



# z/OS Introduction and Workshop

## Rational Developer for z System (RDz)

Most current release has a name change  
IBM Developer for z System (IDz)

# Unit Objectives

After completing this unit, you should be able to:

- Understand RDz is an alternative to TSO, ISPF, and SDSF for development
- Understand RDz as modern development tool
- Understand RDz capability as a multi platform development tool

Rational Developer for System z (RDz) is an **eclipse** based Integrated Development Environment (IDE)





## Rational Developer for z System (RDz) is an eclipsed based Integrated Development Environment (IDE)

An Integrated Development Environment (IDE) brings all of the programmers tools into one convenient place.

IDEs bring editor, compiler, linker and debugger into one place along with project management tools to increase programmer productivity.

Sometimes a version control system and various tools to simplify the construction of a GUI are integrated as well.



RDz is an alternative to using TSO, ISPF, and SDSF with the ability to simultaneously use other platforms when developing end to end solutions or meet requirement to develop, maintain and test on separate platforms from a single controlling workstation.



# RDz Features and Functions

## Connect and Disconnect to z/OS

- Data Set and Unix File Access
- Allocate new data sets
- Data set characteristics view
- Configurable Editor
- Submit JCL
- JES Output Access
- TSO Command Shell
- Unix Command Shell
- DB2 Connect Access
- CICS Explorer

## TN3270 Emulator

## Drag and drop data set across separate systems

## z/OS Projects

- Local Compile and Execution Capability

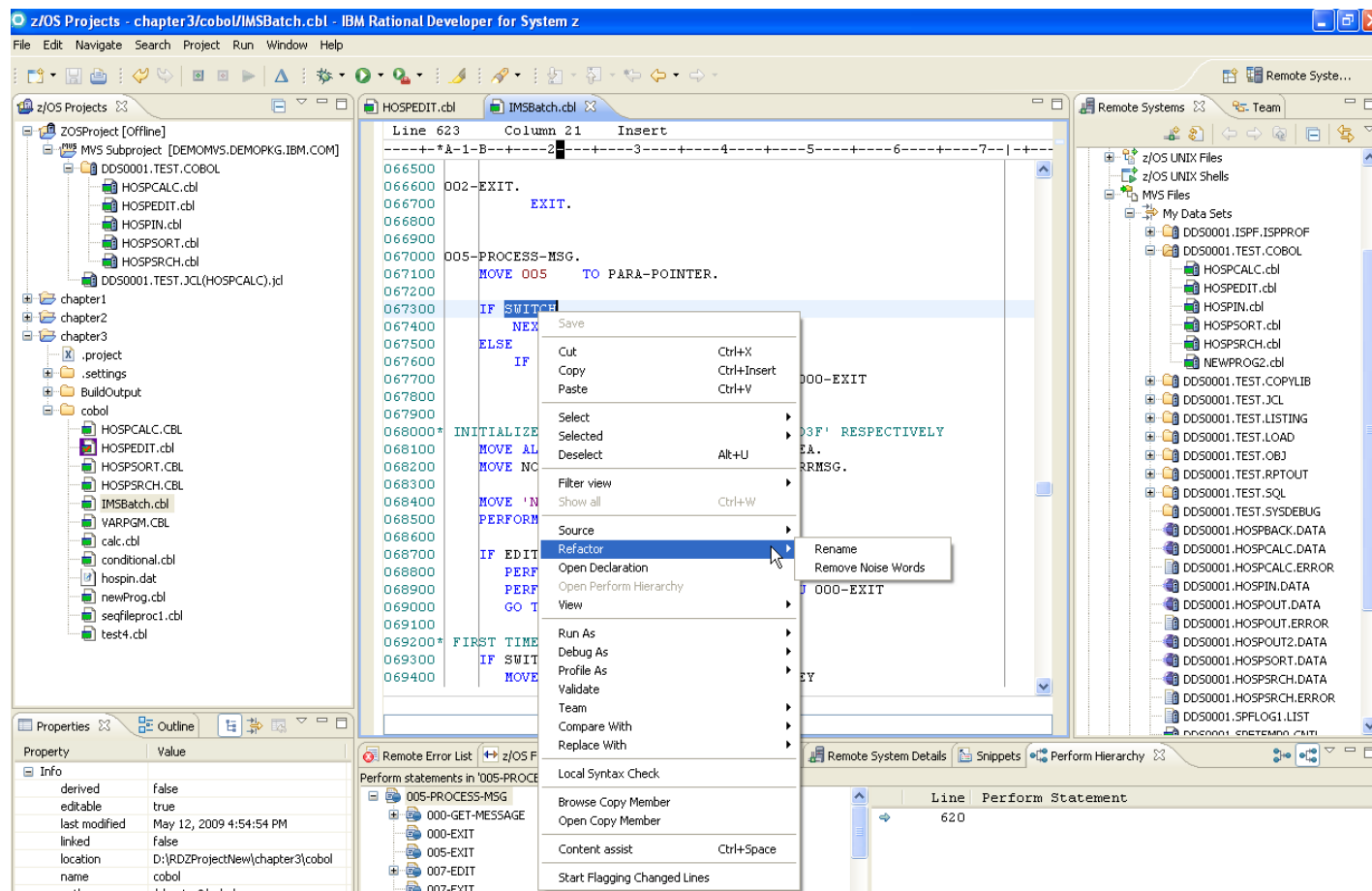
## Preferences (session configuration)

