

Release Notes

**IBM® Rational® Rhapsody® TestConductor Add On
Version 2.4.5**



BTC Embedded Systems AG
An der Schmiede 4
26135 Oldenburg
+49 441 969738 0 (voice)
+49 441 969738 64 (fax)

Tool Identification:

IBM® Rational® Rhapsody® TestConductor Add On --- Release 2.4.5 build 2834 for Rhapsody 7.6.1

Media Identification

CD-ROM:
Rhapsody TestConductor 2.4.5
Windows XP SP3, Windows Vista SP2, Windows 7
Linux RedHat RHEL 4 or RHEL 5

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- Can you reproduce the problem? If so, what steps do you take to reproduce it?
- Is there a workaround for the problem? If so, be prepared to describe the workaround.

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1 IBM® Rational® Rhapsody® TestConductor Add On Product Capabilities

Rhapsody TestConductor supports testing of UML models developed with RhapsodyC++, RhapsodyInC, RhapsodyInAda, and RhapsodyInJava.

Rhapsody TestConductor supports

- automatic and manual creation of test architectures
- test case definition based on Sequence Diagrams, State Charts, Flowchart Diagrams and Code
- execution of single or multiple test cases
- generation of test case execution reports

2 What's New in version 2.4.5 build 2834

- New Features in version 2.4.5 build 2834:
 - Code coverage for C++ (not supported for Linux version of Rhapsody)
- Enhancements in version 2.4.5 build 2834:
 - Support for SXF (Simplified C++ execution framework)
 - TestConductor can be used from rhapsodycl.exe (not supported for Linux version of Rhapsody)
- Bugs Fixed in version 2.4.5 build 2834:
 - 179389: Crash in Testconductor on Linux in Create test context
 - 177179: Test Execution hangs when messages are not mapped to operation in SD test cases
 - 175903: RHP76 & TestConductor, run update/build/execute from cmd line...

3 What's New in version 2.4.4 build 2536

- New Features in version 2.4.4 build 2536:
 - None
- Enhancements in version 2.4.4 build 2536:
 - None
- Bugs Fixed in version 2.4.4 build 2536:
 - 176455: Linux: Install: TestConductor installation fails if user is not owner of destination folder
 - 176402: RHP76,TC warning about const string in TestConductor.h

- 176383: RHP76:"const" methods cause problems for TestConductor
- 176379: Incorrect code generated for accessor of association with multiplicity greater than 1.
- 176151: Show as SD does not contain red error message for specific failed test case
- 176150: TestConductor: Show as SD shows blue message for passed test case
- 176145: Generated "OMSETParams" in processEvent operation causes warnings
- 175366: isPluginCommand5 set to 0 after install.
- 175277: 'Add SDInstance' for 'Edit TestCase SDinstances' does not work properly.
- 174972: TestConductor generated code fails to include a file causing compilation errors
- 174971: RHP - TestConductor 7.6, slow performance when executing test case.
- 174970: In TestConductor, an animated SD is missing last event...
- 174902: Need to update TestConductor RQM adapter due to change in
RQM integration client (RQM 3.0.1 FP1)
- 174581: RHP/TestConductor crashes when creating Test Architecture from a class.
- 174126: TestConductor code generation produces the wrong event id's
- 172577: Sample TestConductor\CppTestAutomationSample: test script has 2
identical statements "execute
TPkg_CashRegister::TCon_CashRegister::SD_tc_0"
- 168933: TestConductor in AssertionBased mode/ 'Test Execution' window:
context menu item 'Add to model' does nothing

4 What's New in version 2.4.4 build 2497

- New Features in version 2.4.4 build 2497:
 - Support for SD interaction operators
 - For Rhapsody C and C++, the interaction operators opt,alt,loop,par,break and consider are now supported
 - Support for timing checks
 - For Rhapsody C and C++, time intervals can be used in SD test case specifications in order to specify and check timing constraints, e.g. minimal and maximal response times
 - Support for variables and test data in SD test cases
 - For Rhapsody C and C++, in SD test case specifications one can now directly use attribute names of test components in order to specify input data and expected output data
 - Code coverage computation for Rhapsody C
 - For Rhapsody C, TestConductor can now compute the code coverage (e.g. statement, decision, or MC/DC coverage) of individual test cases and complete test contexts
 - Testing support for Android
 - When running Rhapsody from within eclipse, TestConductor now supports testing of applications running on the Android platform

- Enhancements in version 2.4.4 build 2497:
 - For Rhapsody C and C++, non virtual functions can now be stubbed by using replacement test components
 - For Rhapsody C and C++, operations automatically generated by Rhapsody's code generator can now be used in SD test case specifications
- Bugs Fixed in version 2.4.4 build 2497:
 - 160244: Linux: TestConductor/adapt_ini.sh should support multiple versions of Rhapsody
 - 159280: Using auto generated operations in SD test cases
 - 148812: RFE Enable ignoring running order for specific operations in Test Conductor
 - 137362: Bool type argument of function leads to test case failure
 - 50062: ER to support Interaction operator in SD Test Case on Test Conductor
 - 19825: Autogenerated operations to be supported on test conductor

5 What's New in version 2.4.3 build 2208

- New Features in 2.4.3 build 2208:
 - None
- Enhancements in 2.4.3 build 2208:
 - None
- Bug Fixes in 2.4.3 build 2208:
 - 157730: Sample TestConductor\CppListUsage: 3 first messages have info
'Check of return value passed' and last message has not got this info
 - 154847: Localization (Chinese Trad.):Test Conductor window - some text displayed truncated

6 What's New in version 2.4.3 build 2169

- New Features in version 2.4.3 build 2169:
 - Full TestConductor support for Rhapsody in Ada
 - For Rhapsody in Ada, the same testing features as for C,C++, and Java are now available
 - Support for different kinds of test cases: sequence diagram test cases, code test cases and statechart test cases
 - TestConductor support for Rhapsody Architect for Software
 - Enables model driven testing of code developed with Rhapsody Architect for Software
 - Provides full benefits of model driven testing including graphical test architectures, graphical test cases, linking to requirements, result and coverage reports
 - Test Automation Sample
 - Shows how to use the TestConductor API in order to automate testing workflows
- Enhancements in version 2.4.3 build 2169:

