IBM

Rational software

IBM Rational Build Forge

Highlights

■ *Improve product quality, speed development cycles and increase staff productivity — using the tools you have in place today*

■ *Support geographically distributed development teams through a centralized Web interface that's accessible virtually anytime, anywhere*

■ *Provide an adaptive framework to help development teams standardize and automate repetitive tasks, manage compliance mandates and share information*

■ *Give developers controlled, self-service access to production build processes from within their IDE*

■ *Help configuration managers accelerate build times by running tasks in parallel across available servers in the pool*

■ *Automate tracking of build server configurations such as operating systems, patch levels and compilers for higher quality and faster problem resolution*

■ *Consolidate build-related information from all your tools in the software delivery process, including source code managers, defect tracking and test systems*

**Provide reliable, high-performance builds throughout the software delivery lifecycle**
The IBM Rational® Build Forge™ products help you automate complex processes and integrate diverse tool-sets to compress development cycles, improve product quality and increase staff productivity. In addition to decreasing time to delivery of the highest-quality software, the Build Forge products provide visibility into key development trends to facilitate better-informed management decisions.

Most important, IBM Rational Build Forge solutions provide broad support for major development languages, scripts and tools, regardless of the platform. Your business has made significant investments in an array of languages, platforms and other tools. You shouldn't have to change tools just to speed improvements. IBM Rational Build Forge products integrate into your current environment — your current scripts and tools can plug right in — so you get increased efficiency and automation without long implementation times.

ON DEMAND BUSINESS™

Eliminate the chaos of different build environments

Many development environments are a complex blend of diverse languages, platforms and tools—the very infrastructures that can breed schedule delays due to poor communication and the disconnected toolsets that exist between development, build, test and release teams. IBM Rational Build Forge solutions help you overcome these challenges by providing:

- *An open command line interface that's compatible with existing build scripts, batch files, development tools and other processes. There are no new proprietary scripting languages to learn and no throwaway work.*
- *Out-of-the-box adaptors for creating automated handoffs between each phase of development, optimizing product delivery. Other software configuration management (SCM) and software development lifecycle tools are supported through the optional IBM Rational Build Forge Adaptor Toolkit offering.*
- *Support for a variety of hardware platforms, including the Microsoft® Windows®, Apple Macintosh, Linux® and various UNIX® operating systems.*
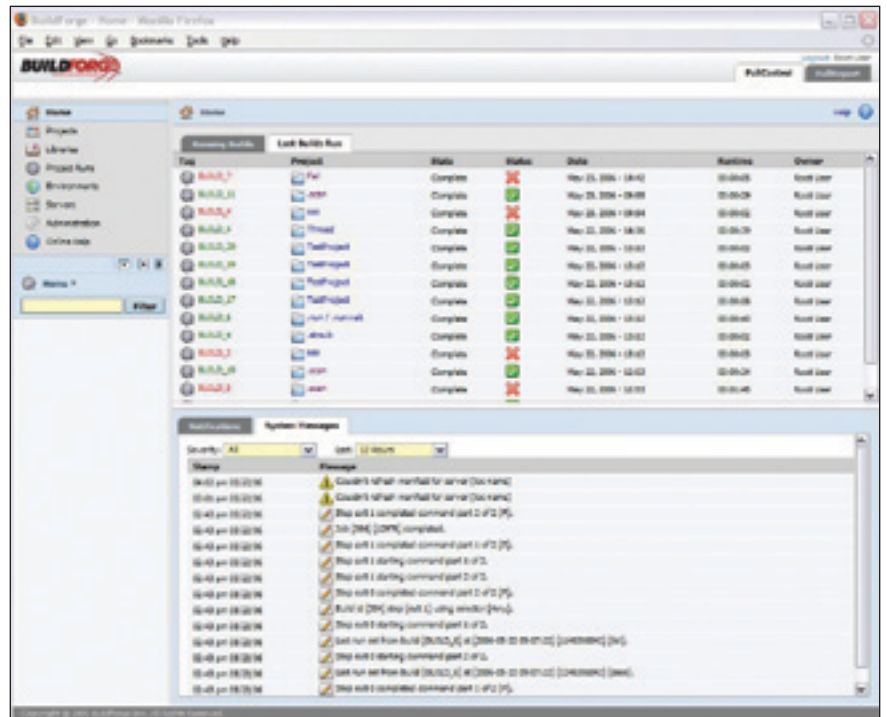
The Web-based management console provides a real-time view of all activities—perfectly suited for geographically distributed development teams.

