


Generazione automatica di documentazione in ambienti complessi

Luca Sentimenti – Requirements Tech Specialist


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Agenda

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- 1 IBM Rational Collaboration Lifecycle Management for System and Software Engineering
 - 2 Demo
 - 3 Questions and Answers

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Rational Solution Portfolio for SSE CLM

Rational solution for Systems and Software Engineering



Open Services for Lifecycle Collaboration

REQUIREMENTS MANAGEMENT

Manage all system requirements with full traceability across the lifecycle

Rational DOORS

QUALITY MANAGEMENT

Achieve "quality by design" with an integrated, automated testing process

Rational Quality Manager

DESIGN MANAGEMENT

Use modeling to validate requirements, architecture and design throughout the development process

Rational Rhapsody & Design Manager

COLLABORATION, PLANNING & CHANGE MANAGEMENT

Collaborate across diverse engineering disciplines and development teams

Rational Team Concert



Rational Solution Portfolio for SSE CLM - RM

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Rational DOORS for Requirement Management

Manage All Requirements Across the Lifecycle and Across Disciplines



- Highly flexible display gives the right people the right information at the right time
- Intuitive interface means you'll be up and running quickly
- Document based for efficient organization and reporting
- Classic or Web Access client both on the same database

The image displays three overlapping screenshots of the Rational DOORS software interface:

- Top Screenshot:** Shows the 'Formal module' window for a project titled 'ユーティリティ・居住性' (Utility/Residential). It displays a tree view of requirements and a table with columns for ID and 詳細仕様 (Detailed Specification). One entry shows '1.3.2 送風時の図' (Diagram of fan operation).
- Middle Screenshot:** Shows the 'User Requirements' window for 'User requirements for SUV 4x2'. It displays a hierarchical tree view on the left and a list of requirements (SOW 356-359) with their descriptions. SOW 356 is titled '1 Introduction' and SOW 358 is '1.1 Schedule'.
- Bottom Screenshot:** Shows the 'Rational DOORS Web Access' interface in a Mozilla Firefox browser. It features a 'System Requirements' section with a bar chart showing requirements across different categories (100kpa, 200kpa, 300kpa, 400kpa). The chart shows a peak at 200kpa. Below the chart, there are detailed requirement entries such as '1.2.4 Clutch Controls' and '1.2.5 Control direction'.

Rational Solution Portfolio for SSE CLM - DM

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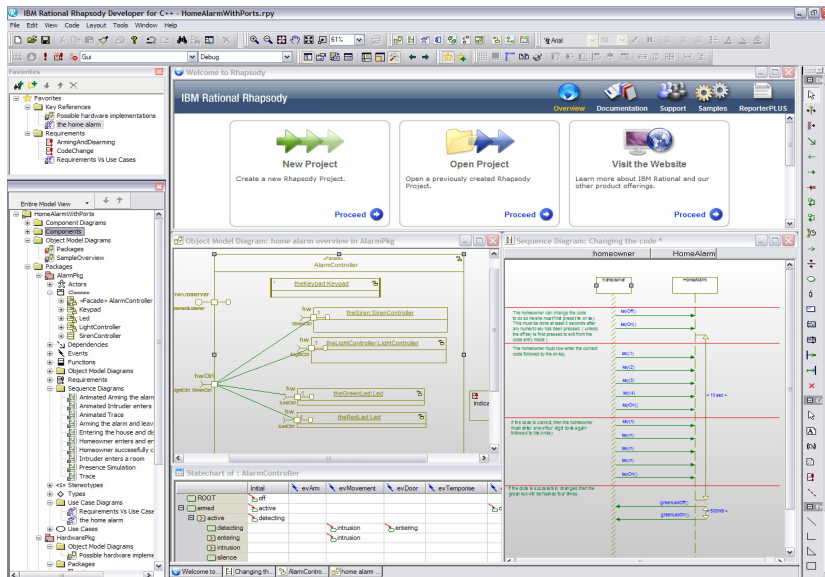
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Systems & Software Engineering with Rational Rhapsody®