- Offline Testing support for Sequence Diagram test cases
 - Sequence Diagram test cases can now be executed completely without animation
- Bugs Fixed in version 2.4.3 build 2169:
 - 151855: Rhapsody 7.5.2: Float Type Parameter values in Test Conductor Don't Match
 - 150835: Support for Test Conductor with Rhapsody in Ada
 - 50426: Reset and Quit Application checkboxes for Code Testcases
 - 47652: cannot click on hyperlinks to the states/transitions in the generated CoverageResults reports PK83334
 - 46555: Sequence diagram is the method to create test cases in TestConductor. But it needs to be improved.
 - 46554: The development of test in ADA is only possible with Sequence diagrams
 - 46209: ER: Include Code based test cases with RiA
 - 28052: Strange Test Conductor Dialog
 - 21010: Improve the support of Test Conductor with Rhapsody in Ada
 - 20961: PMR 63351.019.866 - Improve the support of Test Conductor with Rhapsody in Ada
 - 20273: Source code testcase: show assert for Eclipse not working like in 'ordinary' Rhapsody

7 What's New in version 2.4.2 build 1915

- New Features in version 2.4.2 build 1915:
 - None
- Enhancements in version 2.4.2 build 1915:
 - None
- Bugs Fixed in version 2.4.2 build 1915:
 - 147783: Inherited flowport should not include owner class name in the flow port drop down box on a dataflow within a sequence diagram
 - 147267: Compilation error when using TestConductor with MicroC / SegmentedMemory
 - 144348: Test Conductor window: error on applying pull down menu Help->Tutorial (ERROR: Failed to open Rhapsody TestConductor tutorial at location ...)
 - 141781: TestConductor/Linux specific: Test case wizard dialog/combo-box 'Please select test case kind' - has only 1 item 'SD TestCase'

8 What's New in version 2.4.2 build 1887

- New Features in version 2.4.2 build 1887:
 - New execution UI integrated in Rhapsody/Eclipse
 - Test execution UI fully integrated with Rhapsody as dockable window
 - Test Case Wizard for automated creation of test cases

- Automatic test case creation based on existing operations, requirements or sequence diagrams
- Allows to create all kinds of test case (SDs, Code, Flowchart, Statechart)
- Automatic mapping to instances of the test architecture
- Model level and code level debugging of test cases
 - When a test case fails, the new debug option can be used in order to step through the test case using animation toolbar
 - Graphical and textual breakpoints can be set within test cases
- Full TestConductor Java support
 - For Rhapsody in Java, the same testing features as for C and C++ are now available
 - Support for different kinds of test cases: sequence diagram test cases, code test cases and statechart test cases
- Full Testing Support for SysML/Harmony
 - Automatic test architecture generation for SysML blocks and parts
 - Test specification with SDs, Flowcharts, Statecharts, Code
 - Easy reuse of existing sequence diagrams as test cases
 - SysML Model Coverage Measurement and Reporting
 - Support for Preconditions in scenarios
 - Extended integration with ATG: ATG can compute missing scenarios for complete use case coverage
- Testing support for code centric models
 - Enables model driven testing of compiled libraries (not generated by Rhapsody) when just library specification (header file) is available or existing source code (not generated by Rhapsody)
 - Provides full benefits of model driven testing including graphical test architectures, graphical test cases, linking to requirements, result and coverage reports
- Enhancements in version 2.4.2 build 1887:
 - Improvements for Sequence Diagram based test cases
 - Support for automatically generated enum and struct serialization and unserialization functions
 - TestActions can be used to define complex test data for individual messages, to perform complex checks for out values and to perform complex checks within stubbed functions
 - Extended integration with Rational Quality Manager
 - New RQM Rhapsody TestConductor adapter
 - Customized Rhapsody TestConductor test definition UI integrated in RQM
 - Performance improvements for test case execution from RQM
- Bugs Fixed in version 2.4.2 build 1887:
 - 135573: TestComponents crash with a segmentation fault on Cppunit testcases
 - 132575: Cannot handle static methods in Test Conductor

126969: JP_MKTG: HTML report generates error
125507: TestConductor in Eclipse: ... it is much more convenient if
Execute-testcase-dialog is topmost window after execute TestCase
124563: Test Conductor for Java buttons grayed out when events injected
50427: Better debugging capabilities with Code TC's similar to SD TC's
46122: Garbling of Japanese character in HTML
35636: When Test Conductor runs it should open a window that is just like a diagram window
27844: Support for creating java source code test cases using Test Conductor
17060: Execute Test Case dialog box message inconsistent between test case types

9 What's New in version 2.4.1 build 1549

- New Features in version 2.4.1 build 1549:
 - TestConductor integration with IBM Rational Quality Manager (RQM)
 - TestConductor test cases can be referenced and executed from RQM
 - Test results can be assessed from RQM
- Enhancements in version 2.4.1 build 1549:
 - Offline Testing can be combined with MicroC target monitoring
 - Enables model level debugging on targets
 - Time intervals for TestComponent life lines
 - Enables SD based specification of timed TestComponent behavior
- Bugs Fixed in version 2.4.1 build 1549:

Note: The listed numbers refer to Rhapsody TeamConcert Work Items

123137: code coverage compute failure in Rhapsody in J
49815: Support for eclipse configuration in Test Conductor.
49693: Support for eclipse configuration in Test Conductor.
48124: sendAction - causes test results to show transition taken but indicated
not covered PK84120
47205: Delay to kill testcases needs to be sped-up. (PMR 03710999000)
30627: APAR PK 91336 Code coverage report incorrectly reports that a transition
is not covered
21626: An option to change the initial time out property of the Tests in Test Conductor
21026: XCRASH: Rhapsody crash when trying to create new project with
name-length 107 chars

10 What's New in version 2.4 build 1437

- New Features in version 2.4 build 1437:
None

- Enhancements in version 2.4 build 1437:
 - None
- Bugs Fixed in version 2.4 build 1437:
 - Note: The listed numbers refer to Quintus entries
 - 225305 [APAR : PK89711]Rhapsody 7.5 does not terminate even after closing the application
 - 219470 Test Conductor: Rhapsody silently crashes

