Rational Developer pour System z (RDz) et son intégration avec Rational Asset Analyser (RAA)

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Agenda

- Rational Developer for System z (RDz) overview
- Rational Asset Analyser and RDz Integration
Rational Developer for System z (RDz) overview

What is RDz
- Eclipse-based IDE speeding modern composite (SOA) application development

RDz supports Enterprise Modernization
- Links WAS and core system z processing
- Supports common IDE for COBOL, PL/I, C, C++, HLASM, Java, EGL and web services
- Transforms UML to COBOL source code
- Provides interactive access to z/OS for development, debug, job generation, submission, monitoring, command execution
- Supports new and existing runtimes (CICS, IMS, Batch, USS, DB2 SP, WAS)

RDz supports SOA
- Enables CICS and IMS applications for web services and SOA
- Supports for J2EE, JCA, XML, web services
Develop and extend z/OS core and SOA processing

- Remote Development of COBOL, PL/I, C, Java, CICS, IMS, Batch, DB2 SP processing
- Local Development COBOL, PL/I, and CICS (TX Series subset)
- Tools for Web Services and XML including CICS Service Flow modeling and deployment
- JCA Support including CTG
- HATS
- Integration with EGL
IBM Rational Developer for System z

**XML Services for the Enterprise**
- SOA support for COBOL or PL/I using CICS or IMS
- Bottom-up/Top-down or meet-in-the-middle COBOL/PL/I to XML mapping support
- meet-in-the-middle development scenario tooling wizards for CICS, IMS, and batch

**DB2 Stored Procedure for COBOL and PL/I**
- Create DB2 stored procedures on z/OS in either COBOL or PL/I
- Build and catalog support for the DB2 stored procedure
- Debug z/OS based stored procedures from workstation

**z/OS Tooling Integration**
- Read/Write/Update VSAM datasets via integration with IBM File Manager
- Access IBM Fault analyzer reports for analyzing ABENDS and associating back to source code

**z/OS Application Development**
- Work with z/OS resources like COBOL, PL/I, C, C++, JCL, etc.
- Interact with the Job Entry Subsystem (JES) to submit jobs, monitor jobs, and review job output
- Perform dataset management actions
- Perform typical edit, compile, and debug tasks on remote z/OS resources from the workstation

**CICS BMS/IMS MFS Map Support**
- Visually create and modify BMS Map sets or IMS/MFS
- Generates JCL

**CICS Service Flow support**
- Supports CICS Service Flow Feature
- Wizards to build service flows out of your existing COMMAREA WSDL and Terminal based CICS applications.

**DB2/VSAM App Generator wizard**
- Generate WSDL, JCL and CICS COBOL program to access DB2
- Generate CRUD programs code from existing DB2 table, which can also be integrated into web service applications
- Generate JCL, BATCH or CICS COBOL program skeletons to access VSAM/QSAM

**UML to COBOL Transformation(\*)**
- Provide UML assets in order to represent COBOL in UML (Models, Profiles, Patterns)
- UML transformations generate models more specific to COBOL target
- Final transformation generates COBOL source

(\*) Requires Rational Software Architect (RSA)
2 RDz Offerings for more choice

- **IBM Rational Developer for System z with EGL**
  - Bundles RDz capability with Rational Business Developer
  - Best for creating System z applications with EGL web or Rich UI front-end applications

- **IBM Rational Developer for System z with Java**
  - Bundles RDz capability with Rational Application Developer
  - Best for creating System z applications combined with Java Enterprise Edition front-end applications
Announcing the RDz Unit Test Feature
The ultimate in modern application development for System z

- Liberate developers to rapidly prototype new applications
- Develop and test System z applications anywhere, anytime!
- Free up mainframe development MIPS for production capacity
- Eliminate costly delays by reducing dependencies on operations staff

Note: This Program is licensed only for development and test of applications that run on IBM z/OS. The Program may not be used to run production workloads of any kind, nor more robust development workloads including without limitation production module builds, pre-production testing, stress testing, or performance testing.
How to Access Source Code ...

RDz offers integration into a variety of Source Code Management (SCM) tools as well as a framework for creating SCM integration on your own.

- Variety of vendors supply plug-ins to RDz to provide easy access to processes and source code controlled by their products.

