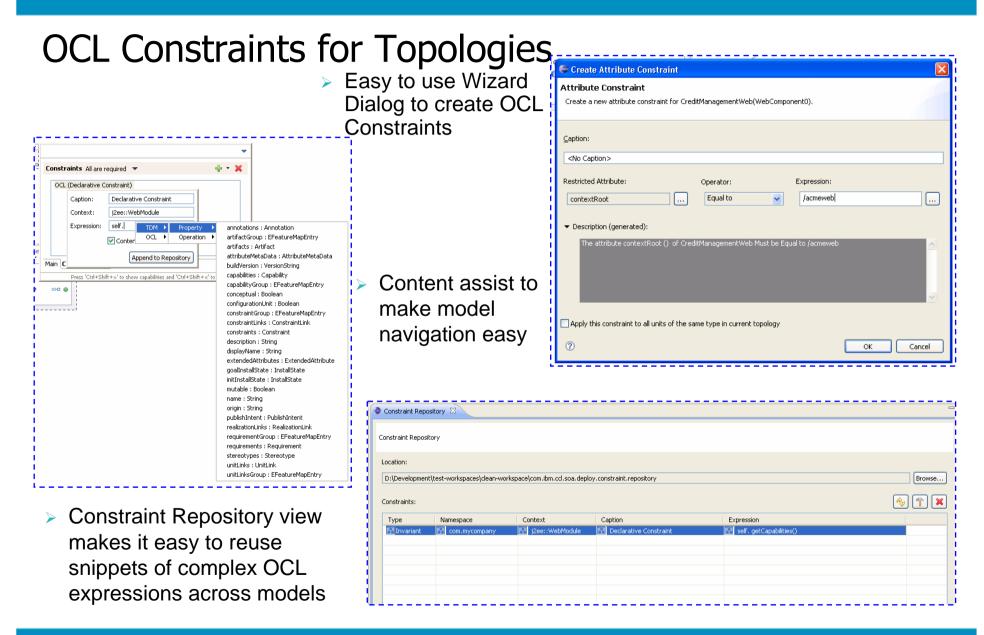


Realization Constraints

- If set, literal values must match between source and target realizations
- Validation ensures the target is consistent with the source, including attribute values and relationships (e.g. hosting)
- When a source is constrained, the target realization must conform to the limitations of the source
- Validation provides Warning statuses when values are not in the proper range, set, or value or are set to a restricted value







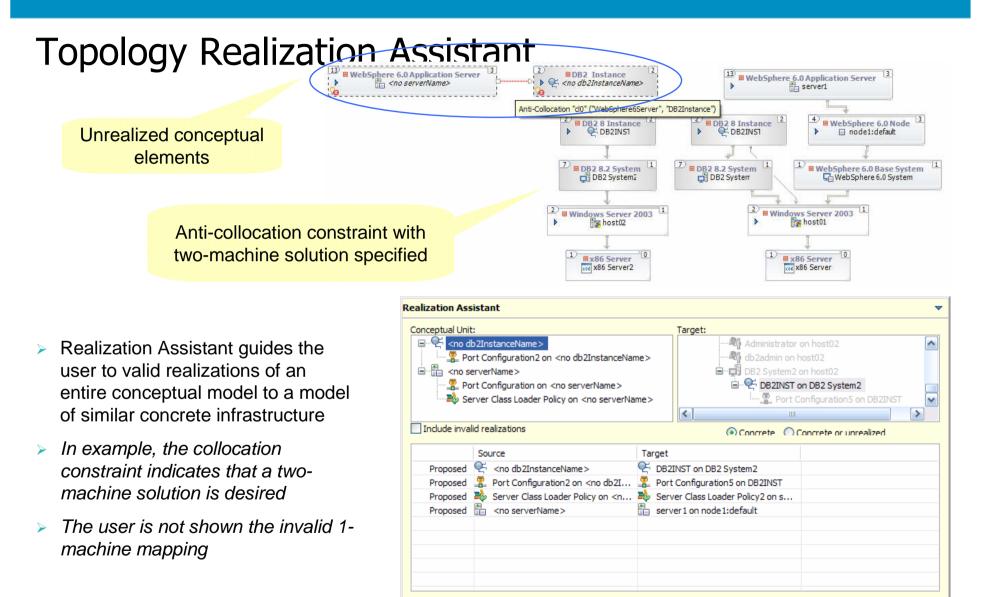


Topology Model Discovery

- Discover available targets \succ within the Topology or from external resources in order to satisfy requirements
- Multiple relationships \succ
 - Hosting
 - Dependency ٠
 - Container/Member •