11 What's New in version 2.4 build 1411

- New Features in version 2.4 build 1411:
 - Support of Flow Ports
 - Automatically created Flow Port TestComponents
 - Ability to specify test case behavior graphically using send and receive flow messages in Sequence Diagrams
 - MicroC Support
 - Ability to test MicroC models using TestConductor
 - Test Case execution both on host and target
 - Integration of cunit and cppunit test cases
 - Ability to import cunit and cppunit test cases into Rhapsody
 - Manage and execute cunit and cppunit testcases directly in the Rhapsody model
 - Eclipse Platform Integration
 - TestConductor can be used directly from within Eclipse
 - Offline Testing Support
 - Test Cases can be executed without having an online connection between the SUT and Rhapsody
 - Allows test execution on very limited targets (e.g. targets without communication ports)
- Enhancements in version 2.4 build 1411:
 - Improved Gateway/Doors Integration
 - Eases the workflow to link requirements with test cases
 - Support for triggered helpers
 - User defined helpers can be triggered automatically after TestConductor actions like e.g. test architecture creation.
- Bugs Fixed in version 2.4 build 1411:
 - 224426 TestConductor problem with Singleton object
 - 222636 Wrong generation of code in RTC
 - 220846 Property "ExecutionIdleTimeout" does not behave correctly.
 - 220679 Test Conductor removes the "const" of an operation and so won't compile
 - 220678 Test Conductor ignores namespaces
 - 219851 Memory leaks in driver operations

219469 Incorrect script name to install Text Conductor in the installation documentation

219399 Improved error/warning messages with Test Conductor

219276 If user defined types from profiles are used, when updating the test case
Test conductor prompts an error.

219133 Invalid code generated for user defined types

218741 Types are not scoped correctly.

218258 TC should also take care of data flows

217832 TestConductor\CppTestConductorAPI - note in OMD "TestConductor API
Sample Overview" should be corrected

217735 Linux specific: sample CppSamples\TestConductor\CppTestingExternalFiles
should be changed

217729 RTC_ATG_Tutorial.pdf / Executing TestCase_recorded - actual progress
is 3/3, not 4/4

216715 To run Test Conductor in the background mode

216450 Strange error over result files

212689 Request for a feature using which the execution order for Test Cases could
be changed

210630 Need to be able to navigate from coverage report to the model

100787 Sample AdaSamples\TestConductor\AdaCashRegister - after
command "e" application is suspended

110411 TestConductor fails when referencing elements in another namespace

110357 Test Conductor Documentation is out of date.

110307 TestConductor: ExecutionIdleTimeout is ignored for flowcharts

110223 TC driver operations access via pointer

106691 TestCases order does NOT have any influence on the execution order

105973 Rhapsody RTC should provide th following CLI commands

93514 Would like a way to test performance in Rhapsody

90460 Sample AdaSamples\TestConductor\AdaCashRegister - application tracing is incorrect

12 What's New in version 2.3 build 1057

- New Features in version 2.3 build 1057:
None
- Enhancements in version 2.3 build 1057:
None
- Bugs Fixed in version 2.3 build 1057:
219832 RiA: RTC doesn't start to drive events

13 What's New in version 2.3 build 1020

- New Features in version 2.3 build 1020:
 - Integration of TestConductor and Rational Test RealTime
 - enables application of Rational Test RealTime during TestCase execution
 - Traceability from model coverage report back to the model
 - Model coverage report now contains links that navigate from the coverage report to the corresponding model element in the Rhapsody model
- Enhancements in version 2.3 build 1020:

None
- Bugs Fixed in version 2.3 build 1020:
 - 217834 Linux: Rhapsody crashes on operation "Create Code TestCase"
(on Windows - only errors)
 - 217526 Linux specific: error takes place on build testcase in sample
CppSamples\TestConductor\CppListUsage
 - 217525 Windows specific: warnings take place on build testcase in sample
CppSamples\TestConductor\CppListUsage
 - 216070 Sample CSamples\TestConductor\CStopWatch has not got instruction about its use
 - 215115 Reason for test failure not shown

14 What's New in version 2.2 build 954

- New Features in version 2.2 build 954:

None
- Enhancements in version 2.2 build 954:

None
- Bugs Fixed in version 2.2 build 954:
 - 216821 After running the Test Conductor on a number of tests, the computed coverage is -1.#J%
 - 216258 TriggeredOperationTransitionIsNotDeclaredAsCoveredEvenIfItIs
 - 216198 TestConductor\CppTestConductorAPI: text of the script Windows_runJava.bat is in Linux style (without \r)
 - 216197 TestConductor\CppTestConductorAPI should be corrected (if OMROOT has spaces in path)
 - 216073 TestCase_Purchase_with_remove: execution progress == only 6% (2/30)
 - 216057 Linux specific/CppTestConductorAPI: execution suspend
(Linux_runJava.sh TestConductorAPI_ExecuteFailedTests)
 - 216056 Linux specific: sample CppTestConductorAPI: cannot
"run Linux_runJava.sh TestConductorAPI_ExecuteFailedTests"
 - 215136 Linux: file RTC_Release_Notes.pdf is placed (only) into

<Rhapsody 7.2 root>/Doc/Books

213250 Should add a Test Plan Matrix to profile and include in reporting

212308 Error message "Updating TestPackage finished not successfully" is not good english

212196 Linux: Disable text output during running adapt_ini.sh <RHPDIR>

109773 When running a test conductor test, a timeout in the first state of the class is taken before any message is driven