## Perspectives

- CICS SM
- CVS Repository Exploring
- Database Debug
- Database Development
- Debug
- Enterprise Service Tools
- Fault Analyzer Perspective
- Java
- Java Browsing
- Java EE
- Java Type Hierarchy
- JavaScript
- Plug-in Development
- Remote System Explorer
- SCLM
- Team Synchronizing
- Web
- z/OS Projects
- Web

# What is RDz?

- IBM's application development workbench for the 21<sup>st</sup> century
- RDz provides a workstation-based environment with advanced, graphical, tool-based access to z/OS data sets and z/OS resources





## What can you do with RDz?

- Develop mainframe applications in:
  - COBOL
  - PL/I
  - C/C++
  - HLASM (high-level assembler language)
- Target code you write for:
  - z/OS Batch
  - z/OS online applications running CICS or IMS TM
  - z/OS with access to: DB2, IMS (DL/I), QSAM, VSAM data structures
  - Windows-based systems
  - AIX-based COBOL systems
- RDz enables:
  - z/OS traditional mainframe coding and testing
  - Integration with leading-edge z/OS development tools and features
  - Template-based development
  - Integration with modern languages and toolsets



# ISPF-Based 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

**Edit source**

Open and edit multiple source and JCL members simultaneously

Statement in error indicated in source

**Double-click on the error**

Error list in Problems view

Outline view presents COBOL structure

z/OS Projects - REGIOA.cbl - IBM Rational

Line 35 Column 1 Insert

```

000035  DISPLAY "Program REGIOA STARTING "
000036  MOVE 2 TO BRANCHFLAG.
000037  MOVE 'AAAAAA' TO FIELD-A.
000038  MOVE 'BBBBBB' TO FIELD-B.
000039  MOVE 'CCCCC' TO FIELD-C.
  
```

1 error, 0 warnings, 0 infos (Filter matched 1 of 119 items)

Description	Resource	In Folder
IGYPS2072-S "DISPLAI" was invalid. Skipped to the next verb, period or procedure-name d		

010-INITIALIZATION.

020-LOGIC.

030-SEEYA.