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Find and map groups of Units



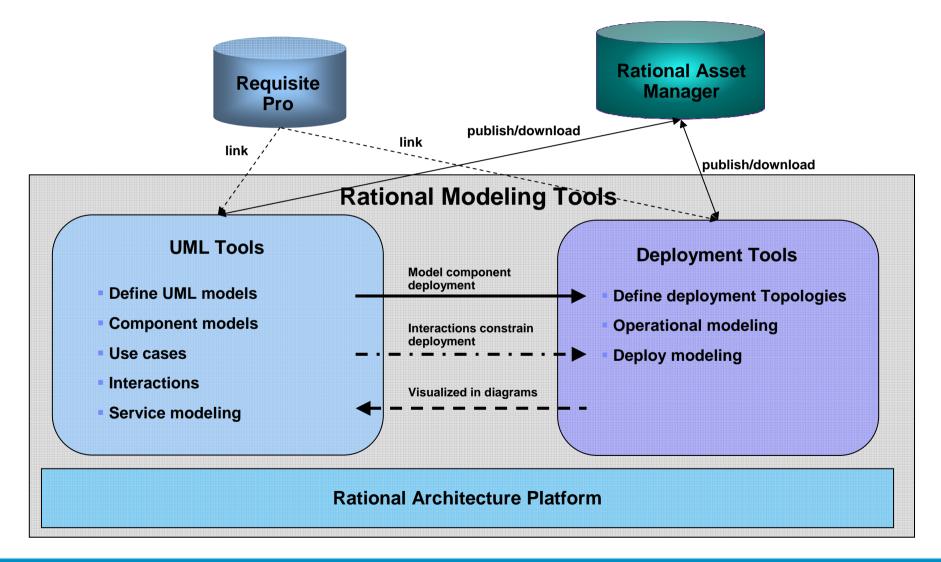


Product Integrations

The deployment architecture platform is integrated with the Rational modeling platform as well as other Rational products.



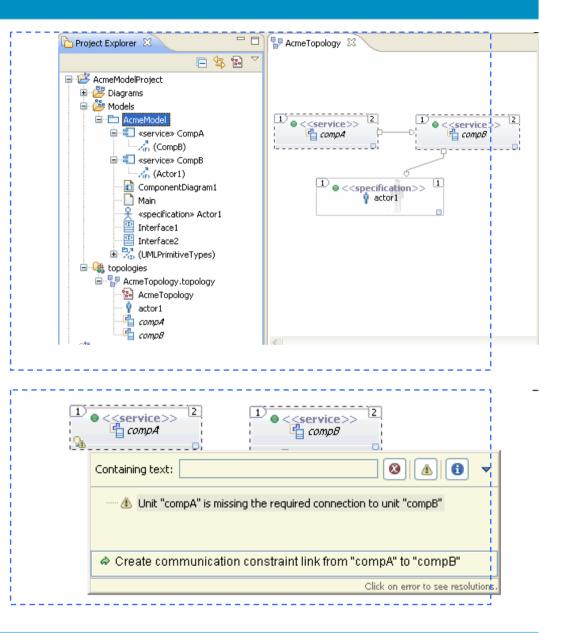
Key Rational Integrations





UML Interoperability

- Reflect UML modeler elements into a deployment topology
 - Components, Actors
- Validate reflected elements
 - Mismatched relationships
 - Mismatched stereotypes
- Quick-fixes to automatically resolve validation errors





Pre-built Reports for Topologies based on BIRT

- Quick Shortcuts for pre-built BIRT reports
 - Analysis Reports focus on elements that are traditionally helpful for Operational Modeling
 - Catalogue Reports describe Topology details and relationships
 - Metric Reports provide numerical statistics on the number and kind of Units and relationships within the Topology
- Report Launch Configuration
 - Allow Custom Report based of pre-built designs