15 What's New in version 2.2 build 920

- New Features in version 2.2 build 920:
 - Testing Welcome Screen
 - When using IE7 or higher, the Rhapsody Welcome Screen contains a Testing section that allows to quickly access Testing Tutorial, Tutorial sample, TestConductor User Guide and IBM web site
 - TestConductor API
 - All TestConductor functionality now available via COM and Java API, i.e., one can access TestConductor functionality from e.g. VBA scripts, Java programs (using Rhapsody Java API) or C/C++ programs (using Rhapsody COM API).
 - Improved Target Testing Support
 - TestConductor now supports testing of non-animated SUTs by analyzing the instrumentation scope of the tested configuration
 - Connect/Download integration for fully automated test case execution on targets
 - Predefined Matrix- and Table Layouts in the TestingProfile
 - to create TestCase Requirements matrix views and TestResults table views
- Enhancements in version 2.2 build 940:
 - None
- Bugs Fixed in version 2.2 build 940:
 - 215270 Fatal error message when trying to create Test Architecture using TC
 - 214936 TestCase of Activity Diagram is deprecated - so RTC tutorial and sample should be updated
 - 214513 Incorrect call of event using Rhapsody in C with files
 - 214046 TestCase fails because message to an unnamed instance is not recognised
 - 213098 RH EL 4 or 5 specific - error on TestConductor installation
 - 211965 Installation of Test Conductor on Linux requires UUDECODE
 - 211678 Need a better name than Plain Tutorial in the Testconductor Welcome Page
 - 211480 Should add a tag to indicate the model coverage for each coverage results
 - 210317 welcome screen should point to some RTC ATG info
 - 109485 Test Conductor fails when type arguments in \$type const * format
 - 78400 API for testconductor

- Notes

Since TestConductor version 2.1, usage of activity diagrams to describe the behavior of TestCases is a deprecated feature, i.e., existing TestCases based on activity diagrams can still be executed. However, activity diagrams should not be used when creating new TestCases since code generation does not support activity diagrams for operations any more.

16 What's New in version 2.1 build 888

- New Features in version 2.1 build 888:

None

- Enhancements in version 2.1 build 888:

None

- Bugs Fixed in version 2.1 build 888:

214031 Fatal error message when trying to Create Test Architecture using TC

213192 TestConductor\JavaDishwasher has irrelevant for RiJ overridden property

CPP_CG:Class:ImplIncludes

106000 CM properties inside installed sample (cash register)

81084 "Show as SD" sometimes draws incomplete diagram

- Notes

Since TestConductor version 2.1, usage of activity diagrams to describe the behavior of TestCases is a deprecated feature, i.e., existing TestCases based on activity diagrams can still be executed. However, activity diagrams should not be used when creating new TestCases since code generation does not support activity diagrams for operations any more.

17 What's New in version 2.1 build 852

- New Features in version 2.1 build 852:

- Full RhapsodyC support of RTC

- Support of Code/Flowchart TestCases
- Support of TestComponents for SD TestCases
- TestArchitecture creation for Files/Blocks/Objects

- Enhanced Test Reporting with ReporterPlus templates

- Measuring and documenting requirements coverage

- Update of TestArchitectures

- automatically update TestArchitectures according to changes of SUT classes

- Model Coverage

- measuring model coverage of SUT classes by individual or sets of TestCases

- Execution of TestCases on target environments

- Support for Linux target environment

- Additional TestConductor Host environment
 - RTC now running on Windows AND Linux
- Enhancements in version 2.1 build 852:
 - None
- Bugs Fixed in version 2.1 build 852:
 - 212457 Test Conductor fails with System Designer
 - 212273 Test Conductor and Rhapsody crash when running tests
 - 212240 Error message "No relation named itsRadio" during Test Execution
 - 212227 Animation failure during TestConductor execution
 - 210631 Coverage does not seem to be correct
 - 210447 Building Test Case produces compiler errors
 - 210329 After running all tests with Test Conductor, the tests stop, but Rhapsody consumes 50% cpu
 - 108808 Sample CppSamples\TestConductor\CppPbx fails on initializing animation
 - 108117 TestArchitecture can not be created
 - 106146 Cannot instantiate abstract class error
 - 106105 Test Case passes but when shown as SD, an error is observed
 - 105814 Test should pass every time but only passes 25% of the time
 - 105803 Order of message points of conditions is wrong after editing an SD, notes
 - 105722 Auto update the links of the SUT in the test context after updating the SUT's relationships and ports in the design mode
 - 105369 Get a warning when trying to update a simple test
 - 98490 Trouble in TC UserGuide V1.6: p5-12
 - 96373 Detailed Report of RTC Testexecution including graphical view of SD's
 - 93222 RTC cuts spaces from expected return values
 - 92640 Testconductor RiC: check return value of functions
 - 89364 Test Conductor as a Coverage tool
 - 88092 Request for TestConductor to run on Linux
 - 82733 Warning appears on TC execution

18 What's New in v2.0 build 694

- New Features in v2.0 build 694:
 - None
- Enhancements in v2.0 build 694:
 - None
- Bugs Fixed in v2.0 build 694:
 - 106548 Cygwin: problems when executing test cases
 - 105807 Test Conductor properties do not have descriptions

105666 Doing update gives no feedback, it should print out a message to the output window

98453 Allow for "non-triggered" IsIn activation condition

81885 timeout handling mismatch

19 What's New in v2.0 build 654

- New Features in v2.0 build 654:
 - None
- Enhancements in v2.0 build 654:
 - ReporterPlus Template for test reporting
 - Test Architecture generation for blocks, objects, files
 - Code- and Flowchart Test Case support for RiC
 - Model population for reference SDs in RiC++
- Bugs Fixed in v2.0 build 654:
 - 106885 CG output window: Unexpected message in output after code generation process...
 - 106717 Test Conductor is not fully uninstalled within Rhapsody uninstallation
 - 106150 Cannot do anything with Test Case
 - 106107 current RTC version does not evaluate the DefaultDirectoryScheme property
 - 105816 test generated by ATG fails but should really pass
 - 105661 update and build should be done automatically if needed before an execute
 - 105660 Frequently get Warning messages that are difficult to understand why they occur
 - 105656 Error message is mis-spelt "TestCase not up-to-date, Test Case must be updated first"
 - 105565 Command line documentation issue - Rhapsody does not exit
 - 105376 Documentation on Test Conductor mentions "Strg" instead of "Ctrl" and also side.prp instead of site.prp
 - 104571 OMD in Ada CabsRegister Sample model needs repairing
 - 92210 C++ strings should be able to be visible within Test Conductor
 - 91464 test fails if a method comes twice in a row and the expected ret values differ
 - 81102 Error message appears when saving if all items are read only
 - 79209 File Names break Joilet File System

