# IBM Rational Developer for IBM System z Version 8.5.1

*Develop and maintain multiplatform applications on System z and IBM z/Enterprise*

## Highlights

- Improve productivity in traditional main-frame development, web and Web 2.0 development and integrated SOA-based composite development with a responsive interface and simpler-to-use tools

- Create modern, dynamic Web 2.0 applications and web user interfaces with EGL or Java Enterprise Edition

- Facilitate reuse of existing applications by using web services to integrate them into composite applications

- Automate configuration and management of IBM Rational Developer for IBM System z clients throughout the enterprise from the mainframe

- Understand and restructure existing applications with static analysis and automated refactoring wizards

- Enhance entry to the IBM solution for Application Lifecycle Management

IBM® Rational® Developer for IBM System z software can help you enhance your core IBM System z® development capabilities. The IBM solution uses the Eclipse platform to form a more powerful and extensible workstation-based development environment combining tools to create, modernize and maintain COBOL, PL/I, C/C++, Java or Assembler transactional applications for IBM CICS® and IBM IMS™ Java Enterprise Edition for IBM WebSphere® can be handled with the IBM Rational Application Developer and Web 2.0 applications and Enterprise Generation Language (EGL) can be handled with the Rational Business Developer packages which are designed to shell-share with Rational Developer for System z.

By providing an array of tools in a single unified development environment, your organization can combine various technologies to help differentiate your applications and offer more rapid application development support to diverse enterprise application development teams. With robust development tools to help create, deploy and maintain traditional transactional and advanced composite applications, Rational Developer for System z software is designed for developers with different technical backgrounds to help them more easily participate in important technology projects.

## Improving productivity with an integrated and multiplatform development environment

Built on Eclipse open-source technology and written to CICS, IMS and IBM DB2®, Rational Developer for System z software is designed to simplify and optimize application development for traditional processes and more advanced application development. With the services of an
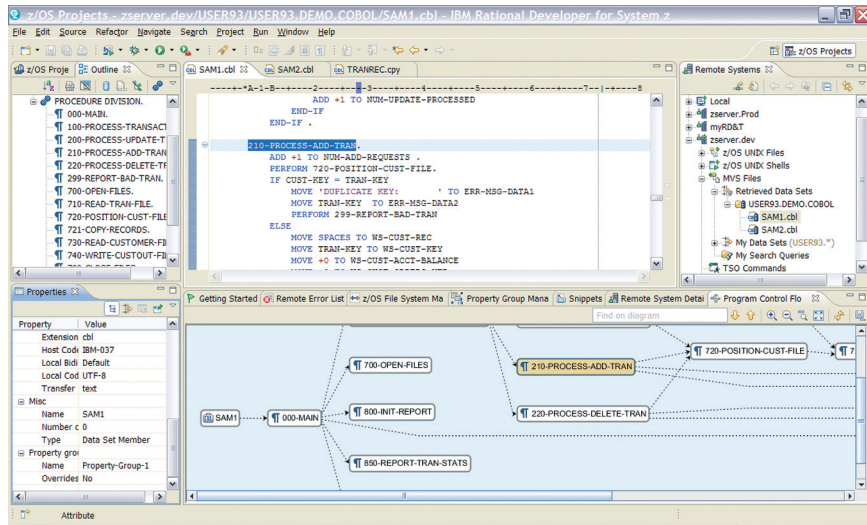
integrated development infrastructure, you can help facilitate reuse and better understand and improve management of applications. The IBM Integrated Development Environment (IDE) is also designed to reduce requirements for manual integration—ultimately helping to drive a shorter and more efficient development process. The Eclipse plug-in technology helps integrate complementary development tools to extend the functionality of the total platform so you can interoperate with other Eclipse technology-based products.