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<tr>
<th>RDz</th>
<th>Rational Team Concert</th>
<th>SCLM</th>
<th>ClearCase</th>
<th>CA Endevor</th>
<th>Framework for other SCMs</th>
<th>Serena Changeman</th>
<th>ISPW</th>
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**RTCz integration with RDz**

- **RTCz provides**
  - agility, collaboration and process
  - SCM and Build functions for z/OS (and other platforms)

- **RDz augments the development productivity & experience**
  - files act as if on the host
  - Appropriate editors (COBOL, maps, etc.) and functions (content assist, syntax check, etc.)
  - High value functions (XML enablement, SFM, code generation from models, from UML, etc)

- **RDz projects in RTCz**
  - RDz projects are a view into the RTCz project
  - RDz projects provide a working set for the developer
  - RDz projects are not shared in the SCM
Develop applications more productively...

- Work with existing host resources in a workstation environment
- Integrate development with change management
- Experience productivity gains with modern development tools
  - Quickly perform mundane tasks
  - Generate code
  - Code assistance and templates
- Ensure proper governance of application development
RDz-based development

- Common development environment for COBOL, PL/I, C/C++, and Java
- Simplified development with more information at your fingertips

Syntax Check
- Submit jobs, access job output, or open source members with a single click
- Outline view presents COBOL structure
- Error list in Problems view
- Statement in error indicated in source
- Double-Click on the Error
- Open and edit multiple source and JCL members simultaneously
- Edit Source

Submit jobs, access job output, or open source members with a single click
Integrate with other tools …

- Take advantage of the Eclipse environment to gain access to a wider variety of data and functionality
- Create or install third-party Eclipse plug-ins to extend and specialize the development experience
- Work with the IBM Problem Determination tools from the RDz environment
  - Debug Tool
  - File Manager
  - Fault Analyzer
Debug Multiple Runtimes

- Use the cross-platform debugger to debug end-to-end systems as they execute in the runtime
  - CICS
  - IMS
  - DB2
  - Batch
  - WAS
  - Native LUW

- From the workstation:
  - View executing source code
  - Step through host code line-by-line
  - Set breakpoints
  - Alter working storage values
  - Alter register values
  - Etc...

- Debug zOS and distributed code in the same interface even stepping between runtimes and platforms!

- Requires on IBM Debug Tool
Summary

- RDz is an Eclipse-based IDE speeding mainframe program maintenance and modern composite (SOA) application development.
- A complete, integrated J2EE or EGL development environment allows development of complete composite applications from a single development environment.
- RDz offers Source Code Management integration tools to access both mainframe and distributed code repositories.
- RDz includes runtime specific tools, such as CICS explorer, for working more productively with the traditional System z runtimes.
- Traditional mainframe programs can be developed or maintained using productivity increasing tools.
- zOS runtime web services can be easily developed, tested, and deployed from the workstation.
- Integration with other IBM and third-party tools offers a more complete development experience.
Agenda

- Rational Developer for System z (RDz) overview
- Rational Asset Analyser and RDz Integration
IBM Rational Asset Analyzer - Architectural View

Mainframe

Enterprise Customer mainframe application development artifacts

- COBOL, PL/I applications for CICS, IMS and DB2
- plus z/OS Job Control Language (JCL) and High Level Assembler

Inventory process

Application metadata (DB2)

Impact analysis

Application understanding

User community

Web browser

RESTful Interface

Business analysts, system analysts, developers, testers, project managers

Distributed

Enterprise Customer distributed application development artifacts

- Java technology-based applications, HTML, JavaServer Pages (JSP), Enterprise JavaBeans (EJB), enterprise archive (EAR), Web archive (WAR) and Java archive (JAR) files, and C/C++

Inventory process

RDz, other tools
Rational Asset Analyzer Fundamentals

- Solution for inventory and static analysis of new projects or maintenance efforts
  - Cover heterogeneous types of software artifacts in development life-cycle
  - Support for z/OS and enterprise-wide software applications
  - Proven enterprise technology that can run on or off z/OS

- Instant, interactive delivery of high value information to people and processes
  - Powerful Custom Query feature allows to extend the GUI to address special needs
  - Browser-based and RDz/Eclipse-based user interface
  - Documented database schema and import file format
  - RESTful interfaces for programmatic access to the data

- Helps accelerate the discovery and analysis phases
  - Program-collected and human-augmented knowledge
  - Highly structured (proven) scalable model
  - Relationships among the artifacts
  - Metrics related to the IT artifacts in the enterprise

- Assists in the development and test phases
  - Identify impacts across the enterprise
  - Identify areas to test
  - Reduce risk and improving test coverage
RAA – Home Page

Welcome to Rational Asset Analyzer!

To begin, consider looking over the items in the Getting started section of the Task Help located at the right.

