

Workload Simulator for z/OS

IBM Problem Determination Tools V12 R1



IBM Problem Determination Tools – Roadshow 2012

Workload Simulator

Vortrag im September 2012

- ◆ Hamburg
- ◆ Frankfurt
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What Is the Cost of Testing?

In general, the cost of testing is less than the cost of not testing.

The cost of testing includes the expense of test other work, test hardware, and test tools (for ex

What Is the Cost of Not Testing?

The costs of not testing or of testing inadequate

- More system outages
- More personnel for production system maintenance
- Slower software migration
- End-user dissatisfaction and potential loss of business
- Lost data
- Less new development
- Higher data processing costs
- Missed business opportunities.

Capacity Planning Tests

Capacity planning tests predict how your system will behave when new resources are brought online. These tests can also intentionally overuse one or more system resources to determine if the system can perform adequately with a predicted increased workload. You can use capacity planning tests to answer the question "What will happen if I add this many resources to my system?" For example, you could use capacity planning tests to predict whether your system will perform adequately if you add 20 new terminals.

WSim enables you to drive a system with a higher transaction rate than normal without the need for terminal operators. You can also verify previous capacity projections with a simulation. In addition, some types of capacity planning tests are impossible to conduct without using a testing tool such as WSim. WSim enables you to simulate more terminals or different types of terminals than you have in your production network.

What Should You Test?

In general, you should use WSim to test any significant change to your system. This includes any changes that might affect hardware, system software, application programs, workload, or environment. Ask yourself the following questions about a proposed change:

- How complex is the change?
- How many components will be changed?
- How many transactions or transaction types will be affected by the change?
- How many people will be affected by the change?
- How difficult will backup and recovery be after the change?
- What's my past experience with changes of this type?

The answers to these questions will help you decide what types of changes you want to test with WSim.

What Is the Cost of Testing?

In general, the cost of testing is less than the cost of not testing.

The cost of testing includes the expense of test personnel who could be doing other work, test hardware, and test tools (for example, a WSim license).

What Is the Cost of Not Testing?

The costs of not testing or of testing inadequately may include the following:

- More system outages
- More personnel for production system maintenance
- Slower software migration
- End-user dissatisfaction and potential loss of business
- Lost data
- Less new development
- Higher data processing costs
- Missed business opportunities.

Agenda

1 Was macht der Workload Simulator?

2 Was braucht der Workload Simulator?

3 Was bringt der Workload Simulator?

4 Ansprechpartner und weitere Informationen



Aufgaben des IBM Workload Simulator

♦ Simulation

- ♦ Zu Testzwecken
- ♦ Virtuelle Nachbildung von Elementen

♦ Einsatzbereiche

- ♦ Erstellung von Testfällen
Capture-Replay
- ♦ Funktionstests
- ♦ Performancetests
- ♦ Stresstests
- ♦ Regressionstests
- ♦ Tests für Kapazitätsplanung



Regressions- und
Belastungstest
mit interaktiven z/OS-
Anwendungen



Typischer Projektablauf

- ◆ Planung
 - ◆ Ziele definieren
 - ◆ Testplan erstellen
- ◆ System Konfigurieren
- ◆ Skripte vorbereiten
 - ◆ Simulierte Komponenten
 - ◆ Nachrichten-Erzeugung
- ◆ Ablauf der Simulation
- ◆ Ergebnisse auswerten

WSim



Bietet Funktionen für

- ◆ Testaufbau
- ◆ Administration
- ◆ Dokumentation
- ◆ Analyse



Simulierte Ressourcen Unterstützte Protokolle

SNA

- ◆ CPI-C
- ◆ IP
 - ◆ TCP, UDP
 - ◆ Web Browsers und Web Clients
 - ◆ Telnet 3270, 3270E and 5250 clients
 - ◆ FTP
 - ◆ Network Virtual Terminal (NVT)
- ◆ Websphere MQ



Mehrere Protokolle
in einem Aufbau



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IBM Workload Simulator

Workload Simulator (WSim)

Select one of the following. Then press Enter.