Rational Developer for System z software has key capabilities for application development including:

- CICS, IMS, DB2, Batch, IBM z/OS®, UNIX, IBM WebSphere Application Server, IBM AIX®, and Linux, including x86, System z and IBM Power® development and maintenance tools.
- Near-real-time validation of code during code creation, including embedded language support for CICS and SQL.
- Integrated lifecycle development with IBM Rational Team Concert™ software, IBM Rational ClearCase® software, CA Endevor and IBM Software Configuration and Library Management (SCLM) developer toolkit. A Common Access Repository Manager helps enable integration with additional source code management systems.
- Integration with IBM File Manager supports browsing and updating of VSAM dataset content on System z.
- Integration with IBM Fault Analyzer helps you access problem reports to diagnose mainframe application faults.

- More extensive heterogeneous application debugging with IBM Debug Tool. Applications can be visually debugged— from HTML hosted in WebSphere Application Server to transactions in CICS or IMS to data access and stored procedures in DB2.
- Enterprise service tools that can assist a System z web service developer with creating a CICS web service. In addition, the tools can assist creating, an IMS SOAP Gateway web service, a WebSphere web service written in Java and a web service that is not runtime-specific. Use the System z Database Application Generator to create a COBOL CICS application that accesses a z/OS DB2 database and generate CICS events.
- CICS Service Flow Feature is designed to enable transformation of a CICS screen-driven or COMMAREA-driven application to a web service or to integrate an existing CICS application into a web service. The service flow specific project can also be driven by MQ Messages and CICS Transaction Gateway. To generate the COBOL for a service flow model, you must have the CICS Service Flow Feature installed, which in turn requires CICS TS, Version 3 or higher software.

## Developing, maintaining and reusing traditional application processes

You can continue to use your traditional applications and processes as part of your SOA and address your quality-of-service requirements. Rational Developer for System z software provides an interactive workstation-based environment where you can develop, maintain and reuse COBOL, PL/I, C/C++, assembler, JCL, rexx, Java, Java Enterprise Edition, CICS, IMS and batch applications for traditional processing or inclusion in an SOA.

IBM Rational Developer for System z software uses the Eclipse platform to form a more powerful and extensible workstation-based integrated development environment.

## Helping promote productive application development and maintenance

IBM Rational Developer for System z can offer a wide-reaching set of enhancements and capabilities to drive greater efficiency in development activities.

With program analysis, you can:

- Display Control flow diagrams for COBOL programs, which are a graphical representation of the program flow with links to the underlying source, zoom in and out capability and print.
- Export the diagram to a bitmap.
- Identify and highlight potential unreachable code with program scope static analysis.
- Show data element table with the data elements for a given COBOL program being edited and its dependent copy books. This feature is also available for a given PL/I program being edited and the dependent include files.

- Open called programs from within COBOL and PL/I source.
- Show call hierarchy for PL/I with caller and callee relationships of PL/I procedures in a hierarchical tree view.

Editor enhancements include:

- Hyperlink support for COBOL copybooks and PL/I include files
- Sequence number support in COBOL and PL/I editors
- Search for occurrences of a given variable
- Highlighting write occurrences in PL/I, EXEC SQL, EXEC CICS and EXEC DLI
- Enhanced outline view for PL/I
- Find HEX characters
- Highlighting of IFs, DOs , ENDs and matching parenthesis
- Improved navigation
- JCL Template support
- Refactor and Rename for PL/I
- Indentation support for PL/I as part of formatting

Additional features include:

- Preview of +/- few lines around the search result
- Enhanced System z data editor for QSAM files with a column ruler and find and replace capabilities
- Use of remote SYSLIB that is Data set concatenation for local projects

## Helping improve code governance

Rational Developer for System z provides capabilities for better coding practices and more holistic test coverage. These capabilities include:

- **Code review**, helps inspect your code for compliance with rules and practices. Code review highlights potential problems and recommends code changes for improved quality. IBM Rational Developer for System z includes additional predefined rules and templates for COBOL applications and a framework for the client to add their own COBOL rules. The Rational solution also includes a set of predefined code rules and templates for PL/I applications.
- **Line-level code coverage**, provides tools to measure and report on test coverage of an application, indicating what source code lines were tested and which lines remain to be tested.
- **System z code generators**, provide design tools and wizards that allow you to more rapidly create System z application code skeleton and logic from UML models or user-provided input.

