IBM

Rational software

IBM Rational ClearCase Product Family

Highlights

■ *Offers version control, work-space management, build management and process configurability*

■ *Enables nonstop parallel development — even across geographically distributed sites*

■ *Integrates with IBM® Rational® ClearQuest® to make defect and change tracking a seamless part of monitoring change*

■ *Enables Unified Change Management — Rational's best practices process for managing change*

■ *Scales from small project teams to the global enterprise*

■ *Offers advanced build auditing*

■ *Versions all development artifacts*

■ *Provides transparent workspaces for global data access*

■ *Delivers reliable entry-level version control to project workgroups*

■ *Provides Web interface for universal data access*

■ *Features process configurability without expensive customization*

■ *Features graphic interface for easier focus on priority tasks*

■ *Included in IBM® Rational Suite®*

■ *Integrates with leading IDEs and development tools*

■ *Integrates with popular Web development and authoring tools*

Simplifying the Process of Change

Developing software today is more challenging than ever before. Customer expectations are higher. Project deadlines are shorter. And quality standards are increasing-- puting more pressure on you to optimize productivity. Yet fundamentally, you are working under the same confusing conditions-- managing several releases of many different products simultaneously with several project teams-- some local, some distributed. In the face of many risks, you need to keep on top of all these details, without losing sight of project schedules and priorities.

Tools that help you and your team better manage change are essential to being successful in an on demand world. And that's exactly where IBM Rational software can help.

IBM Rational ClearCase simplifies the process of change through automation, integration and best practices. ClearCase helps you better manage change and assets and control everything that evolves in development —from requirements and design models to source code and change requests to test scripts. Scalable from small teams to the enterprise, ClearCase offers the essential functions of version control, workspace management, build
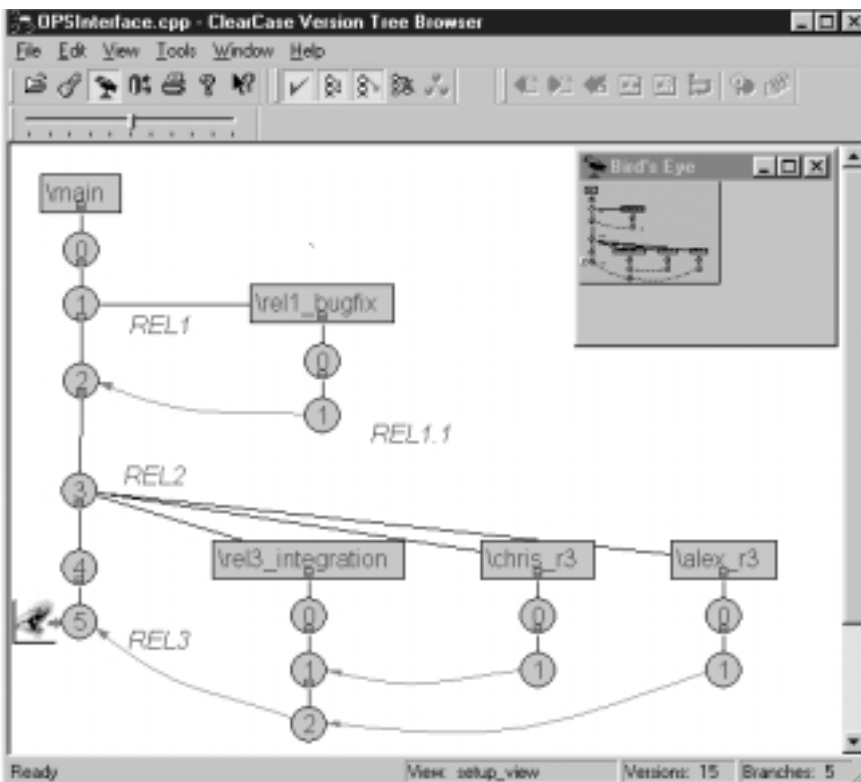
management and process configurability. ClearCase automates many of the necessary, yet error-prone tasks associated with software development, thus enabling teams to focus on quality and to build the resilient software. Additionally, ClearCase now supports your development environment from the PC to the mainframe with support for Linux on the mainframe.