	Command	Action
<input type="checkbox"/>	1. STL	Create and Process Networks and STL Programs
	2. PREP	Create and Preprocess Networks and Message Decks
	3. IDC	Interactively Capture and Build Message Decks and STL Programs
	4. GENERATE	Generate Message Decks, STL Programs, and WSim Logs
	5. RUNWSIM	Run WSim (Prepare to Run a Simulation)
	6. LOGLIST	Analyze Logged Data
	7. RESPONSE	Analyze Response Times
	8. COMPARE	Compare Logged Display Data
	9. SCREEN	Change Screen Characteristics
	10. SETUP	Change System Defaults

Command ==>

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel

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IBM Workload Simulator Test Manager

WSim Test Manager

Select one of the following. Then press Enter.

	Command	Action
P	1. CASE	Create and Process Testcases
	2. GROUP	Create and Process Testgroups
	3. CYCLE	Create and Process Testcycles
	4. RUN	Create WSim networks and Schedule WSim Simulation Runs
	D. DOC	Create Test Documentation
	P. PROJECT	Add/Change Project or Alternate HLI
	U. UTIL	Run WSim Test Manager Utilities
	W. WII	Invoke WSim/ISPF Interface

Project:

Alternate HLI:

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Command ==>

F1=Help

F2=Split

F3=End

F4=

F5=

F6=

F7=Up

F8=Down

F9=Swap

F10=Left

F11=Right

F12=Retrieve

MA c

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IBM Workload Simulator Test Manager

- ♦ Zur Steigerung der Benutzerfreundlichkeit
- ♦ Wegweiser durch den Test-Prozess
- ♦ WTM bietet
 - ♦ Wählbare Betriebsarten
 - ♦ Unterstützung bei der Verwaltung von Tests
 - ♦ Automatisiertes Erzeugen von Skripten
 - ♦ Automatisierung von Aufgaben

WTM ist insbesondere für die ersten Schritte zu empfehlen, bis eine gewisse Vertrautheit mit WSim und den Skripten erreicht ist.



IBM Workload Simulator Eclipse Plug-In

The screenshot displays the IBM Workload Simulator Eclipse Plug-In interface. The left pane shows the Project View with a tree structure under the TEST3 project. A context menu is open for the CASE3 test case, listing actions: Open, New Test Case, Edit STL, Notes, Translate, UTBL, View, and Delete. The right pane shows the Test Case Overview for CASE3, with fields for Name (CASE3), Description (V case1), Type (CPIC), Notes flag, and UTLB counts. The bottom pane shows the Outline view with the message "An outline is not available."

Project View

- TEST3
 - Test Case
 - CASE3
 - Open
 - New Test Case
 - Edit STL
 - Notes
 - Translate
 - UTBL
 - View
 - Delete
 - Test G
 - Sched
 - Report
 - TEST1
 - TEST2

Test case overview

Test case information

Name: CASE3

Description: V case1

Other information

Type: CPIC

Notes flag:

UTLB counts:

Outline

An outline is not available.

Physische und Logische Konfiguration

Physisch

- ◆ Das System, auf dem WSim läuft

Logisch

- ◆ Netzwerk und die simulierten Komponenten
- ◆ Regeln zur Generierung der Nachrichten
- ◆ Wird in einem Skript gespeichert
- ◆ Skript-Erzeugung
 - ◆ Structured Translator Language (STL)
 - ◆ Interactive Data Capture (IDC)
 - ◆ NPM/LU2 reformatter and script generator

Konfigurationen



- ◆ VTAM
- ◆ CPI-C
- ◆ TCP/IP



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Tests auswerten

- ◆ Reports zur Auswertung der Testergebnisse
 - ◆ Online
 - ◆ Gedruckt

- ◆ Es gibt vier übergeordnete Kategorien
 - ◆ Operator Reports
 - ◆ Message Log (alle Messages)
 - ◆ Durch WSim-Dienstprogramme erstellt (basierend auf dem Message Log)
 - ◆ Antwortzeit-Statistiken