### What's new

Versions 8.5 and 8.5.1 of Rational Developer for System z offers new features and capabilities that can help:

- Improve application structural analysis, code coverage metrics and code navigation.
- Provide an expanded set of code quality rules and enablement for custom rules for COBOL and code quality rules for PL/I.
- Empower more effective testing with a z/OS automated unit testing framework.
- Enable direct development for CA Endevor clients with search, edit and JCL enhancements.
- Improve remote search performance enhancements
- Enable IMS COBOL top down web service creation
- Simplify IMS and DB2 profile management for IBM Debug Tool V12
- Support for the Ubuntu platform

- **z/OS Automated Unit Testing Framework**, provides a code-driven unit testing framework for Enterprise COBOL and PL/I. zUnit provides an automated solution for conducting and verifying Enterprise COBOL and PL/I unit test cases that are written by using the zUnit framework.

## Enhancing team and repository support

Rational Developer for System z V8.5.1 includes search, edit and JCL enhancements for CA Endevor clients. These enhancements enable a new use case for application development that is working directly out of the CA Endevor SCM, which is of particular value for faster changes that do not warrant checking out the code into a z/OS project.

## Product offerings

The Rational Developer for System z family includes multiple product packaging choices for greater choice and flexibility.

**Rational Developer for System z** helps make traditional mainframe development and integrated mixed workload faster and more efficient. Rational Developer for System z enables development of COBOL, PL/I, C++, assembler and Java applications for batch, CICS, IMS and DB2. Rational Developer also supports SOA and Web service creation.

**Rational Developer for zEnterprise** helps make traditional mainframe development, web development and integrated mixed workload or composite development faster and more efficient across multiple hardware platforms. Rational Developer for zEnterprise enables development of COBOL, PL/I, C++, assembler, EGL, Java or Java Enterprise edition applications for z/OS batch, CICS, IMS, WebSphere, and DB2. In addition, the IBM solution supports SOA and web service creation that spans z/OS, Linux and AIX environments.

The Rational Developer for System z family offerings also include companion packages that expand the IDE, which enables more holistic code validation and that promote the use of mobile programming and data tooling.

The CICS Explorer has been custom integrated into the Rational Developer for System z offerings to provide access to the facilities most relevant to the developer.

Additional packages can be included in the integrated developer environment to enable more seamless interaction with supporting environments. These packages include:

- TXSeries for multiplatforms
- DB2 Connect Personal Edition V10.1
- Rational Team Concert client
- Data Studio
- Worklight Studio with Rational Developer for zEnterprise only
- Host Access Transformation Services (HATS) toolkit with Rational Developer for zEnterprise only

## Conclusion

Organizations need a solution that enhances application development and improves efficiency of development activities, promoting a more integrated and collaborative IT environment. IBM Rational Developer for IBM System z software can help you enhance your core IBM System z development capabilities while facilitating effective multilingual, cross product business application development. The IBM solution uses the Eclipse platform to help create a more powerful and extensible workstation-based IDE. With the services of an integrated development infrastructure, you can help facilitate reuse and better understand and improve management of applications. The IBM IDE is also designed to reduce requirements for manual integration—ultimately helping to drive a shorter and more efficient development process.

## For more information

To learn more about how IBM Rational Developer for System z software can help you organization, contact your IBM representative or IBM Business Partner, or visit: **ibm.com**/software/rational/products/developer/systemz/.

Developer can find additional technical information, an active practitioner community, and a trial option of the software at developerWorks, **ibm.com**/developerworks/rational/products/rdz/.

IBM has certified technical professionals available for more in-depth product discussions, demonstrations, Proof of Concept engagements, best practice reviews, and more. Contact your IBM representative to learn more.

Additionally, IBM Global Financing can help you acquire the software capabilities that your business needs in the most cost-effective and strategic way possible. We'll partner with credit-qualified clients to customize a financing solution to suit your business and development goals, enable effective cash management, and improve your total cost of ownership. Fund your critical IT investment and propel your business forward with IBM Global Financing. For more information, visit: **ibm.com**/financing

RAD14065-USEN-04