Keep distributed teams connected

IBM Rational Build Forge products keep global teams in sync. The Web-based management console provides a consolidated, real-time view of each project so everyone stays on the same page. The Build Forge solutions can integrate with your existing tools so teams can share common processes, even if they're using different technologies. By linking the entire development process, handoffs are smooth and fast. Server pooling even allows distributed teams to use the same hardware resources.

Promote consistency with automation and control from a single console

IBM Rational Build Forge solutions provide a consistent management layer for your production build and release processes across all of your development platforms. Repetitive tasks are standardized and reused for multiple projects to help ensure process consistency and to reduce new-project setup time. Giving your team members a real-time view of all activities, the built-in, Web-based management console is perfectly suited for geographically distributed development teams that need access to the system virtually anytime, anywhere.

Simplify compliance management

IBM Rational Build Forge products track and store comprehensive data on all builds, releases and related tasks to provide a detailed bill of materials that documents product activity. Reports can be generated to uncover development bottlenecks, determine trends for specific projects and identify code hotspots to improve development and planning. To help simplify compliance, the Build Forge solutions:

- *Deliver a complete bill of materials that lists changes and the content of each build for accurate testing and problem resolution.*
- *Correlate data from disparate source control, defect tracking and testing tools to give a one-stop view of development build artifacts.*
- *Enable role-based security to manage and enforce your compliance processes, with notifications and alerts to inform you if someone steps outside of your IT controls.*
- *Provide a documented audit trail of release contents and process changes for automated compliance management.*

Speed problem resolution with rapid error detection and troubleshooting

IBM Rational Build Forge products monitor and log build and release tasks step by step. When a problem occurs, an e-mail automatically notifies the responsible developer and links him or her directly to the location where the error occurred. Custom filters may be configured to detect language- or application-specific conditions. This allows defects and other build errors to be identified and resolved quickly.

Increase efficiency with flexible, automated scheduling

Multiple scheduling options are offered that can align with your development approach. Builds and releases may be scheduled to execute at a specific date and time or when a source file changes. Or they can be scheduled to execute perpetually for continuous integration and agile development. IBM Rational Build Forge Standard Edition software includes out-of-the-box adaptors for IBM Rational ClearCase® and IBM Rational ClearQuest® software. Adaptors allow users of source code managers, defect tracking managers and test managers to create seamless links between their SCM and build environments for increased efficiency and tracking of source code, defects and test changes.

Shorten release cycles

Because IBM Rational Build Forge products reduce build-related delays and help speed build cycles, development schedules can become achievable. Products are delivered to end users rapidly. Productivity of development engineers, build personnel and quality assurance (QA) staff increases because team members spend less time waiting and diagnosing, and more time doing their jobs—releasing quality products.

Protect mission-critical development knowledge

The knowledge of how products and applications are built and delivered to your customers is a precious corporate asset. Typically, this knowledge resides in the minds of a few individuals who can leave your organization, complicate their replacements' backup and cross-training activities, and render your business vulnerable. IBM Rational Build Forge products capture, document and retain vital processes as they evolve, making it possible for teams to share their workload and execute builds and releases without requiring in-depth knowledge of the underlying processes.

