Rational. software

IBM Rational Rose Technical Developer

Highlights

- ***Created especially for commercial software products and systems development, including real-time and embedded applications***
- ***Includes both IBM Rational Rose RealTime and IBM Rational Rose Enterprise software***
- ***Provides a comprehensive solution for model-driven development of complex systems***

Software development teams constantly face the challenge of how to develop applications faster without compromising quality. Developers of real-time, embedded and other complex types of software systems face additional challenges because these systems are highly event-driven, concurrent and often distributed. Stringent requirements must be met for latency, throughput and dependability. Capturing and effectively communicating designs for such systems is a daunting task. Keeping the implementation in sync with the design is even harder.

IBM Rational® Rose® Technical Developer software is a robust model-driven development solution expressly created to meet challenges such as those in complex systems development. Based on the industry-standard Unified Modeling Language (UML), Rational Rose Technical Developer software provides a highly automated and reliable solution to the unique problems of concurrency and distribution. It unifies the project team by providing an extensive set of tool integrations—from requirements capture to high-performance code generation, testing and debugging for real-time operating system (RTOS) targets.

Rational Technical Developer software comprises the IBM Rational Rose RealTime and IBM Rational Rose Enterprise products. This data sheet primarily discusses the features of Rational Rose RealTime software. For more information on Rational Rose Enterprise features, please visit:

ibm.com/software/awdtools/developer/rose/enterprise/index.html

Overview

IBM Rational Rose RealTime software
Enables model-driven development with the UML notation language
Targeted for commercial software products and systems development, including real-time and embedded applications
Provides the industry's most robust model-driven development solution
Enables fully automated design-to-code translation for C, C++, CORBA and Java languages
Offers run-time model execution and visualization
Helps generate and validate automated test harnesses using UML sequence diagrams
Optimized for event-driven, concurrent and distributed applications
Helps meet stringent requirements for latency, throughput and dependability
Supports the most advanced modeling constructs, including model execution and fully executable code generation
IBM Rational Rose Enterprise software
Provides round-trip engineering support for Ada, ANSI C++, C++, CORBA, Java, Microsoft Visual Basic 6 and Microsoft Visual C++ languages, as well as database designs
Offers well-known design and implementation patterns
Provides limited support for widely used JDK 1.5 constructs
Enables UML modeling for database designs, with the ability to connect logical and physical designs
Integrates with any Source Code Control (SCC)-compliant version control system, including IBM Rational ClearCase® software

Generate fully executable applications from models

Rational Rose Technical Developer software defines the standard for the industry's most robust model-driven development support. A UML model compiler generates complete C, C++ and Java™ applications for UNIX®, Linux®, Microsoft® Windows® 2000 and RTOS targets. This automated code generation eliminates the need for manual translation and can help avoid costly design interpretation errors. Model specifications are so complete that subsequent development takes place in the model elements themselves. Such robust support for model-driven development results in higher levels of productivity and reliability.

Integrate modeling, implementation and debugging

Rational Rose Technical Developer software brings the integration of development activities to a new level. The code generators have an associated visual UML model debugger that enables observation and validation of host and target applications. Model execution encourages early design

refinement. A complete UML-based testing facility lets the user graphically define system behavior and then automatically generate and execute test cases and test suites for complete or partial models. The Rational Rose Technical Developer software supports continuous verification of quality right from the beginning of system implementation. Such compact integration cycles result in unprecedented turnaround times for mission-critical changes.

Extend model-driven development to testing

IBM Rational QualityArchitect RealTime software is an extension to the visual modeling capability of Rational Rose Technical Developer software. It enables users to perform model-based component testing by generating code automatically from within the UML model. You can automatically build stubs and drivers to use in testing components and classes. And when integrated with IBM Rational Test RealTime™ software, these generated tests can be executed with Rational Test RealTime run-time analysis features, including code coverage, memory leak analysis and performance profiling. The integrated Rational Test RealTime coverage capabilities allow the models to be visually inspected to determine the level of model coverage for each test case.

Rational Rose Technical Developer software supports a wide range of testing activities from developer scenario-based debugging to full system regression testing.

Make developing on a team easier

Software development is a team sport. As a member of a software team, you have to deal with documentation, communication, requirements, version control, defect tracking, reporting and overall process management.