Version All Digital Artifacts
Rational ClearCase goes far beyond version control to version every asset in the software development lifecycle. ClearCase tracks changes to every file and directory, maintaining complete, annotated version histories of source code, binaries, executables, documentation, test scripts, libraries and Web artifacts. Developers can quickly roll back to any previous build or baseline to identify which versions of which files triggered a specific change.

Rational ClearCase version trees provide a visual history of parallel development branches.

Rational ClearCase versioning includes:
• Checkin/checkout development model
• Versioning of directories, subdirectories and all file system objects
• Secure, versioned object database that ensures the right users are accessing the right files
• File conversion from IBM TeamConnection and CMVC, Merant PVCS, Microsoft Visual SourceSafe, RCS, CVS and SCCS

Accelerate Team Development
Today's development teams are as varied and dynamic as the projects they support. To adapt quickly and confidently to changing business needs, team members need to collaborate seamlessly — regardless of role, application type, location, platform or development tool. The adoption of open standards will enhance your ability to adapt quickly and collaborate seamlessly, which is essential to effectively manage change and assets.

Make Parallel Development Practical
Rational ClearCase accelerates team development by providing outstanding support for parallel development. With automatic and unlimited branching, ClearCase enables multiple developers to

efficiently design, code, test and enhance software from a common code base. Additionally, ClearCase's patented diff/merge technology automatically accepts uncontested changes and automatically alerts you to conflicting ones.

Benefit from Flexible Workspace Management

Rational ClearCase Views provide developers with the exact versions of files required to complete a specific task, while shielding them from potentially destabilizing changes made by other team members. Developers can choose from two types of views optimized for networked or local usage models — Dynamic and Snaphots. Dynamic views provide networked users with instant updates to evolving source code and project data through a unique transparent file sharing system. Snapshot views support a disconnected use model for working away from the office. Upon reconnecting to the network, Snapshot views automatically update all changes made since the last snapshot.
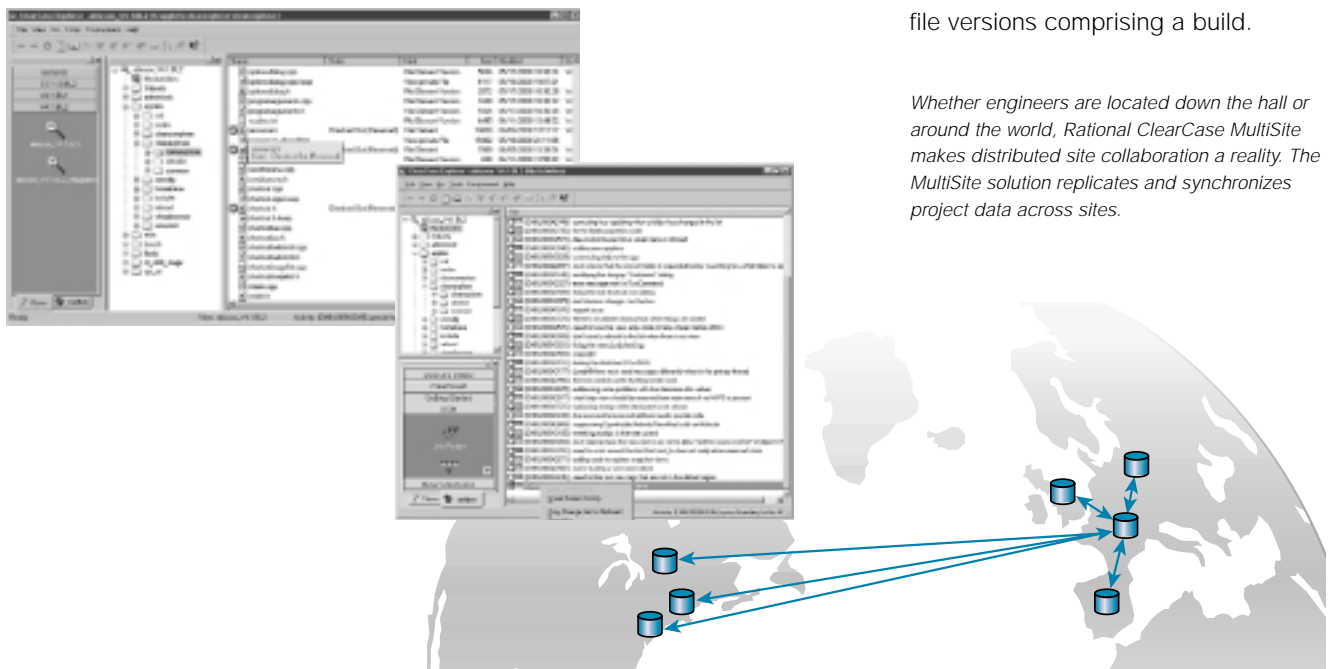
Regardless of view type, Rational ClearCase provides transparent access to configuration management functions from native development environments — such as IBM VisualAge for Java, IBM WebSphere Studio, Microsoft Visual Studio, Sun Forte for Java and Sybase PowerBuilder. It also provides a customizable, graphical interface — called the ClearCase Explorer (for Windows only) — enabling developers to clearly focus on their high-priority projects and activities.