Capabilities

- Requirements-driven analysis and design for technical, embedded or real-time solutions, including those based on *multi-core* architectures
- Rapid design validation and verification with frequent simulation and testing
- Development and deployment of complete C, C++, C#, Java and Ada applications

Benefits

- **Build the right product** through non-ambiguous communication and frequent collaboration
- **Eliminate defects early** and increase quality by continually testing the design
- **Reduce development time** by automatically generating applications and documentation
- **Re-use and adapt existing technology** through reverse engineering and product line engineering

"Using Rhapsody software improves the quality of the application software that is integral to the series hydraulic hybrid system development process."

Steve Zielinski, Eaton chief engineer for software

Rational Solution Portfolio for SSE CLM

Rational solution for Systems and Software Engineering

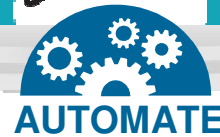


Open Services for Lifecycle Collaboration

PUBLISHING & REUSE

Automated Documents Generation and Asset Management for governance and reuse

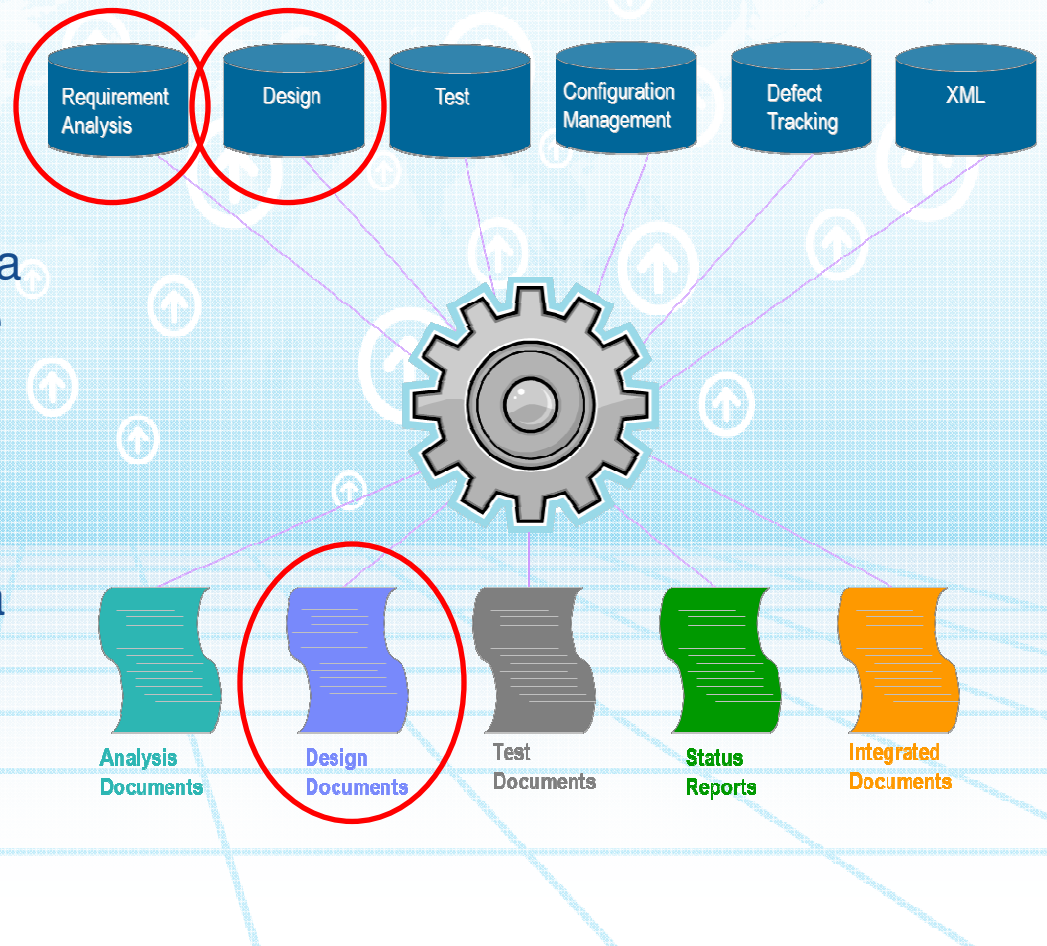
Rational Publishing Engine
Rational Asset Manager