Accelerate complex projects with concurrent processes

The threading of IBM Rational Build Forge products enables discrete, independent processes that run concurrently for fast processing. Thread blocks allow you to increase performance for complex projects. Because they create simultaneously executing subprojects within the context of a single build, thread blocks are useful when you have two separate component builds that need to run on different platforms. Thread blocks also allow a build to be restarted at a failed step rather than entirely rerun when the build breaks partway through.

Creating thread blocks also allows many tasks to be performed at the same time. Often, multiple development tasks can run independently up to a certain point, but they require a common library to be created before continuing. IBM Rational Build Forge solutions provide a global semaphore function, enabling separate thread blocks or even build projects to synchronize with one another.

IBM Rational Build Forge software feature overview

| Feature	IBM Rational Build Forge Standard Edition software	IBM Rational Build Forge Enterprise Edition software
Web console for user access and administration	■	■
Automated process for build and release management	■	■
Distributed multiplatform builds	■	■
Build acceleration	■	■
Detailed audit logging and bill-of-materials report	■	■
Scheduled, as-needed and continuous integration builds	■	■
Support for remote sites	■	■
Robust permissions and security model	■	■
Integrations with third-party tools and technologies	■	■
Notification via e-mail or Really Simple Syndication (RSS) data feeds	■	■
Sophisticated log file filtering and searching	■	■
Application programming interface (API)	■	■
Integrated development environment (IDE) integrations	■	■
Dynamic allocation of build resources		■
Build server inventory		■
Choice of database repository		■
Extended console platform support for Linux, IBM AIX® and Sun Solaris		■
Scalable to large teams		■

Leverage team expertise with intuitive reporting and analysis

No algorithm can take the place of the years of experience and product knowledge that your teams possess. By accessing comprehensive databases, IBM Rational Build Forge products generate intuitive reports to help your team uncover development bottlenecks, determine trends for specific projects and pinpoint areas where performance can be tuned. These reports provide detailed:

- *Analysis of each project, including historical build performance and step run times*
- *Insight into the average run times for individual steps within your build so you can accurately measure how builds have been accelerated and identify areas for improvement*

The IBM Rational Build Forge products include the following reports:

- *Project run time versus build instance*
- *Project step run time per build*
- *Total build server time per build*
- *Build deltas for passing builds*
- *Project analysis summary for all projects*
- *Project analysis summary for selected projects*
- *Build server consumption by project*
- *Project build results summary by date range*
- *Build server utilization by date range*
- *Message Digest 5 (MD5) file search report*
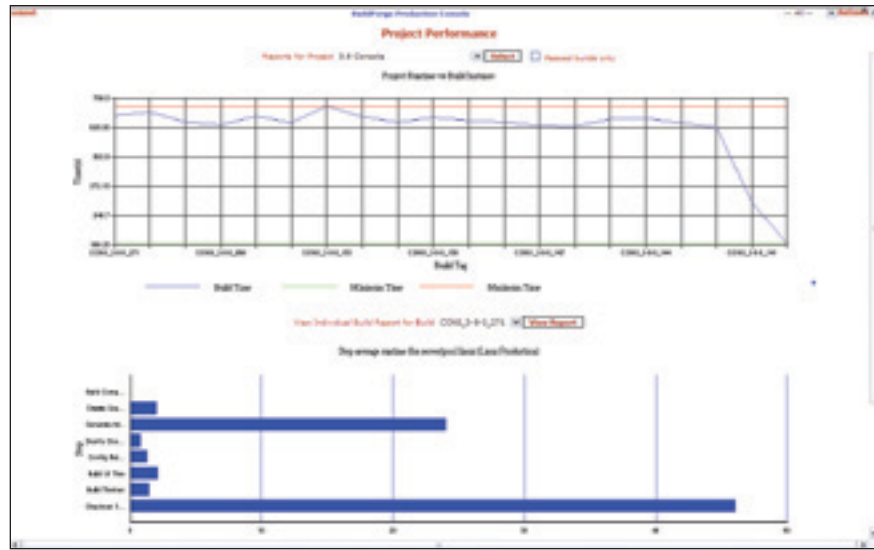
The built-in reporting feature provides a graphical view of how your overall builds have performed on a historical basis.