Ensure Build Accuracy

To optimize build times and guarantee the reproducibility of software versions, Rational ClearCase offers enterprise-level build management capabilities. To ensure the accuracy of build contents, it automatically detects dependencies and produces a detailed bill of materials that reports the exact file versions comprising a build.

Whether engineers are located down the hall or around the world, Rational ClearCase MultiSite makes distributed site collaboration a reality. The MultiSite solution replicates and synchronizes project data across sites.

**Comprehensive Software
Configuration Management**

Rational ClearCase, a robust software asset management solution, combines with IBM Rational® ClearQuest®, the most flexible defect and change tracking tool on the market, to create the market-leading software configuration management (SCM) solution according International Data Corp. Rational ClearCase and Rational ClearQuest provide a powerful platform for controlling all change that evolves during development. When used together, Rational ClearCase and Rational ClearQuest make it easy for teams to relate change requests directly to changes in code so they can identify activities that impact software reproducibility and quality. And by automating workflow, Rational ClearCase and Rational ClearQuest enable teams to enforce common, consistent processes for submitting, assigning, resolving and verifying modifications.

Better yet, these processes can be customized based on team needs, type of change request or site-specific policies. For developers, a reliable change workflow ensures they're working on the right versions of the right files. For managers, it provides an efficient means for staying abreast of project status, assigning tasks and balancing team workloads.

By integrating Rational ClearCase and Rational ClearQuest teams can:

• Relate change requests directly to changes in an evolving code base
• Capture, track and report on change requests
• Automate workflow
• Enforce common, consistent process

Unify Teams Around the World

Rational ClearCase is the only proven, high-performance software configuration management solution for geographically distributed project teams. IBM Rational ClearCase MultiSite® sets the standard for remote team-based collaboration, making nonstop parallel development a practical reality. Advanced replication technology allows teams spanning multiple sites simultaneously access shared project assets locally.

Rational ClearCase MultiSite enables you to:

• Support distributed development across sites
• Replicate and synchronize project data
• Provide local access to project assets

Rational ClearCase MultiSite operates with the multisite edition of Rational ClearQuest, Rational's flexible defect and change tracking tool. IBM ClearQuest MultiSite is an optional add-on solution for Rational ClearQuest that supports synchronized development across geographically distributed sites.