20 What's New in v2.0 build 616

- New Features in v2.0 build 616:
 - None
- Enhancements in v2.0 build 616:
 - None
- Bugs Fixed in v2.0 build 616:
 - 104042 Test Conductor gives an exception when trying to update Test Context

104034 Upgrade OSC Testing products to license RC2
 103379 Test Conductor CppCashRegister Sample doesn't use testing profile
 102355 TLS_XR#1335: The size displayed for the installed Rhapsody Add-on's, in the Add or Remove Programs screen is incorrect.
 96833 Test conductor shows size of 7066MB in add/remove programs
 62658 emulation of non-implemented method calls

21 What's New in v2.0 build 587

- New Features in v2.0 build 587:
 - Model based test design based on UML Testing Profile
 - Model based design of test architectures
 - Model based design of test cases
 - Automatic and manual creation of test architectures
 - Ability to perform unit tests, integration tests and system tests facilitated by test architectures
 - Definition of test case behavior using code, flow chart diagrams, activity diagrams or sequence diagrams
 - Support for stubbing
 - Ability to perform white box and black box/production code testing
 - Configuration Management, Reporting and Traceability for test architectures and test cases by accessing test data using standard Rhapsody interfaces
- Enhancements in v2.0 build 587:
 - None
- Bugs Fixed in v2.0 build 587:
 - 103403 Upgrade old RTC 1.7 data, batchlists are not upgraded correctly
 - 103081 Upgrade old RTC 1.7 data, save the model gives erroneous warning messages
 - 103080 Open a model with old RTC 1.7 data, exit Rhapsody: Crash
 - 102900 RATG/RTC samples should be cleaned (they have irrelevant profiles like CGCompatibilityPreAquaC)
 - 102897 Sample Samples\CppSamples\TestConductor\CppCashRegister has obsolete profiles
 - 102191 SD created with TestConductor shows all messages coming from ENV
 - 102188 Typo in dialog box
 - 101934 notifyMethodReturned comes in wrong order and reports wrong caller
 - 101933 Creating a new SD Instance Test Case causes Crash
 - 101850 Test Conductor won't run.
 - 101828 TestConductor: errors highlighting not working on build test context
 - 101819 Sample CppSamples\TestConductor\RTC_ATG_Demo_Model is completely empty

- 101814 RTC/RATG documentation should be updated
- 100822 animation error with Test Conductor upon port deletion
- 100622 Black box testing should not modify the model, but instead change the configuration
- 100609 Resulting file from TestConductor has garbage in field "Test Executed on machine"
- 100608 referenced sequence diagrams are not promoted to TestScenarios
- 100607 Test Conductor should now use TestScenario rather than Sequence Diagram
- 100606 Test Conductor should allow use of Flowcharts
- 100473 When creating model elements only add _0 to the end of names if a duplicate model element already exists
- 100471 When creating test architecture name model elements as per usual Rhapsody naming convention
- 100301 Installation splash screen need an updated copyright
- 100293 Dialog "Edit Unit" - wrong path to file TestingProfile.sbs
- 100233 Test Conductor app does not compile for VxWorks using Diab compiler
- 100139 RTC Cannot get the selected element in the GE.
- 99808 Is "RTC_receiver" for Rhapsody Test Conductor able to use calling operations?
- 99587 New "Rhapsody TestConductor" - cannot create simple testcase in RiC !
- 99581 "Rhapsody TestConductor" dialog: select pulldown menu's item ""Tools->Generate MethodBroker"" - nothing happens
- 99580 "Rhapsody TestConductor" dialog: select pulldown menu's item "Help->Tutorial" - nothing happens
- 99579 "Rhapsody TestConductor" dialog - ALL of its checkboxes are disabled
- 99578 TestConductor: erroneous scenario when user executes testcase in Auto-mode
- 98574 Message about file site.prp appears during Test Conductor installation
- 98452 Test Conductor Stops while Running Tests
- 98163 Test Conductor Fails Test - Operation CAll out of Order
- 97982 Instructions in file JavaSamples\TestConductor\readme.txt should be corrected
- 96111 Check Test Conductor's C-models in Rhapsody-in-C++
- 92346 Test Conductor should have the ability to run scripts against several configurations
- 92337 I can't export TC informations with the related package automatically nor manually
- 92107 Two people working on Test Conductor tests in same project don't have an easy way to integrate tests together.
- 89318 Rhapsody TestConductor Problem
- 87299 import Test Conductor test from another model
- 82416 Test Conductor should close automaticly when finished running tests from command line
- 82302 Enhancement: Map test conductor tests to a specific configuration
- 81975 Cannot move tests into folders or rename folders from GUI
- 81786 Tests under Main Folder are not sorted

75454 Test descriptions from TestConductor are not handled by the version control interface
66752 Add ability to turn off RTC on a per project basis
65854 Test Conductor opening every window you've ever had open for that project
65784 Ability to not restart the application between tests in Batch Mode such that tests can be chained together
63741 Integrate test scripts into the Rhapsody browser (For CM, editing, etc.)
62659 Stub support in SDs
62229 be able to copy tests between models - or import/export tests
61417 Drag & Drop Ability in the Test Management Dialog Box

22 What's New in v1.7 build 460

- New Features in v1.7 build 460:
None
- Enhancements in v1.7 build 460:
None
- Bugs Fixed in v1.7 build 460:
99267 Test Conductor error about interaction occurrence
97863 If model is read-only, then creating a method broker causes a crash
97082 Link problem when using Method Broker

23 What's New in v1.7 build 453

- New Features in v1.7 build 453:
None
- Enhancements in v1.7 build 453:
None
- Bugs Fixed in v1.7 build 453:
97096 Rhapsody crashes when running testconductor test
96352 crash when running test
96351 Can't reorder tests using cut and paste
96288 You could run TC without starting the Animation first
96094 Compilation warnings take place in sample
AdaSamples\TestConductor\AdaCashRegister
95704 RTC cannot do ShowAsSd when packages are read-only
90648 really simple test works in C++ but fails for Java

24 What's New in v1.7 build 421

- New Features in v1.7 build 421:

None.