Rational Publishing Engine: document automation across the development lifecycle






- Create documents from data across a wide range of distributed and diverse data sources
- Access data from a wide range of Rational tools
- Access data from third party tools via XML and REST interfaces

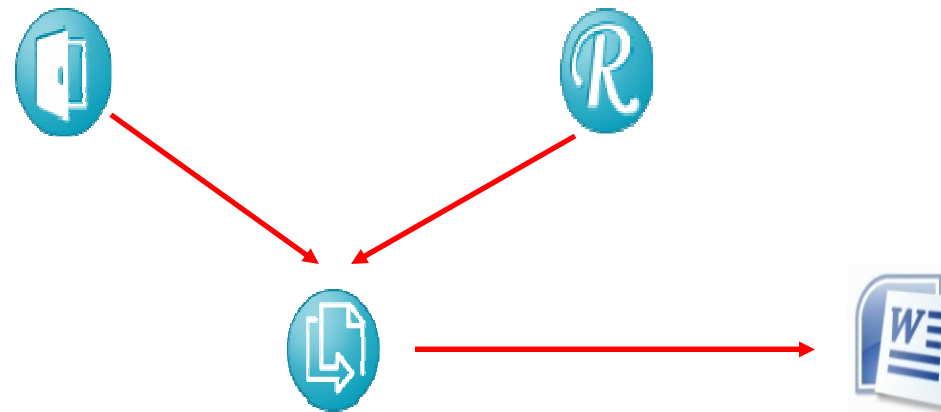


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Demo Scenario

- Requirements are managed in Rational DOORS 
- Architectural Design is managed in Rational Rhapsody and linked back to Reqs 
- Documentation automatically produced by Rational Publishing Engine 





RPE can use DOORS attributes to populate corporate templates

The screenshot shows the 'System Requirements Proprietà - D...' dialog box with the 'Generale' tab selected. The 'Nome' field is 'System Requirements' and the 'Descrizione' is 'Car system requirements'. The 'URL' is 'doors://192.168...'. Below this is a table of attributes and their values. A callout diagram on the right, titled 'System Requirements', shows a corporate template structure with fields populated from the table values. Red arrows indicate the mapping: 'CDRL item number' (9876) maps to 'N. CDRL : 9876'; 'contract number' (Innovate 2012) maps to 'Codice Identificativo : Innovate 2012'; 'Created By' (Bill Young) maps to '(SSS)'; 'Created On' (giovedì 6 settembre 2007) maps to 'PER'; 'Descrizione Tipo' (Specifica di Sistema) maps to 'New Car System'; 'document title' (System Requirements) maps to 'System Requirements'; and 'document type' (SSS) maps to '(SSS)'. The 'document number' (123456) and 'document revision' (3.0) fields in the table do not have corresponding fields in the callout diagram.

Nome	Descrizione	Valore
CDRL item number	N. CDRL (MIL-STD)	9876
contract number	contract number (MIL-STD)	Innovate 2012
Created By	System Attribute	Bill Young
Created On	System Attribute	giovedì 6 settembre 2007
Descrizione Tipo	Attributo "Descrizione Tipo" di PDMLink	Specifica di Sistema
document date	Data di rilascio del documento (MIL-STD)	giovedì 27 settembre 2012
document number	Identificativo del documento (MIL-STD)	123456
document revision	Revisione del documento (MIL-STD)	3.0
document title	Titolo del documento (MIL-STD)	System Requirements
document type	Tipo del documento	SSS