Rational ClearQuest MultiSite helps distributed project teams efficiently work together by providing local access to replicated defect and change tracking data, enabling automatic synchronization of those databases at any time. Together, the integration provides a complete, distributed SCM solution that supports Unified Change Management (UCM), IBM Rational activity-based, best practices process for simplifying change.
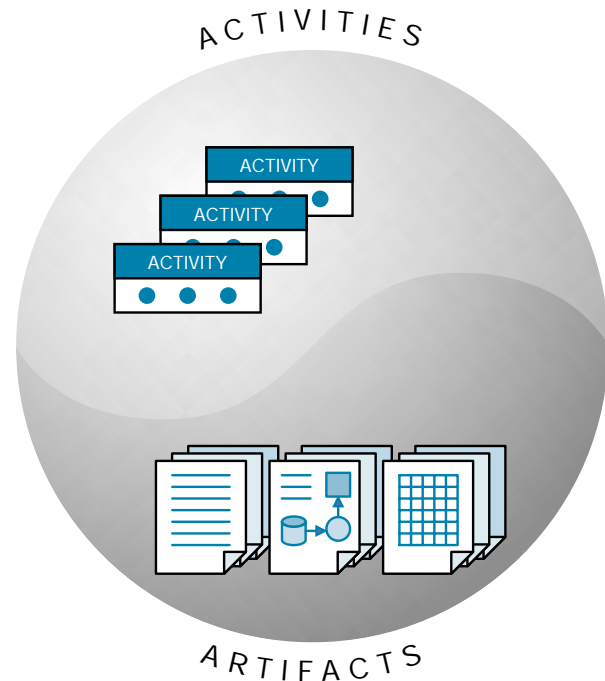
ACTIVITIES

ARTIFACTS

UCM provides the flexibility to manage changes in terms of activities, not just fine-grained software assets.

Unify Change Management with Best Practices Process

Unified Change Management (UCM) is IBM Rational best practices process for managing change from requirements to release. UCM defines a consistent, activity-based change process that teams can apply to their development projects right away. Enabled by Rational ClearCase and Rational ClearQuest, UCM is a key component of the IBM Rational Unified Process®, a comprehensive framework for delivering software development best practices.

UCM simplifies development by raising the level of abstraction. It allows you to manage changes at a higher level, in terms of activities or components. With UCM, an activity is automatically associated with its change set, which encapsulates all project asset versions used to implement the activity. UCM frees you from having to manually track all the files that represent a change activity.

Adopt with Ease

Within Rational ClearCase and Rational ClearQuest, UCM is implemented with an optional, out-of-the-box development process that can be adopted on a project-by-project basis. With UCM, teams automate and accelerate the steps required to:

- Create and maintain developer work areas
- Associate activities with specific software change sets
- Integrate project changes
- Create and manage component baselines
- Use metrics to stay abreast of project status

Track and Organize Projects

UCM empowers managers to graphically organize projects, define workflows and track project metrics. In the UCM model, a project keeps all team members on track by defining the scope of critical parameters such as policy, workflow, iteration and release requirements. Projects promote component architectures by enabling managers to configure software components, which include groups of related directory and file elements that are developed,

integrated and released together. These components are baselined as a unit, which can then be used as the foundation for new development and to update developer workspaces.