Berichte erstellen

- ◆ Umfassende Runtime Utilities
 - ◆ Workload Simulator/ISPF interface
 - ◆ Display Monitor Utility
 - ◆ Runtime Reports
 - ◆ ITPECHO
- ◆ Aussagekräftige Auswertung
 - ◆ Log List
 - ◆ Log Compare
 - ◆ Response Time Utilities
- ◆ Full Data Tracing



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Problem Determination Tools Studio (1)

Eine funktional komplette, eclipsebasierende Umgebung

- PD Tools Studio umfaßt fünf eigenständige, aktualisierte PlugIns der PD-Tools in der Version 12
 - Application Performance Analyzer
 - Debug Tool
 - Fault Analyzer
 - File Manager
 - Workload Simulator
 - sowie eine
 - z/OS Perspektive
- Es verfügt über verbesserte und vereinfachte Möglichkeiten der Anbindung an den Mainframe
- Es bietet einen leicht einrichtbaren, sicheren Zugriff auf die z/OS-Ressourcen
- Das Einrichten und Verwalten der PlugIns wurde erleichtert
- Und es ist erweiterbar um weitere PlugIns (z.B. CICS Tools)



The screenshot shows the IBM Problem Determination Tools Studio interface. The main window displays a COBOL source code file named COBOLUP.CCB. The code is divided into sections: DATA DIVISION, FILE SECTION, WORKING-STORAGE SECTION, LINKAGE SECTION, PROCEDURE DIVISION USING DIVISOR DIVIDENT RESULT, and STEUERUNG SECTION. The error message "Module COBOLUP, program COBOLUP, source line # 41: Abend S0CB" is visible at the top. The bottom pane shows the "Explanation" tab with the message "CEE3211S The system detected a decimal-divide exception (System Completion Code=0CB)".

IBM Rational Developer für z (RDz)



Eclipse-basierende grafische Entwicklungsumgebung

- Konsolidiert die Entwicklungsplattformen auf nur eine Umgebung für Java und den Mainframe
- Einheitliche Oberfläche für COBOL, PL/I, C/C++, HLASM, JAVA, EGL, WebServices
- Macht den Mainframe für Nachwuchskräfte attraktiver
- Steigert die Produktivität für Erstellung und Wartung von Anwendungen
- Kürzere Entwicklungszyklen
- Funktionalitäten moderner Entwicklungstechniken:
 - Grafisches Debugging
 - Real-Time Syntax Check
 - Syntax Vervollständigung
 - Smart Editor
- Integration mit Eclipse-basierenden Werkzeugen:
 - Problem Determination Tools
 - CICS- und IMS-Explorer
- Anbindung von SCM Systemen wie IBM SCLM, ChangeMan oder Endevor



IBM Rational Developer für z (RDz)

The screenshot displays the IBM Rational Developer for z (RDz) environment. The main editor shows a COBOL program with sections for Data Division, File Section, and Working-storage Section. The left pane shows the Project Explorer with a tree view of the project structure. The right pane shows the Code Coverage Report for the program, including a summary table and a detailed view of the code with coverage percentages.

Code Coverage Summary

Element	Coverage	Covered Lines	Total Lines
SAM3	49%	106	213
SAM4	60%	34	57
USER170.TEST.SYSDEBUG(SAM4).cob	60%	34	57
SAM4()	60%	34	57
SAM3	46%	72	156
USER170.TEST.SYSDEBUG(SAM3).cob	46%	72	156
SAM3()	46%	72	156

Debugging in RDz mit IBM Debug Tool

Volle Integration
End-To-End Debugging
Code Coverage Reports

Ihre Ansprechpartner

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Weitere Informationen

z/OS Problem Determination Tools

Library

News

How to buy

Training and certification

Services

Support

<http://www-01.ibm.com/software/awdtools/deployment/>

IBM Redbooks: IBM Problem Determination Tools for z/OS

<http://www.redbooks.ibm.com/abstracts/sg247918.html>

Analyst Report by Software Strategies: In New zEnterprise™ System Era, IBM z/OS® Problem Determination Tool Suite Leads Again – as ISVs Up Games

ftp://public.dhe.ibm.com/software/http/pdtools/info/PD_Tools_Competitive_Analysis_White_Paper.pdf





VIELEN DANK FÜR IHRE AUFMERKSAMKEIT