Callout Diagram Content:

```

PROGRAMMA: New Car System Program
System Requirements
(SSS)
PER
New Car System
N. CDRL : 9876
N. Programma: 1000
Codice Identificativo : Innovate 2012
    
```


RPE template can interpretate DOORS attribute in DOORS obj



'System Requirements' corrente 3.0 (Prova) in /New Family Car Project/Requirements (modulo Formale) - DOORS

File Modifica Vista Inserisci Link Analisi Tabella Tool Discussioni Utente PToolbox Publish RG 7.6.1 Ansaldo Breda CeSiFer Italferr

Sirio Panel Vari ENAV GETS Gestione modifiche MM Admin Guida

Salva (Ctrl+S) Tutti i livelli

ID	Car system requirements	IsRequirement	Parent Requirement	Title
TRN-SR-5	The car shall be able to move forwards at all speeds from 0 to 220 kilometers per hour on standard flat roads with winds of 0 kilometers per hour, with 280 BHP.	True	TRN-CSR-26 TRN-CSR-27 TRN-CSR-41 TRN-CSR-97	Car Speed
TRN-SR-6	2.1.1.2 Move backwards			
TRN-SR-7	The car shall be able to move backwards to a maximum speed of 25 Kilometers per hour.	True	TRN-CSR-30	Backward Speed
TRN-SR-8	2.1.2 Accelerate car			

Nome utente: Luca Sentimenti Modalità di modifica esclusiva



5 Traceability

Requisito di System Requirements		Requisito Satisfies out		
Id	Posizione	Id	Denominazione	Rif.
TRN-SR-5	2.1.1.1.0-1	TRN-CSR-26 TRN-CSR-27 TRN-CSR-41 TRN-CSR-97	Users shall be able to travel at speeds ... Users shall be able to accelerate from 0 ... Users shall be able to travel in safety ... The user shall be able to travel on stan ...	3.1.3.1.1.0-1 3.1.3.1.1.0-2 3.1.5.0-1 3.1.14.0-1
TRN-SR-7	2.1.1.2.0-1	TRN-CSR-30	Users shall be able to move backwards to ...	3.1.3.1.2.0-1
TRN-SR-9	2.1.2.0-1	TRN-CSR-27 TRN-CSR-98	Users shall be able to accelerate from 0 ... The user shall be able to travel up and ...	3.1.3.1.1.0-2 3.1.14.0-2
TRN-SR-10	2.1.2.0-2	TRN-CSR-98 TRN-CSR-124	The user shall be able to travel up and ... Users shall be able to accelerate from 1 ...	3.1.14.0-2 3.1.3.1.1.0-3
TRN-SR-11	2.1.2.0-3	TRN-CSR-...	Users shall be able to accelerate from 1 ...	3.1.3.1.1.0.4