With UCM's activity-based approach to software development change, managers can define a custom workflow for each activity type, such as defect fix or enhancement request. By configuring workflows to mirror existing business processes, teams avoid the pitfalls of "top-down" process enforcement.
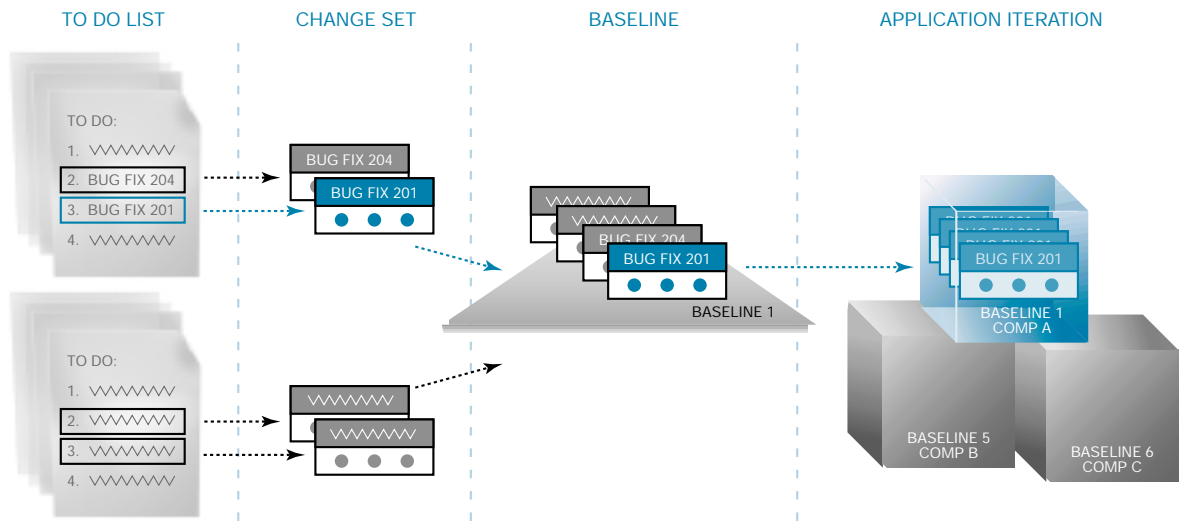
The advantages for managers are clear. Activities can be assigned to the first available, qualified individual, or by matching people on an individual basis. Comprehensive reporting helps managers balance workloads, identify skill gaps and ensure that all high-priority tasks are appropriately assigned. As projects progress, Rational ClearQuest metrics provide managers with the exact status of their projects. Managers can create their own view of data with ClearQuest's flexible query and report templates, or explore predefined trend, aging and distribution reports.
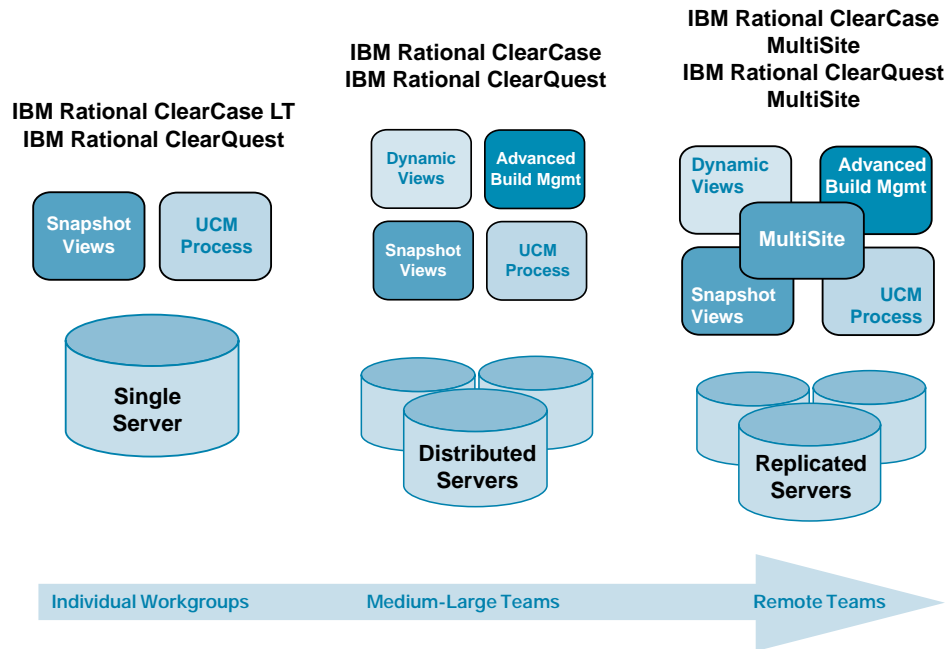
Automate Collaboration