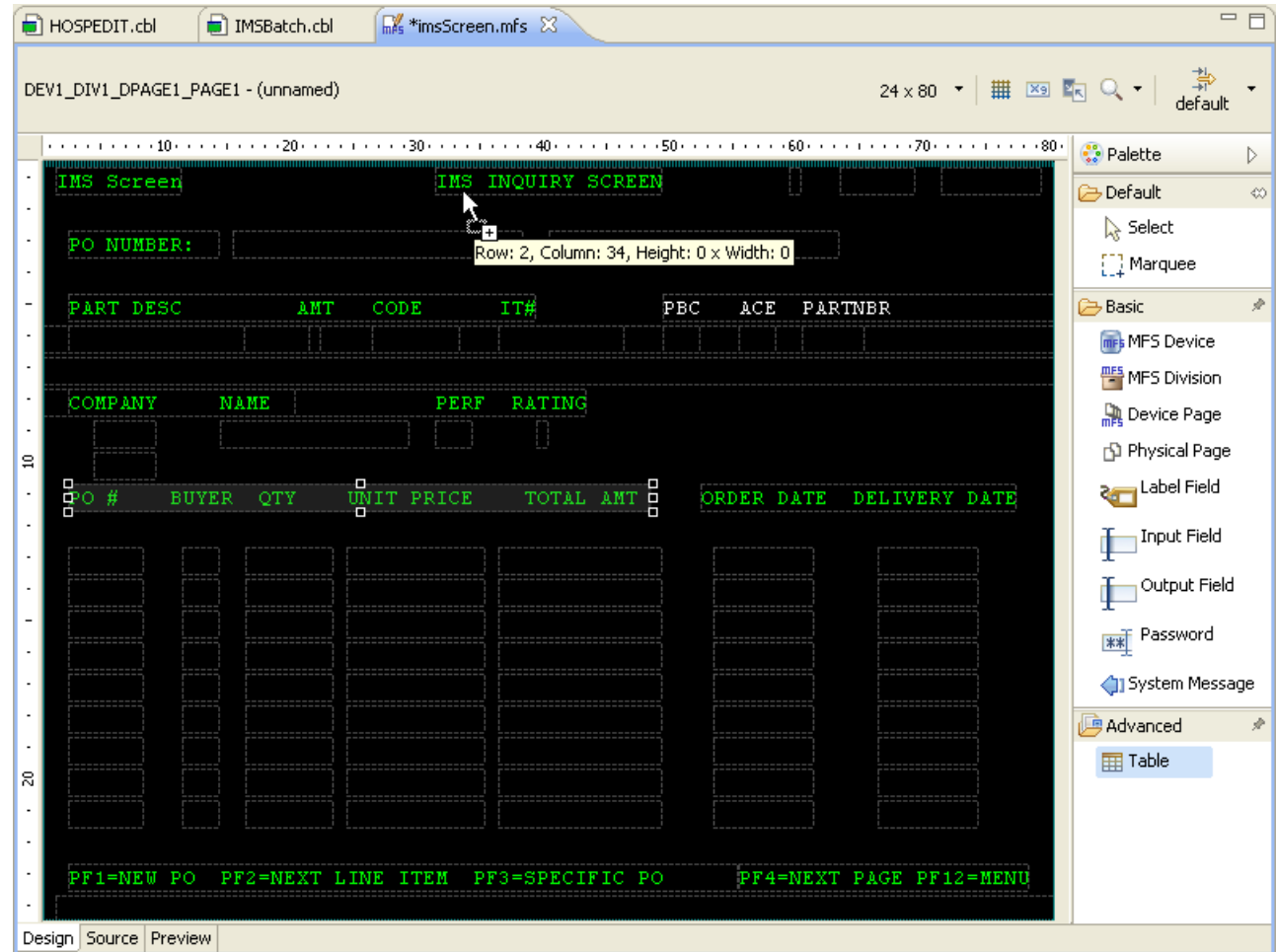
040-GOODBYE.

z/OS LPEX Editor is active

# Integrated CICS/BMS – IMS TM/MFS Map Editor

For both CICS/BMS and IMS/MFS:

- ▶ Graphical editing
- ▶ Source-mode editing
- ▶ Preview
  - Run-time simulation