- Enhancements in v1.7 build 421:

None

- Bugs Fixed in v1.7 build 421:

- 94370 Rhapsody vanishes on creation new project if installation includes ATG/RTC
- 94348 RTC leads to crash on open/create a project
- 94157 Sample JavaSamples\TestConductor\JavaDishwasher should be updated
- 94145 RTC causes to rhapsody.exe remains in Task Manager after Rhapsody has been exited
- 94021 Build 738226/Rhapsody-in-Ada - wrong code generation !
- 93434 TestConductor hangs when executing test
- 93516 Multiple calls of same member op are not monitored if source is a static op
- 93434 TestConductor hangs when executing test
- 93359 Installation of Test Conductor fails - "Rhapsody Pisces not found. Process aborted."
- 92824 Test Conductor Help Needs to correct Tutorial directions
- 92784 Multiple calls of the same global function are not monitored correctly
- 92674 The test still stay Active even it is finished
- 92593 Sample AdaSamples\TestConductor\AdaCashRegister - compilation fails
- 92347 Existence of time interval on sequence diagram is affecting non-related event re
- 91699 Test Conductor hangs animation when starting a test
- 91459 The last primitive operation is not completed
- 90544 TestConductor works despite absence of licence (RTC can be invoked from RATG)
- 88818 TestConductor works without license (if its Name=aaa in the [RTC]-group in rhapsody.inifile)
- 82372 text fields become corrupted. Strange - option : Right to left Reading order ap
- 82252 Does not launch test case
- 82233 Request to shutdown Rhapsody automatically after running TC test from command I

25 What's New in v1.6 build 393

- New Features in v1.6 build 393:

None.

- Enhancements in v1.6 build 393:

None

- Bugs Fixed in v1.6 build 393:

- 86949 Can't compile code for a Method Broker when object is Singleton
- 88747 Sample Adms4Atg/testcase classStation:summary of execution contains errors

88855 Uninstall RTC, then try to open any model - warning arises

90678 use of OM_RETURN is not mentioned in the user guide

91004 Cannot compile sample AdaSamples\TestConductor\AdaCashRegister

26 What's New in v1.6 build 384

- New Features in v1.6 build 384:
None.
- Enhancements in v1.6 build 384:
None
- Bugs Fixed in v1.6 build 384:

27 What's New in v1.6 build 382

- New Features in v1.6 build 382:
None.
- Enhancements in v1.6 build 382:
Old TestConductor program files and samples are deleted before installing a new version.
Note: Changes in the TestConductor samples folders will be overwritten.
- Bugs Fixed in v1.6 build 382:
86281 TestConductor test fails when comparing parameter value 60.0 defined in test with value 60 provided by Rhapsody
87056 select SD instance and press button "Show As SD" a few times - RTC opens identical Sds (**no bug**)
87195 tc_user_guide.pdf/p.3-20: section name (on p.2-14) is "Condition Marks", not "Lo
87281 Missing files DishwasherFrame.java, jbc13.0.jar in Rhapsody\Samples
JavaSamples\TestConductor\JavaDishwasher\Gui gefixt
88049 In execute-test-case-window press button "Show info" ... oops ... Rhapsody not responding !
88225 \Samples\CppSamples\TestConductor\CppPbx\guilib seems redundant
88226 Need to clarify the Cpp_PBX_with_changes is used only for tutorial
88556 Test Conductor causes crash during load of a model with circular referenced Sequence Diagrams

28 What's New in v1.6 build 371

- New Features in v1.6 build 371:
None.
- Enhancements in v1.6 build 371:
None

- Bugs Fixed in v1.6 build 371:
 - 74168 Designer + TC: C and Java samples installed although Designer supported only for CPP
 - 81565 Test Conductor Documentation is out of date
 - 82102 Test Conductor doesn't handle messages to parameterised lifelines correctly
 - 83314 Test Conductor - Rhapsody crashes on test execution
 - 84857 Cannot execute Test Conductor's tests
 - 84887 Rhapsody crashes on test activation
 - 85641 Sample Pbx_With_Changes::PBX - activate test, progress == 0%
 - 85644 Sample CPbx::Pbx - when progress is 9% test fails
 - 85574 Methods/functions generated by code generator are different if the methods/functions are in a file or object
 - 85634 Incorrect failure of a test case
 - 85679 MethodBroker doesn't compile if CG::Configuration::GenerateDirectoryPerModel set
 - 85699 IRPCollaboration::get_messagePoints returns mp with local cond in wrong order
 - 85735 RTC installation fails with diagnostic "File site.prp not found in folder c:\winnt\Share\Properties\"
 - 85761 TestConductor crashes when executing test
 - 85811 event list order is broken by resource (Afx module status) management of TC
 - 86599 Test Conductor popup menu is available and causes to RER crash after opening

29 What's New in v1.6 build 352

- New Features in v1.6 build 352:
 - None.
- Enhancements in v1.6 build 352:
 - TestConductor will ignore Condition Marks if a specified condition expression violates the syntax as expected by TestConductor.
 - TestConductor installs a new profile TestingProfile_C++.sbs, TestingProfile_C.sbs, TestingProfile_Java.sbs TestingProfile_Ada.sbs. It provides tag *RTC_Receiver* that is used to specify message receiver in case of decomposed life lines.
- Bugs Fixed in v1.6 build 352:
 - 82469 RiC MB gives animation failure when driving a test with opcalls
 - 82236 MethodBroker Compilation shows critical warnings
 - 81510 Typo in TestConductor popup
 - 81491 RTC should be able to ignore condition marks
 - 81277 Test Conductor gives a false positive and doesn't test entire scenario
 - 81233 RTC test sometimes crashes Rhapsody
 - 80921 Condition marks on SD's cause failure of tests
 - 80698 Clicking on tolerances causes hang of TC and Rhapsody

30 What's New in v1.6 build 332

- New Features in v1.6 build 332:
None.
- Enhancements in v1.6 build 332:
None.
- Bugs Fixed in v1.6 build 332:
 - 80395 Sample CppSamples\TestConductor\Pbx_With_Changes - missing application (*.exe)
 - 80393 Sample CppSamples\TestConductor\CppPbx - a few diagrams should be corrected
 - 77837 get warnings that AnimAllowInvocation property has not been set when using Ada
 - 77267 Rhapsody animation failure during Test Conductor
 - 76282 try and run a TC test on a component that is not animated there is no warning or
 - 76225 Problems with TestConductor on Rhapsody 2004 beta
 - 75710 RTC complains that the event has been consumed out of order
 - 75517 Test Conductor: internal error: not ready to start test conductor
 - 74168 Designer + TC: C and Java samples installed although Designer supported only for CPP
 - 73885 Loss of synchronization between model and test conductor

