

DoorKeeper for the RSDP

DoorKeeper for the IBM Rational Software Delivery Platform (DK4RSDP) provides access to DOORS requirements and Rational UML/SysML models within the same user interface. DK4RSDP provides viewing and editing of DOORS requirements, creation of links and synchronization between DOORS requirements and UML/SysML models, exporting of UML/SysML models and diagrams to DOORS, and the overall ability to achieve, maintain, and report on traceability between requirements and model elements.

Key Benefits

- ◆ Improve communication by bringing requirements closer to development teams.
- ◆ Automate traceability by eliminating manual mappings and tracking spreadsheets.
- ◆ Meet safety and compliance related traceability requirements such as D0-178B.

Key Features

- ◆ DOORS requirements accessible with same environment as models.
- ◆ Java API to access DOORS.
- ◆ Trace DOORS requirements to UML/SysML models and C/C++/Java code.
- ◆ Export UML/SysML diagrams to DOORS.
- ◆ Customizable report generation.

APPLYING DK4RSDP

DK4RSDP is a flexible and customizable product which can be applied to achieve many different goals, including:

- ◆ Browsing DOORS modules, requirements, and links within same environment as your UML/SysML modeling environment.
- ◆ Linking and synchronizing DOORS requirements with UML/SysML models and/or C/C++/Java source code via simple drag and drop gestures.
- ◆ Reporting of traceability between model/code and DOORS requirements via customizable reporting functionality.
- ◆ Supporting the creation of Java programs and utilities that access and modify DOORS databases via the Java API. (rather than using DXL)
- ◆ Creating DOORS modules that include UML/SysML diagrams.

The screenshot displays the DK4RSDP application interface. On the left, the 'Project Explorer' shows a tree view of a 'Hybrid SUV' project with folders for 'Diagrams', 'Models', and 'Requirements'. The 'DOORS Explorer' in the center shows a hierarchical view of functional requirements, including '2 Functional Requirements', '2.1 Power car', '2.2 Control car', and '2.2.2 Control speed'. The 'Functional Requirements' table on the right lists requirements with columns for 'Object ID' and 'Object Heading and Text'. Below the table, the 'DOORS Object Trace' window shows a tree view of links between requirements and model elements. The 'Properties' window at the bottom shows details for a selected requirement (FR-16), including its ID, number, heading, short text, and full text.

Object ID	Object Heading and Text
FR-9	The car shall be able to accelerate from 0 to 100 Kilometers per hour in 10 seconds on standard per hour.
FR-10	The car shall be able to accelerate from 100 to 150 kilometers per hour at a rate of 5 kilometers winds of 0 kilometers per hour.
FR-11	The car shall be able to accelerate from 150 to 200 kilometers per hour at a rate of 3 kilometers winds of 0 kilometers per hour.
FR-12	2.2 Control car
FR-13	2.2.1 Switch on car
FR-14	The car shall be able to discriminate which authorized people shall be able to switch on and oper
FR-15	2.2.2 Control speed
FR-16	The car shall have a foot mechanism to control the speed of the car.
FR-17	The speed control shall be infinitely variable from zero to maximum speed.
FR-18	The speed of the car shall be controllable by automatic means.
FR-19	2.2.3 Brake car
FR-20	The car shall be able to stop from 10 kilometers per hour to 0 kph in 2 seconds.
FR-21	The car shall be able to stop from 30 kilometers per hour to 0 kph in 6 seconds.
FR-22	The car shall be able to stop from 100 kilometers per hour to 0 kph in 30 seconds.
FR-23	The car shall be able to stop from 200 kilometers per hour to 0 kph in 45 seconds.
FR-24	2.2.4 Control direction
FR-25	2.2.4.1 Straight line
FR-26	The car shall have a mechanism to enable it to be moved forward or backward.

Linking DOORS objects with a UML/SysML model

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Exceed Expectations, Not Schedules

FEATURES OF DK4RSDP

- Browse DOORS databases, view and edit DOORS requirements, view links, and navigate directly to objects in DOORS
- Domains for UML/SysML, Java and C/C++ are included allowing linking and synchronizing of DOORS objects with models and source code down to the operation and attribute level.
- Customizable report generation.
- Ability to export UML/SysML diagrams to DOORS databases.
- Fully documented Java API to browse and modify DOORS databases.
- Detailed samples provided to illustrate how to utilize Java API and extension points as well as a sample domain to demonstrate a custom integration with a test tool.
- Extensible link platform to be used to integrate DOORS with any Eclipse-based resource such as test cases, defects, models, and source code by creating a new domain.
- EmbeddedPlus provides consulting and training to assist with understanding and customizing DK4RSDP.

COMPATIBLE SOFTWARE

- Telelogic DOORS® (version 7.0 to 9.1 or higher)
- Rational Software Modeler/Architect and Systems Developer 7.5 and higher
- Rational Rose and Rose Realtime
- Microsoft™ Windows XP Professional, Microsoft™ Windows 2000 Professional

Traceability - Domain Elements to Requirements Report

Domain Project: HSUV Model
 Domain: uml2
 DOORS Project: Auto Requirements

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Indirect Links

Domain Element		Requirement		
Name	Type	Module	ID	Text
SpeedController	Class	Functional Requirements	FR-15	Control speed
currentSpeed	Property	Functional Requirements	FR-17	The speed control shall be infinitely variable from zero to maximum speed.
Accelerator	Class	Functional Requirements	FR-16	The car shall have a foot mechanism to control the speed of the car.
SpeedControl_SD	SequenceDiagram	Functional Requirements	FR-18	The speed of the car shall be controllable by automatic means.
Main	FreeformDiagram	Functional Requirements	FR-145	These are the functional system requirements for the development of a new passenger motor vehicle as derived from the user requirements.

Direct Links

Domain Element		Requirement		
Name	Type	Module	ID	Text
FR-147	Requirement	Functional Requirements	FR-147	The Hybrid SUV will have a world wide market.
DriveVehicle	UseCase	Use Cases	1	DriveVehicle Driving vehicle includes starting, accelerating, controlling, and stopping.

Report on traceability between UML/SysML model and DOORS module



EmbeddedPlus Engineering provides products and services that transition companies to advanced technologies and methods based on industry standards such as UML, SysML, DO-178B and MDA. Expertise includes tool integration, modeling/simulation and Eclipse-based development and integrations. EmbeddedPlus is an official Qualified Service Provider in the Object Management Group's MDA Fast Start program.