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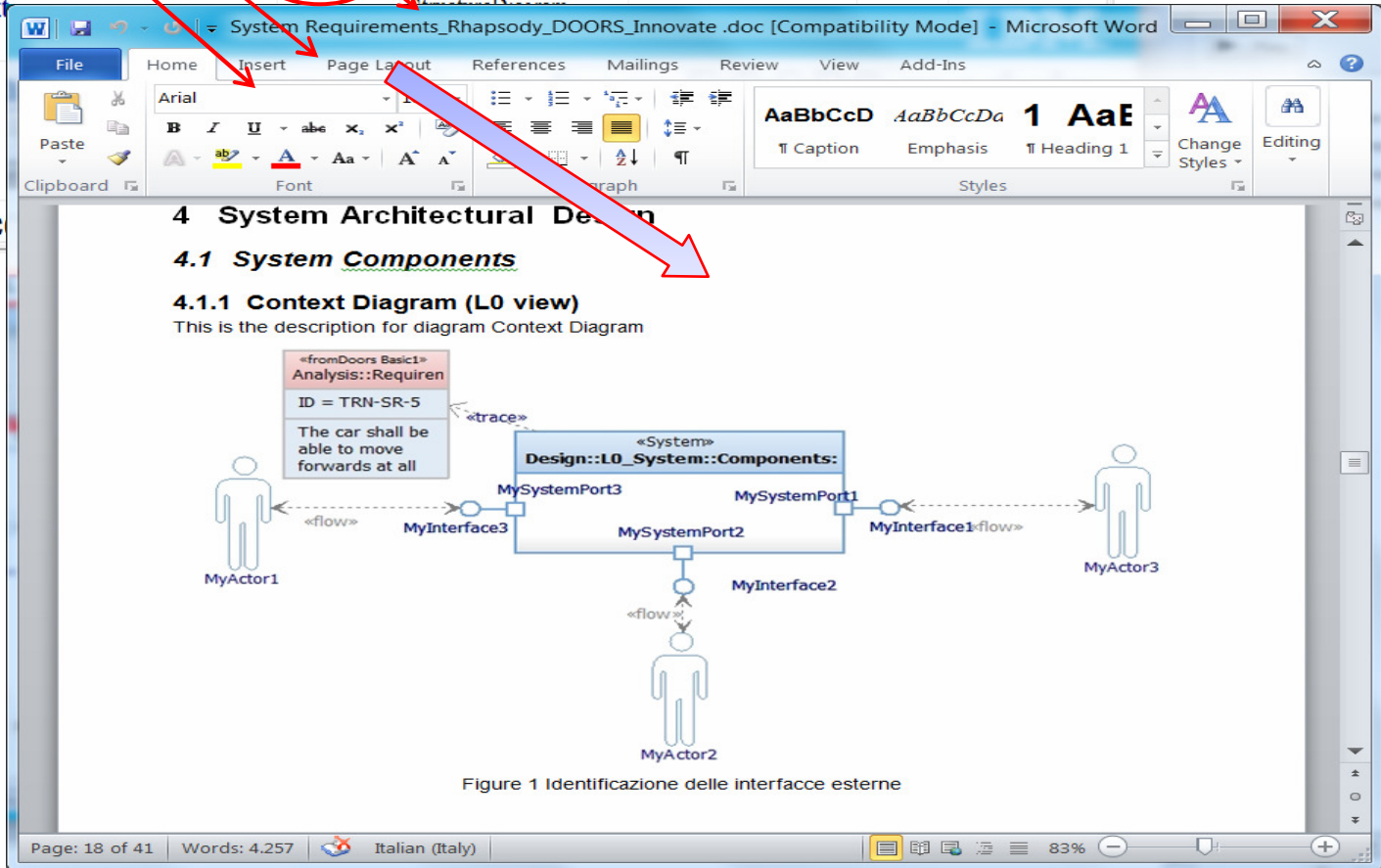
Reqs and Model: Rhapsody export driven from DOORS module

ID	Car system requirements	Object Type	UML Kind	UML Location	UML Level	UML Package
TRN-SR-171	4 System Architectural Design					
TRN-SR-172	4.1 System Components					
TRN-SR-173	4.1.1 Context Diagram (L0 view)					
TRN-SR-174	Descrizione del Context Diagram (L0) Diagramma di Context	UML	ObjectModelDiagrams StructureDiagram ClassDiagram	L0_System	2	Context
TRN-SR-175	Actors	UML	ObjectModelDiagrams Actor StructureDiagram ClassDiagram	L0_System	2	Actors
TRN-SR-176	4.1.2 System Decomposition (L1)					




Reqs and Model: Rhapsody export driven from DOORS module

ID	Car system requirements	Object Type	UML Kind	UML Location	UML Level	UML Package
TRN-SR-171	4 System Architectural Design					
TRN-SR-172	4.1 System Components					
TRN-SR-173	4.1.1 Context Diagram (L0 view)					
TRN-SR-174	Descrizione del Context Diagram (L0) Diagramma di Context		UML	ObjectModelDiagrams	L0_System	2 Context
TRN-SR-175	Actors					
TRN-SR-176	4.1.2 System Dec					



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QUESTIONS



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