By automating many time-consuming tasks, UCM allows developers to focus more fully on writing code, and not managing files. Developers get up-and-running quickly by joining a project and selecting an activity. Rational ClearCase automatically populates and maintains developer work areas with the right set of file versions. As work progresses, ClearCase assembles complete change set information transparently.

Manage Baselines with Ease

With UCM, every member of the team has information about the flow of activities into and out of daily or

Unified Change Management makes it easy to trace an activity from initial change request through final software release. 1) A developer selects an activity from a personal To Do List. 2) As the developer works on the activity, UCM tracks its change set automatically and behind the scenes. 3) The activity's change set is delivered to a project integration area, where it becomes part of a new component baseline. 4) Multiple components are assembled to form a new application iteration.

IBM Rational ClearCase LT
IBM Rational ClearQuest

Snapshot Views	UCM Process

Single Server

IBM Rational ClearCase
IBM Rational ClearQuest

Dynamic Views	Advanced Build Mgmt
Snapshot Views	UCM Process

Distributed Servers

IBM Rational ClearCase
MultiSite
IBM Rational ClearQuest
MultiSite

Dynamic Views	Advanced Build Mgmt
	MultiSite	
Snapshot Views	UCM Process

Replicated Servers

Individual Workgroups → Medium-Large Teams → Remote Teams

weekly baselines. Testers know exactly what new features to test, and developers know exactly what work other team members are performing. UCM records activities contained in each baseline.

Support Cross-Functional Teams
As part of the IBM Rational Suite Team Unifying Platform, IBM Rational ClearCase LT and UCM provide an infrastructure for managing change to support cross-functional teams. The Team Unifying Platform provides meaningful, common data access along with processes and tools that enable teams to manage change and

monitor quality from requirements to release. With a ClearCase-enabled Rational Suite solution, teams can control all artifacts that evolve over the course of development, including requirements, visual models, documentation and test scripts.

For example, analysts using IBM Rational Suite AnalystStudio® can associate requirements to specific enhancement requests and change sets. This provides visibility into the issues users face and the requirements that fulfill them. As an analyst makes changes to a model, UCM ensures that developers are

working with the most current information when they begin implementation.

Scale from Small Teams to the Enterprise
The Rational ClearCase family provides a comprehensive software asset management solution that can scale from small project workgroups to the global enterprise. Teams with projects that don't require distributed servers, database replication or transparent file access can start with Rational ClearCase LT, specially designed for small to medium project workgroups.

Like Rational ClearCase, Rational ClearCase LT supports Unified Change Management. When organizations require enterprise-level software asset management capabilities — such as advanced build management, distributed server support and automatic data replication, ClearCase LT customers can easily upgrade to full ClearCase. No need to change processes, data or the way you work.

Extend Distributed Build Management for Mainframe Development
For enterprise organizations that develop applications using multiple platforms, the Remote Build feature of Rational ClearCase Mainframe Connectors enables teams to support build management for the Mainframe.

With Remote Build and a TCP/IP connection, you can submit build requests from your Windows and UNIX development environments to compile source code on OS/390 or Z/OS. You can also configure Remote Build to return the derived objects,

such as load modules and listings to be versioned in Rational ClearCase on client platforms.

Rational ClearCase provides comprehensive reports about versioned files that comprise each remote build. This capability enables you to recreate builds on demand.