31 What's New in v1.5 build 317

- New Features in v1.5 build 317:
None.
- Enhancements in v1.5 build 317:
None.
- Bugs Fixed in v1.5 build 317:
 - 74474 (Workaround) TC halts the application
 - 74471 (Workaround) Test Conductor exhibiting erratic behavior

Workaround:

Sometimes Test Execution gets stuck due to the loss of messages between RTC and the tested application. A workaround has been implemented by delaying the communication between RTC and the tested application. This workaround can be turned off for interactive mode by setting the property "TestConductor.Settings.DisableDelayMsgToTomInteractive" and for batch mode by setting the property "TestConductor.Settings.DisableDelayMsgToTomBatch".

32 What's New in v1.5 build 309

- New Features in v1.5 build 309:
None.
- Enhancements in v1.5 build 309:

Test compilation might be aborted with the Quit button if it takes too long time.

Feature to open batch result files has been added

Settings dialog has been extended:

- * enable Rhapsody "trace #all all" command
- * enable writing of TestConductor log-file into C:\tmp

- Bugs Fixed in v1.5 build 309:

- 74554 Silly message: Other messages between source and destination of operation
- 74168 Designer/TC: C and Java samples installed although Designer supported only for C
- 69545 TC in batch mode needs a button to Open and Save the log, at least not to overwrite previous log
- 68442 Test Conductor is causing the application to stall / grind to a halt
- 66098 user should be warned that the compilation time may be extreme and give him a chance to cancel
- 65856 Test Conductor locked up Rhapsody again

33 What's New in v1.4 build 295

- New Features in v1.4 build 295:

Part decomposition support for Testing.

Life line decomposition support for Testing.

- Enhancements in v1.4 build 295:

None

- Bugs Fixed in v1.4 build 295:

- 72812 ATG and TC kits should include a copy of the release notes and a txt file with the build number "aside" the kit itself
- 72625 Crash when loading a model in architect when RTC is installed
- 71855 TestConductor test crashes model
- 71829 Release Notes for TestConductor are confusing regarding RiADA
- 71572 TestConductor Release Notes inconsistent regarding RiA TestConductor support
- 71473 Test conductor eats messages
- 71831 TestConductor crashes model
- 71036 Crash caused by quitting test definition during execution

34 What's New in v1.4 build 270

- New Features in v1.4 build 270:

Bug fixes

- Enhancements in v1.4 build 270:

Option 'Reopen Main Dialog on exiting Test Execution Dialog'

in the Test Conductor settings window.

- Bugs Fixed in v1.4 build 270:

ILO Bug #70570 -

~~~~~

The Quit button on the Test Execution window should have the option of total quit or quit back to Test Management Window

We added a check box to the RTC settings. If it is checked, the main dialog is opened again (if it was open) if the user quits the test execution window. Default is checked.

**ILO Bug #70063 -**

~~~~~

Test Failing with Tolerances.

ILO Bug #69585 -

~~~~~

Failing Test message "In Parameter values do not match." is not correct.

Not a bug: The opcall is opPrintKey(int key), in the SD the specification says opPrint(msg).

The `_value_` of the in parameter is ok, but the name is different than in the test specification.

If you change "msg" to "key" RTC doesn't complain about the opcall opPrintKey.

**ILO Bug #69512 -**

~~~~~

Multiple Ref Diagrams. TC crashes when its two refs pointing to the same sequence diagram i.e., you want the same sequence to happen twice.

ILO Bug #69503 -

~~~~~

TC properties do not appear on the properties of the SD.

We now add properties to a rtc.prp file and include it in the site.prp file.

**ILO Bug #69214 -**

~~~~~

Rhapsody renames object and RTC does not see it. RTC sends message to the old names.

Application fails.

ILO Bug #67460 -

~~~~~

Test reports an event consumption out of order. If you modify the test sequence and replace the System Border with the Keyboard - the test completes OK!!!!

**ILO Bug #71355 -**

~~~~~

Crash during test execution after clicking "show info" and exiting execution window

35 Documentation:

The Rhapsody TestConductor tutorial is part of the installation.

The Rhapsody TestConductor user guide is part of the installation.

The Rhapsody Code coverage limitations document is part of the installation.

36 Samples:

Seven C++ TestConductor samples are part of the installation

(directory "<Rhapsody-Installdir>/Samples/CppSamples/TestConductor):

- CppPbx
- CppTestingExternalFiles
- CppCashRegister
- CppListUsage
- CppTestConductorAPI
- CppTestAutomationSample
- CppCarRadio
- CppModelCodeCoverage
- CppTestActions

Four C TestConductor samples are part of the installation

(directory "<Rhapsody-Installdir>/Samples/CSamples/TestConductor):

- CModelCodeCoverage
- CPbx
- CSDOperators
- CStopWatch

Two Java TestConductor samples are part of the installation

(directory "<Rhapsody-Installdir>/Samples/JavaSamples/TestConductor):

- JavaDishwasher
- JavaStopWatch

One ADA TestConductor samples is part of the installation

(directory "<RhapsodyInstalldir>/Samples/AdaSamples/TestConductor):

- AdaStopWatch

37 Supported Platforms and Hardware/Software Requirements

- Supported Host Platforms:

Rhapsody TestConductor version 2.4.5 runs on the following host platforms:

- Windows XP SP3
- Windows Vista SP2
- Windows 7
- RedHat Enterprise Linux (RHEL) 4
- RedHat Enterprise Linux (RHEL) 5

38 Hardware/Software Requirements:

Refer to the HW/SW requirements as listed in the release notes of the Rhapsody 7.6.1 release. TestConductor 2.4.5 requires as minimum 512 MB main memory. Recommended is 1 GB or more.