# Integrated DB2 Relational DBMS Table Editor

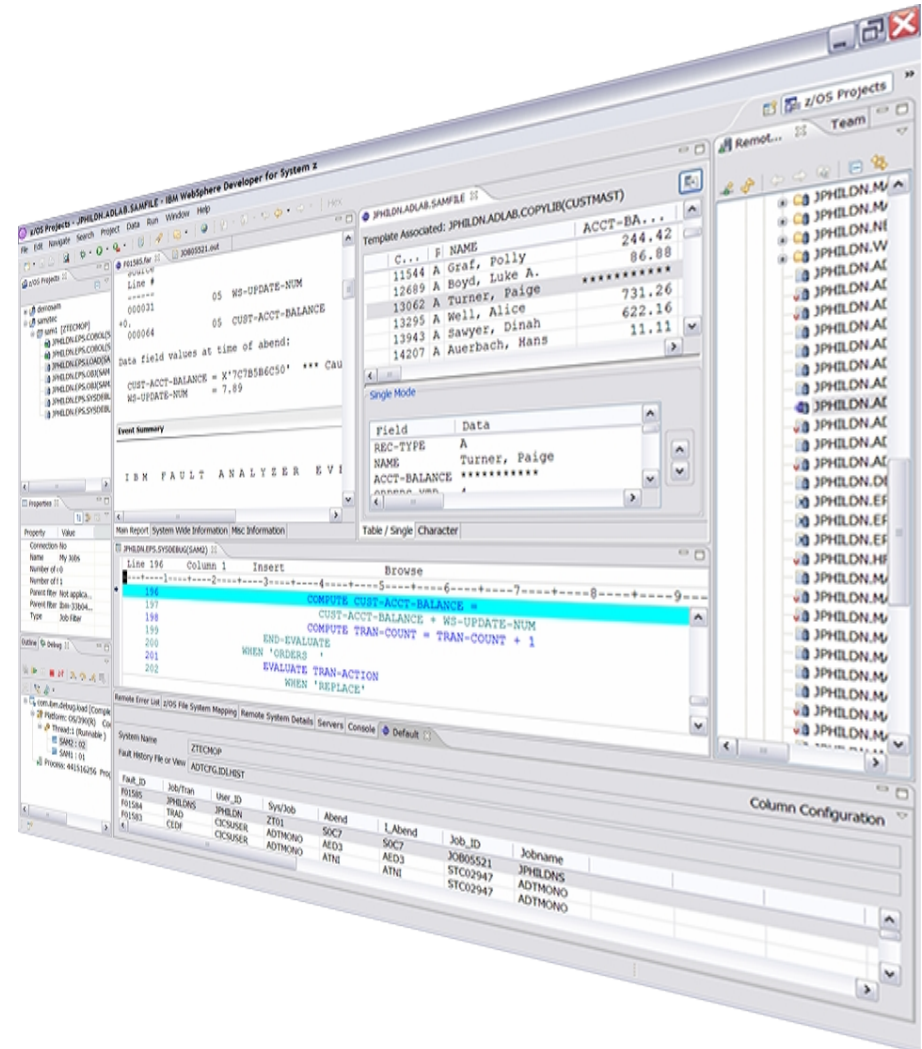
EMPNO [CHAR(6)]	FIRSTNAME [VARCHAR(12)]	MIDINIT [CHAR(1)]	LASTNAME [VARCHAR(15)]	WORKDEPT [CHAR(3)]	PHONENO [CHAR(4)]	HIREDATE [DATE]	JOB
000010	Chris	I	HAAS	A00	3978	1995-01-01	PRE
000020	Michael	L	THOMPSON	B01	3476	2003-10-10	MAN
000030	SALLY	A	KWAN	C01	4738	2005-04-05	MAN
000050	JOHN	B	GEYER	E01	6789	1979-08-17	MAN
000060	Charles	F	STERN	D11	6423	2003-09-14	MAN
000070	EVA	D	PULASKI	D21	7831	2005-09-30	MAN
000090	EILEEN	W	HENDERSON	E11	5498	2000-08-15	MAN
000100	THEODORE	Q	SPENSER	E21	0972	2000-06-19	MAN
000110	VINCENZO	G	LUCCHESI	A00	3490	1988-05-13	SALE
000120	SEAN	A	O'CONNELL	A00	2165	1993-12-05	CLEF
000130	DELORES	D	QUINTANA	C01	4578	2001-07-13	ANA
000140	HEATHER	A	NICHOLLS	C01	1793	2006-12-15	ANA
000150	BRUCE		ADAMSON	D11	4510	2002-02-12	DESI
000160	ELIZABETH	R	PIANKA	D11	3782	2006-10-11	DESI
000170	MASATOSHI	J	YOSHIMURA	D11	2890	1999-09-15	DESI
000180	MARILYN	S	SCOUTTEN	D11	1682	2003-07-07	DESI
000190	JAMES	H	WALKER	D11	2986	2004-07-26	DESI
000200	DAVID		BROWN	D11	4501	2002-03-03	DESI
000210	WILLIAM	T	JONES	D11	0942	1998-04-11	DESI
000220	JENNIFER	K	LUTZ	D11	0672	1998-08-29	DESI
000230	JAMES	J	JEFFERSON	D21	2094	1996-11-21	CLEF
000240	SALVATORE	M	MARINO	D21	3780	2004-12-05	CLEF
000250	DANIEL	S	SMITH	D21	0961	1999-10-30	CLEF
000260	SYBIL	P	JOHNSON	D21	8953	2005-09-11	CLEF
000270	MARIA	L	PEREZ	D21	9001	2006-09-30	CLEF
000280	ETHEL	R	SCHNEIDER	E11	8997	1997-03-24	OPEI
000290	JOHN	R	PARKER	E11	4502	2006-05-30	OPEI
000300	PHILIP	X	SMITH	E11	2095	2002-06-19	OPEI
000310	MAUDE	F	SETRIGHT	E11	3332	1994-09-12	OPEI
000320	RAMLAL	V	MEHTA	E21	9990	1995-07-07	FIEL
000330	WING		LEE	E21	2103	2006-02-23	FIEL
000340	JASON	R	GOUNOT	E21	5698	1977-05-05	FIEL
200010	DIAN	J	HEMMINGER	A00	3978	1995-01-01	SALE
200120	GREG		ORLANDO	A00	2167	2002-05-05	CLEF
200140	KIM	N	NATZ	C01	1793	2006-12-15	ANA
200170	KIYOSHI		YAMAMOTO	D11	2890	2005-09-15	DESI
		K	JOHN	D11	0672	2005-08-29	DESI
		M	MONTEVERDE	D21	3780	2004-12-05	CLEF
		R	SCHWARTZ	E11	8997	1997-03-24	OPEI
		F	SPRINGER	E11	3332	1994-09-12	OPEI
		E	WONG	E21	2103	2006-02-23	FIEL
		R	ALONZO	E21	5698	1997-07-05	FIEL