Accelerate Success with Rational Services
Like all IBM Rational tools, the Rational ClearCase product family is supported by an extensive, worldwide service organization. Explore more than a thousand articles, white papers, courses, and resources online at the IBM Rational Developer Network™. IBM Rational Services can help build team success through training, consulting services, and technical support. IBM Rational Services offers over 60 courses and a variety of implementation and support plans to speed technology deployment and accelerate project delivery. Available where and when you need them, Rational Services

improve self-sufficiency as they build a foundation for continuous software development improvement.

Rational ClearCase QuickStart
To help customers get up-and-running quickly, IBM Rational offers the IBM Rational ClearCase QuickStart program. ClearCase QuickStart offers customers a proven approach to managing change and assets that reduces deployment risk. It helps customers successfully navigate the common pitfalls of monitoring software change and accelerates the learning curve. With a well defined set of activities and deliverables, customers benefit from development predictability and improved software quality.

The Rational ClearCase QuickStart is designed for projects without an established change management process. Clearly defined milestones and deliverables provide the most efficient path to successful Rational ClearCase deployment.

IBM Rational University Courses
Through IBM Rational University, Rational Services offers a full roster of courses for both new and advanced users of Rational ClearCase. By transferring knowledge to your team through education and training, IBM Rational gives you the skills you require to get the most out of your ClearCase change management solution, both today and as your environment evolves.

Rational ClearCase Administration Assessment
As projects scale, the need to protect and service Rational ClearCase repositories mounts. IBM Rational puts its extensive experience to work for customers requiring support with procedures such as proper backups, VOB health checks, scrubbing and other preventive maintenance activities. Based on a comprehensive assessment, IBM Rational may issue a "clean bill of health" or recommend changes to ensure the prolonged health, performance, and scalability of ClearCase environments and configurations.

Leverage Your Investments
The IBM Rational approach to software development is open, extensible and standards-based. Properly configured it is an on demand operating environment. As an active member of the Internet Engineering Task Force (IETF), Rational drives standards in key Internet technologies and is co-editor of the Web Distributed Authoring and Versioning (WebDAV) specifications. An investment in IBM Rational change management solutions will keep your team ahead of the technology curve, providing a competitive advantage for years to come.

Unify the Team With IBM Rational Suite
Rational ClearCase LT is a member of the Rational Suite product family, and is available in all of the Rational Suite and Rational Suite Enterprise editions.

Designed to unify cross-functional teams, optimize practitioner productivity, and simplify adoption, Rational Suite solutions are available in the following editions:

IBM Rational Suite AnalystStudio

IBM Rational Suite DevelopmentStudio

IBM Rational Suite TestStudio®

IBM Rational Suite Enterprise

IBM

SPECIFICATIONS

Client Requirements

- *Minimum: 64 MB RAM, 35 MB Hard Disk Space*

Server Requirements

- *Minimum: 128MB RAM, 70MB Hard Disk Space*

Supported Web Browsers

- *Microsoft Internet Explorer*
- *Netscape*

Supported Web Servers

- *Rational Web Platform (Based on Apache HTTP Server)*

Supported Environments

- *Hewlett-Packard HP-UX (IPF)*
- *IBM AIX*
- *Red Hat Linux Intel x86*
- *Silicon Graphics IRIX*
- *Sun Solaris SPARC*
- *SuSE on Linux_390*
- *SuSE Linux on Intel 86*
- *Windows NT, Windows XP, Windows XP Pro, Windows 2000, Windows 2003*

Product Integrations

- *Borland JBuilder*
- *IBM WebSphere Studio product family, IBM WebSphere Server, IBM VisualAge for Java*
- *Microsoft Visual Studio .NET: VB, C#, C++, ASP.NET*
- *Microsoft Visual Studio: VB, C++, J++, InterDev*
  Sun ONE Studio and Forte for Java
- *Sybase PowerBuilder -Microsoft FrontPage*
- *Microsoft Office*
- *Microsoft Interdev*
- *All SCC-compliant tools*

Mainframe Connectors

Remote Build Servers

- *OS/390-MVS and USS*
- *z/OS-MVS and USS*

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