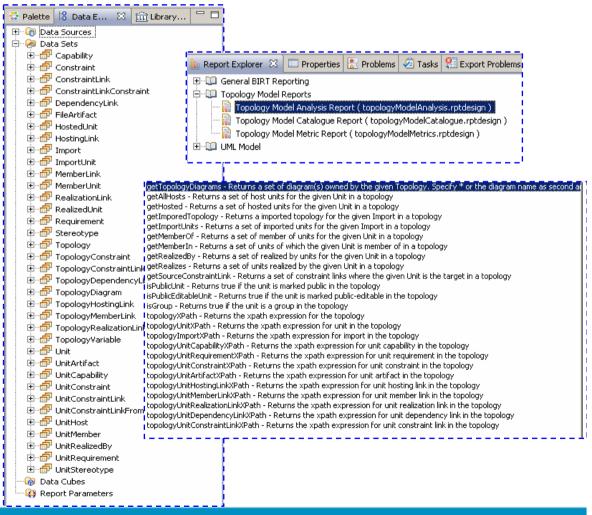
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Report Configurability with BIRT Templates

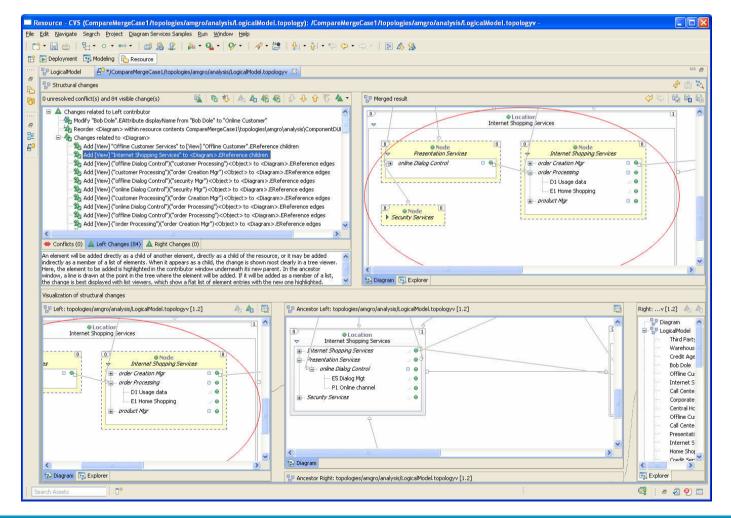
- Report Templates focused on Analysis, Catalogue, and Metrics as with Reports
- Configured Topology Traversal Datasets to make navigating Topologies easy from a Report design
- Content assist for Topology XPath Functions and Expressions





Compare/Merge support for Topologies

Compare/Merge now supported for Topologies





Rational Asset Manager (RAM) Publish Support

- Enable reuse of topologies through the publish and import of reusable assets
- Topology and Template Topology asset types are available
- Dependent assets and artifacts are captured with the topology
 - model files
 - diagram files
 - imported topology assets
 - palette metadata (templates)

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RAM Import Support for Topologies

- Browse and Search available assets
- Extends the RAM integration framework delivered in RSx 7.5

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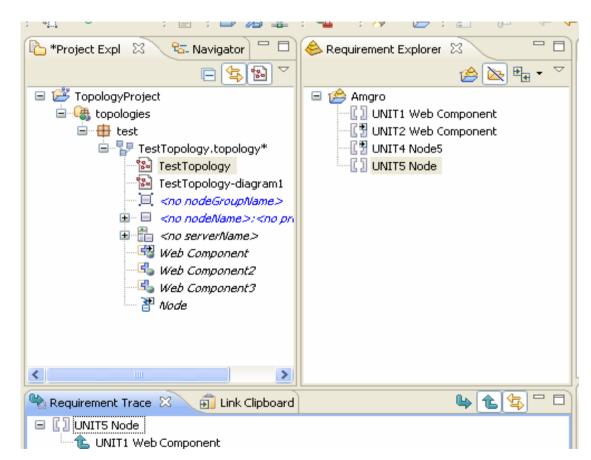
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Support for Rational RequisitePro 7.0.1

- RequisitePro business requirements may be linked to Topology elements
- Traceability relationships may be created between requirements
- Linked relationships identified by decorator
- Navigation hooks guide the user between requirements and models including navigation into RequisitePro from linked models or requirements
- Creation support through Link Clipboard, drag and drop, or menu actions.





Requirements created from Topologies in ReqPro

- Link topology elements to existing business requirements
- Navigate quickly to requirements in ReqPro
- Trace relationships may be created from elements in the diagram
- Easily fix lifecycle problems with Requirement Link Problems view
- History and rollback support in Requirement Editor for Topology business requirements

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