Common assets | Metrics - overview | Metrics - detailed | Metrics - dashboard
--- | --- | --- | ---
Application | Container | File | Impact analysis
5 | 676 | 100750 | 0
File | 2
Impact analysis | 2

Lines in file

File size (bytes)
Rational Asset Analyzer – Counts & Metrics

*Gain control of your assets & know what you have*

- Identify the **breadth of technologies** currently used in the enterprise – using a dashboard or report view
- Understand the **quality and complexity** of your assets
- Use the Errors view to **identify missing resources**
- Error rate is an indication of **validity of data**; also includes tools to help reduce the error rate
Rational Asset Analyzer – Application Understanding

Quickly understand code with little or no documentation, and relationships across the enterprise

- Group artifacts into **user-defined groups** called Applications to limit scope to area of interest
- Use **various types of diagrams** for understanding how the application “hangs together”

- Use **annotations** to capture knowledge from SMEs e.g. Business function, description, etc.
- Create **user-defined relationships** for situations where relationships cannot be determined through static analysis
- Perform **enterprise-level keyword searches**
Rational Asset Analyzer – End to End Impact Analysis

Reduce time to market & risk of downtime by understanding change impact upfront

- Reduce time to determine **scope of change** whether for new enhancements, or even maintenance efforts
- View the metrics for impacted artifacts to determine the **risk of change** i.e. cyclomatic complexity, lines in file, etc.
- Traverse user-defined relationships to determine **impacts across platforms** i.e. follow dependencies from mainframe to J2EE and back.
- Create a “bill of materials” of impacted artifacts by evaluating the details page

The following impact analysis overview diagram shows a subset of assets that this proposed code change directly and indirectly affects.
RAA/RDz Integration - Compatibility and benefits

- **Compatibility**
  - On a single system with Rdz and RAA local
  - Connectivity to remote instances of WSAA and RAA

- **High level benefits**
  - Provide software artifact analysis of local workspaces to the developer
  - Reduce developer's time needed to understand impact and make the changes in complex applications
  - Allow developers to see their work in context of heterogenous artifacts across the whole enterprise
  - Bring enterprise analysis directly into developer workspace
RAA/RDz integration - function summary

- Scan files in local workspace projects into a local RAA repository
- Search for Programs and Data Elements in local and remote RAA repositories.

- View local and remote programs
  - A tree view showing the components that make up the program broken down by component type
  - A diagram showing the control flow of the program
  - A diagram showing the structure of the diagram
  - A table showing information about all data elements that are in a program
  - View Dead code in Cobol program

- Perform impact analysis on files, programs, and data elements, and view their results

- Integration between RAA functions and source in LPEX RDz editor window
RAA/RDz integration – Eclipse/RDz based interface functions

Properties and Remote RAA instance configurations

Several view panes:
- Program view
- Search results
- Impact results
- Data element table
- Program diagram

Native Eclipse Controls

Properties pane

RAA Search
RAA/RDz integration – UI elements

Linked to source even with COPY REPLACE
RAA/RDz integration – UI elements, control flow
RAA/RDz integration – UI elements, data elements

ability to see source, references, modifications
RAA/RDz integration - impact analysis
RAA/RDz Development Savings

**Productivity Benefits:**
- Even for experienced TSO veterans, but especially for new PC-aware developers:
  - See (view) substantially more code
  - Integrated analyze/edit/compile/debug/upload/download – access to z/Resources
  - Instantaneous response time during develop and test
    - Function/Enter keys do not interrupt z/OS CPU
  - 40+ (over forty) discrete edit/test/debug productivity features available with RDz:
    - Not available using ISPF
    - And only a handful of ISPF features not available on RDz

**Web Services**
- RDz provides wizards to automate service creation:
  - Bottom-up:
    - From a CICS program COMMAREA and an IMS IO-AREA
  - Top-down:
    - From a WSDL (RDz generates call-able, "wrapper" programs)
- Both Bottom-up/Top-down
- This takes SOA development for traditional mainframe applications from the Stone Age to the 21st Century
What Benefits Will You Get With RAA?

Save costs for:
- Contracts and bids
- Project estimation
- Project management
- Analysis
- Code understanding
- Development
- Maintenance
- Testing and Bug-Fixes
- Documentation

Offload TSO/ISPF code analysis:
- TSO/ISPF 3.4 Dataset searches
- Edit session internal program "Find commands"
- File browsing
- Program compiles: Listings/X-Refs, etc.

During project estimation/code analysis**
- MIPS savings from: **30% → 60%**
- Productivity increases for analyzing code from: **30% → 60%**
Les solutions IBM Software Services

La formation

La réussite de vos projets passe par les bonnes formations

L’expertise / Le conseil

La réussite de vos projets nécessite de l’expertise technique et fonctionnelle

L’offre « Accelerated Value »

La réussite de vos projets nécessite un suivi sur le long terme

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Thank You