Rational software liberates you from these challenges. All members of the Rational Rose product family integrate with IBM Rational RequisitePro® software for viewing and managing ever-changing requirements in conjunction with your designs. They provide Web publishing and other reporting features to communicate your design to people internal and external to the project team. They also integrate with IBM Rational ClearCase software to help maintain version control, and with IBM Rational SoDA® software to help automate the creation and maintenance of project documentation.

Through the IBM Rational Unified Process®—or IBM RUP®—methodology and the IBM RUP for Systems Engineering (RUP SE) add-in, you gain process support specifically for systems development. The RUP SE add-in is an extension to the RUP methodology that can be applied not only to software development and integration projects, but also to projects that include hardware development or acquisition, with support for the specific roles that apply to these types of projects.

Rational Rose Technical Developer software is included in the IBM Rational Suite® for Technical Developers package, where solutions for these types of team activities are found. Now, not only can you develop with the best model-driven development solution, you can manage large product development projects in the most integrated fashion.

Features and benefits

Feature	Description	Benefits
Structural code generation	Enables the generation of code that manages relationships between classes	• Makes structure visible and maintainable, while increasing quality and the percentage of generated code • Faster development, better quality of generated code
Porting wizard	Provides development for any 8-bit or larger target platform	• Supports your chosen platform
State machines on capsule and simple classes	Uses state machines to define behavior of non-active classes	• Does not require a run-time library or use of operating system facilities • Allows model-driven development on very small targets, with or without an RTOS
IBM Rational QualityArchitect RealTime software	Enables the automatic generation, execution and reporting of test results from a UML sequence diagram and provides the ability to stub any object	• Minimizes test effort, allowing testing from the very beginning • No big-bang integration phase; easy, continuous developer testing
IBM Rational Connexis™ software	Middleware that simplifies the distribution of model-generated applications	• Enables you to concentrate on applications, not middleware • Facilitates a faster time to market and easier evolution of distributed applications
Full threading control	Allows assignment of any active objects	• Allows you to put scarce RTOS thread resources where they're needed and optimize performance • Allows you to build scalable, efficient and modifiable applications
Modeling support	Supports UML with constructs to design for event-driven systems through capsules, ports and protocols	• Offers enhanced ease of use and flexibility features • Supports the industry-standard UML

Features and benefits (continued)

Feature	Description	Benefits
Code generation support	Enables the complete generation of application code with support for C, C++ and Java 2, Micro Edition (J2ME) languages. Generates MISRA C-compliant code for C-language components Generates and reverse engineers CORBA IDL code	• Enables full round-trip engineering and helps to speed the development of quality applications
IBM Rational Rose cross-edition model data compatibility	Provides the ability to read and write all diagrams of models created in Rational Rose Enterprise and Rational Rose RealTime software Enables code reference usage for code managed by Rational Rose software and used in Rational Rose RealTime software	• Allows you to move forward from a Rational Rose analysis • Enables you to export partial information to Rational Rose software for documentation
Enhanced code generation target support	Enables parameterized and instantiated class code generation, API for integrating with non-Rational Rose applications, additional targets, easier code generation of non-capsule, no-RTS executables, and new support for VxWorks 6.0 integration	• Provides the ability to generate a wider range of code with less effort • Helps you build minimal-footprint applications and provides the simplified ability to run in non-RTOS environments
Configuration management	Provides comprehensive support for configuration management tools, including Rational ClearCase software, with model compare and merge support to enable team parallel development	• Provides team development support
Requirements management and traceability	Provides requirements traceability with IBM Rational RequisitePro® software	• Enables traceability between requirements and virtually any model element

Supported hosts

Operating system	Software
Microsoft Windows 2000	Windows 2000 Professional, service pack 4 Processor: Intel® Pentium® 150MHz minimum; 500MHz or faster recommended RAM: 128MB minimum; 256MB recommended Disk space: 552MB minimum for the Rational Rose RealTime installation Display: 1024 x 768 minimum; 1280 x 1024 or better recommended Printing: Postscript Browser: Microsoft Internet Explorer 5.01 or later recommended, or Netscape Navigator 4.7 or 6.0
Microsoft Windows XP	Windows XP Professional, service pack 1 or 2 Disk, RAM and display requirements same as for Microsoft Windows NT®
Sun Solaris	Solaris 8 or 9 Workstation: UltraSparc 10 with 500MB RAM minimum; UltraSparc 60 with 600MB RAM recommended
Red Hat Linux	Red Hat Linux 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9