Optimize your hardware environment with dynamic pooling and fault tolerance

With IBM Rational Build Forge products, servers that were previously dedicated to a single project become highly productive shared server pools. The configurations and capabilities of each server in the pool are detected automatically so you can target all of your projects at a pool of servers to be distributed automatically across multiple machines. You can accelerate build times by dividing build tasks into smaller components. This same pooling capability allows fault tolerance. Build steps automatically redirect if a server or set of servers isn't available. By sharing and consolidating server resources, your operation can run at peak efficiency.

Transform idle servers into optimized build clusters

IBM Rational Build Forge products offer a language- and script-independent build and release accelerator. The system accelerates builds by intelligently transforming idle servers into optimized build clusters. That can translate into a nearly immediate improvement in build processing time.

Continually improve performance with detailed trend analysis

Once you've optimized initial run times and the use of your servers, it's time to focus on day-to-day operation. IBM Rational Build Forge solutions keep a detailed historical record about each build—where steps were executed, how they performed and the servers that were used. A delta report shows details of previous builds and provides you with performance confidence indicators for how your build will run in the future.

Provide build capabilities to your extended development team

Flexible user licenses allow developers to preview their local file changes in a staged build environment before committing the changes to source control. Developers can access project build results so they won't have to
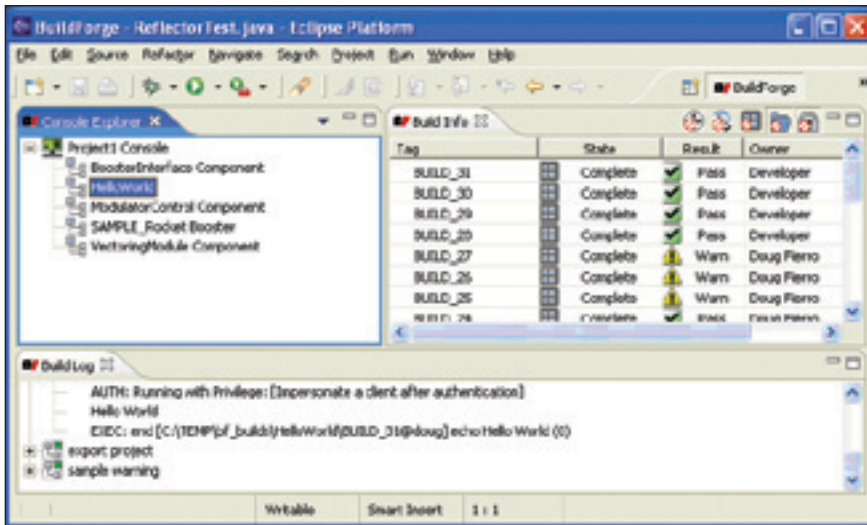
The system communicates directly to the IBM Rational Build Forge console from within the IDE.

chase down build managers to determine what happened in the last build. Best of all, the preflight build feature means they can test the code they've been working on using a separate preconfigured build environment. It happens right from their desktop IDE, so they can check in with confidence.

Capabilities include viewing build results, initiating new builds and viewing the status of currently running builds. Users cannot create new projects, delete projects or alter existing project step data. System-level permissions and access to Build Forge projects are honored, so users can only view and run the projects that they have been authorized to access. Scripts and processes stay intact.

Additionally, build and configuration managers (CMs) grant the development team controlled access to build projects so they can reduce the amount of time spent manually responding to build requests and notifying developers of their status. Because the environment is controlled by role-based security, developers have access only to the projects that CMs authorize—keeping build scripts and projects intact.