- Full-screen test data editing facility
- SQL statement: Editor, query build facility, test
- Create, deploy and test DB2 stored procedures

# RDz and Problem Determination Tools Suite

## Supporting development and testing of composite applications

- Optimize and manage performance of application resources
- Compile, debug and test applications, and convert code quickly and easily
- Analyze and correct application failures with minimal down-time
- Manage and generate data files, including XML
- Extract/manipulate production data for testing applications (DB2, IMS, VSAM) and provide data privacy functionality
- Conduct stress, performance, regression, function and capacity planning tests



# Is RDz Useful to Your Organization

- Reduces training costs
- Increases productivity
- Reduces host MIPS
- Produces higher quality applications
- Maximizes reuse of z/OS applications
- Attracts younger developers





## RDz Benefits – Anecdotal Data from RDz Customers

- **Large bank in Germany benchmark results:**
  - **75% CPU Savings**
  - With 100 Developers - **€ 3,600,000 savings/Annually** (\$4,160,000 U.S.)
- **Other European banks benchmarks and feedback:**
  - **Reduced TSO consumption by as much as 80%**
  - **Saved 2 Euros an hour/per developer** using RDz versus the mainframe
- **U.S. telecomm company:**
  - Reduced costs by more than US \$75,000 on a single project
- **European services provider** – Estimates that by rolling RDz out to 600 users will save ~ **€ 74,000,000 over five years** (\$102,490,000 U.S.)
- **Financial services provider in Sweden:**
  - Saves approximately **US \$1.6 million** on licensing costs & improved ABEND analyses, file alterations and application debugging processes when they replaced existing debugging software with IBM Problem Determination Tools
  - Reduced 90% of time spent tuning programs and discovering performance bottlenecks when they implemented Application Performance Analyzer to help diagnose issues in IMS and DB2





## Where to Go for More Information

Download Installation Manager and Trial RDz

<https://developer.ibm.com/mainframe/products/downloads/eclipse-tools/>

RDz launch Welcome page has many education assistant references

Example of Youtube Instruction Videos

[https://www.youtube.com/watch?v=m\\_qHgosLtvU](https://www.youtube.com/watch?v=m_qHgosLtvU)

[https://www.youtube.com/watch?v=pgZp6XHLb\\_4](https://www.youtube.com/watch?v=pgZp6XHLb_4)

<https://www.youtube.com/watch?v=x6ycgS9Aasc>





## **Demonstration**

- Edit source code, JCL used to compile and execute
- Submit JCL and review JES2 spool output
- TSO and Unix command prompt
- TN3270 Session
- Data Perspective
  - Connect to DB2 data source
  - DB2 table navigation

Lab system RDz host components are operational

Download and install RDz client to interact with lab system

# Unit summary

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