Supported targets

Host platform(s)	Target RTOS	Compiler	Debugger	Processor	Language
Solaris 2.6 Solaris 7 Solaris 8 Solaris 9	Same	GNU 2.95.1 GNU 2.8.1 GNU 2.7.2.3 Sun C++ 5.0	XXGDB 1.11 XXGDB 1.11 XXGDB 1.11 XXGDB 1.11	Sparc Sparc Sparc Sparc	C++ C and C++ C++ C++
Windows	Same	Microsoft Visual C++ 6.0 Visual C++ 7.0	Microsof Visual Studio 6.0 or Visual Studio 7.0	x86 x86	C and C++ C and C++
Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	Same	GNU 3.2 GNU3.4.4	GDB	x86	C and C++
Solaris 2.6, 7, 8 or 9 Windows Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	pSOS 2.5	Diablo 4.2b	SDS 7.4	PPC(2)	C++
Solaris 2.6, 7, 8 or 9	VRTX 4.AB	Microtec 1.3C	N/A	PPC	C++
Windows	VRTX 4.Baa	Microtec 1.4	N/A	PPC	C++
Solaris 2.6, 7, 8 or 9 Windows Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	OSE 4.1.1	Diablo 4.3f GreenHills 1.8.9 GreenHills 2.0	SDS 7.1.1 Multi 3.4 (3) Multi 3.4 (3)	PPC PPC PPC	C and C++ C C

Supported targets (continued)

Host platform(s)	Target RTOS	Compiler	Debugger	Processor	Language
Solaris 2.6, 7, 8 or 9 Windows Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	Tornado 2.0 (VxWorks 5.4, 6.0)	Cygnus 2.7.2.960126 Cygnus 2.7.2.960126 Cygnus 2.7.2.960126 GreenHills 1.8.9 GreenHills 2.0	CrossWinds CrossWinds CrossWinds Multi 3.4 Multi 3.4	M68040 PPC X86 PPC PPC	C and C++ C and C++ C and C++ C and C++ C and C++
Solaris 2.6, 7, 8 or 9 Windows Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	Tornado 2.2	Cygnus 2.7.2.960126 Diablo 5.0.1	CrossWinds CrossWinds	PPC PPC	C and C++ C and C++
Solaris 2.6, 7, 8 or 9	Tornado 2.0 Sim Tornado 2.2 Sim	Cygnus 2.7.2.960126	CrossWinds	SPARC	C++
Windows	Tornado 2.0 Sim Tornado 2.2 Sim	EGCS-2.90.29	CrossWinds	X86	C++
Solaris 2.6, 7, 8 or 9 Windows	LYNX 3.1.0a	GNU Pro-2.9-98r2	GDB 4.17- GNU Pro-98r2	PPC	C++
Solaris 2.6, 7, 8 or 9	LYNX 3.0.1	Cygnus 2.7.97r1		PPC	C++
Solaris 2.6, 7, 8 or 9	Chorus Classix 4.0	EGCS-2.91.66	N/A	PPC	C++
Windows	Windows CE 3.0	eMbedded Visual C++ 3.0	eMbedded Visual Tools 3.0	Sh3	C++
Solaris 2.6, 7, 8 or 9 Windows Red Hat Linux 7.3, 8.0 Red Hat Enterprise Linux 3.0 or 4.0 SUSE Linux 9.x	Nucleus 1.1	Diablo 4.2b Visual C++ 6.0/7.0	N/A	PPC	C++
Windows	eCos uITRON 3	GNU 2.95.3	N/A	x86	C
Windows Solaris 2.6, 7, 8 or 9	No RTOS	Visual C++ 6.0 GNU 2.8.1	N/A	x86 Sparc	C and C++ C and C++

Native compilation ports

N/C—native compilation only	IBM AIX® 4.2.1	GNU 2.8.1	N/A	PPC	C++
N/C—native compilation only	Red Hat Linux 6.1	EGCS 2.91.66	N/A	x86	C++
N/C—native compilation only	QNX 4.2.2 (single-threaded)	Watcom C++ 10.6	N/A	x86	C++
N/C—native compilation only	UnixWare 7.0.1	SDK 3.0	N/A	x86	C++

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