39 Supported Rhapsody Versions and framework variants

Rhapsody TestConductor supports testing of UML models developed with

- Rhapsody Developer Edition (C++, C, Java, Ada) 7.6.1
- Rhapsody Designer for Systems Engineers (C++) 7.6.1
- Rhapsody Architect for Software (C++, C) 7.6.1

Rhapsody TestConductor supports the following Rhapsody framework variants

- OXF (standard framework)
- SXF (Simplified C++ execution framework)
- MXF (MicroC framework)

40 Testing Performed

Full interactive and regression test suites have been performed on the entire tool with RhapsodyC++, RhapsodyInC, RhapsodyInAda and RhapsodyInJava 7.6.1

The following combinations of host System and compilation environment have been tested:

- Windows XP SP 3, Microsoft Visual Studio 6
- Windows XP SP3, Cygwin 1.5.25 with gcc 4.3.2
- Windows Vista SP2, Microsoft Visual Studio 2008
- Windows 7 SP1, Microsoft Visual Studio 2008
- Linux RedHat 5, gcc 4.1.2

41 Limitations

The following limitations are known to exist in Rhapsody TestConductor 2.4.5:

41.1 For assertion based testing mode:

- Assertion based testing mode is not supported for Ada
- Assertion based testing mode not supported for Java
- MicroC: TestCases can not be executed in TestArchitectures with ports
- MicroC: Segmented memory is not supported for Statechart/SD TestCases
- Cpp/SXF: TestArchitecture for file needs additional include path
- MicroC: Replacements for associations with multiplicity>1 for initialization compile-time
- Code coverage is not supported for Linux
- Using TC from Rhapsodycl.exe is not supported for Linux

41.2 For animation based testing mode:

General limitations

- Flowchart test cases are not supported for Ada
- Flowchart test case are not supported in Java

Sequence Diagram Features

Some of the standard SD features are not yet considered for test execution. These SD features are ignored during testing with TestConductor, but test cases are still executed.

The following SD features are ignored:

- Create Arrow
- Destroy Arrow
- Timeout
- Cancelled Timeouts
- Time Interval (only supported to specify delays for the test driver, i.e on environment instance lines or on TestComponent instance lines)
- Constraints
- Reply Messages
- Execution Occurrences
- Interaction Operators
- Lost Messages

- Found Messages
- Destruction Events

If these features are used in SDs referenced in a test, then TestConductor generates a warning and continues with test execution.

Test Execution and test management

Driver SD instances with partial order:

Using partial order for the interpretation of SD instances to drive an execution can lead into stuck situations, where TestConductor waits forever to monitor the message. Such a problem does not exist for SDs used as monitors and for linearly ordered drivers.

Drawing of SDs with the Show-as-SD button:

When users specify SDs they can use parameters as instance names and bind these parameters to concrete object names when configuring tests. After test execution TestConductor generates SDs graphically showing the event traces, but the created SDs still show parameter names as instance names.

Short-cuts in SD conditions:

Rhapsody SD conditions support short-cuts to specify conditions for a particular instance, because the full object name in such a condition can be derived from the context (the instance name). Currently, TestConductor does not support these short-cut specifications.

Activation conditions:

It is necessary to specify both sender and receiver of events and method calls. Anonymous senders and receivers are not supported. Activation Conditions are case sensitive.

Predecessor ordering of SD instances:

SD instances with multiple iteration can not be predecessors of other SD instances.

Modification of Rhapsody SDs:

If you change the list of parameters of an SD involved in a test description, you have to delete the SD instances referring the changed SD and describe it again to get the actual list of parameters.

SD constraints are ignored, but no warning is generated for the user.

Enumeration values for message arguments are not supported, e.g. for type `color={gr,ye,re}` and `E(a:color)` one can not specify `E(a=ye)`, but one has to write `E(a=1)`.

TestConductor starts test execution when the executed model has reached its first idle state. If the model never enters an idle state, then tests are not executed.

Some memory leaks still exists. The memory space allocated during test compilation phases is not released after test execution. When using TestConductor a while on a project, it can be necessary to exit and re-start Rhapsody to release the memory.

Test compilation for tests with more than 2000 events can lead to a crash. Users are notified about such a situation by a generated warning. If the tool crashes, please contact support to get a patch for this problem or use the following workaround. To implement this workaround you need to have administration rights!

Do the following:

0. start the cmd.exe program
1. go into your Microsoft Visual Studio installation directory
2. there, go into your VC98/bin directory
3. execute the program `vcvars32.bat`
4. go into your Rhapsody 7.6.1 installation directory
5. create a backup copy of `rhapsody.exe`
6. execute `"editbin /STACK:4000000 rhapsody.exe"`
7. Done. Execute your tests!

Messages with string parameters can be driven and monitored, e.g. `evE(char array[4] para)`. If `GEN(evE("abcd"))` is called, it will be displayed in the animation as `evE(para = 4;a;b;c;d)`. If SDs contain messages like `evE(para = "abcd")` or `evE(para =)`, then TestConductor can not monitor these messages. This can be done only if para's type is set to String.

Activation Conditions and parameter mappings are syntactically checked, but no static semantics check is executed. This may lead to test executions that show no progress.

Class names as values of parameters are only supported if the full object name syntax is used. E.g. `"evE(par = building)"` will not work while `"evE(par = building[0])"` is correctly processed.

Avoid to insert additional leading or trailing spaces on parameter values, because TestConductor can not distinguish between spaces belonging to a string value and spaces used for other purposes. E.g. do not specify `"evE(par1 = 1 , par2 = 2)"`. The space after digit one ('1 ') prevents the tests to pass.

Don't care specifications are not yet applicable to Black-Box tests. Work around is to use * in the sequence diagram specification.

Copy, paste, and tab do not work in the Edit TestCase SDInstances dialog.

One can select a SD instance in the Edit TestCase SDInstances dialog and at the same time a SD in the Rhapsody browser. Both items are high-lighted. Pressing the delete key deletes the Rhapsody SD even if Edit TestCase SDInstances dialog is in the foreground.

42 Training

IBM offers training on Rhapsody, UML, Rhapsody TestConductor, and related topics. This training is offered either at IBM own facilities or at the customer site.