Extend development capabilities with IDE plug-ins

The IBM Rational Build Forge client leverages IDE plug-in technology. Because the client communicates directly with the Rational Build Forge console from within the IDE, network connectivity and user login authentication to the desired Build Forge console are required. IDE support is provided in the IBM Rational Build Forge Standard Edition and the IBM Rational Build Forge Enterprise Edition offerings. An IBM Rational Build Forge license is required for each user who accesses the Web console or the IDE plug-in for Eclipse, IBM Rational Application Developer or Microsoft Visual Studio .NET environments.

Create seamless links between third-party software environments

If you use third-party source code managers, defect tracking software or text managers, the IBM Rational Build Forge Adaptor Toolkit product allows you to create seamless links between these SCM and build environments for integrated tracking and control. Out-of-the-box adaptors

are available for Rational ClearCase, Rational ClearQuest, CVS, Perforce SCM, Borland StarTeam, Microsoft Visual SourceSafe, Bugzilla and Subversion software products. You can modify these adaptors or create your own for homegrown or other third-party software development tools.

Monitor source code changes

IBM Rational Build Forge Adaptor applications provide continuous monitoring of the third-party source repository and execute builds automatically when a change occurs. The system directly monitors source changes and gathers metrics to provide detailed repository state tracking for each build. Using the Rational Build Forge management console, you can see where changes occurred—from submission comments to actual file differences—on a per-build basis.

Adaptors allow you to correlate source code changes, defects and tests with specific builds for a detailed understanding of the build components. IBM Rational Build Forge products capture key build statistics—including changes made, build time and build date—and store this information in a central location for quick access.

For more information

To learn more about how IBM Rational Build Forge products can help you automate your build management and software delivery processes, visit:

ibm.com/software/awdtools/ BuildForge/index.html

IBM Rational Build Forge products at a glance

IBM Rational Build Forge Standard Edition software

Server platforms

- Microsoft Windows XP
- Microsoft Windows 2000
- Microsoft Windows Server 2003
- IBM z/OS®
- Red Hat Enterprise Linux
- SUSE Linux
- Sun Solaris

Client platforms

- Microsoft Windows XP
- Microsoft Windows 2000
- Microsoft Windows Server 2003
- HP-UX
- IBM AIX 5L™
- IBM z/OS
- Red Hat Enterprise Linux
- SUSE Linux
- Sun Solaris
- Apple Mac OS X1

Databases

- IBM DB2®
- IBM DB2 Express
- Oracle Database
- Microsoft SQL Server
- MySQL
- Sybase Adaptive Server Enterprise (ASE)

Integrations:

- IBM Rational ClearCase
- IBM Rational ClearQuest

IBM Rational Build Forge Enterprise Edition software

Server platforms

- Microsoft Windows XP
- Microsoft Windows 2000
- Microsoft Windows Server 2003
- Red Hat Enterprise Linux
- Sun Solaris

Client platforms

- Microsoft Windows XP
- Microsoft Windows 2000
- Microsoft Windows Server 2003
- HP-UX
- IBM AIX 5L
- Red Hat Enterprise Linux
- Sun Solaris
- Apple Mac OS X2

Databases

- IBM DB2
- IBM DB2 Express
- Oracle Database
- Microsoft SQL Server
- MySQL
- Sybase Adaptive Server Enterprise (ASE)

Integrations

- IBM Rational ClearCase
- IBM Rational Application Developer for WebSphere® Software
- IBM Rational ClearQuest
- Eclipse
- Microsoft Visual Studio .NET

IBM Rational Build Forge Adaptor Toolkit software

Integrations

- IBM Rational ClearCase
- IBM Rational ClearQuest
- IBM Rational Application Developer for WebSphere Software
- Eclipse
- CVS
- Perforce SCM
- Borland StarTeam
- Microsoft Visual SourceSafe
- Microsoft Visual Studio .NET
- Bugzilla
- Subversion

Note: Not all versions of listed software are supported.

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