

IBM® Rational® Rhapsody® TestConductor Add On



Testing on a VxWorks Target

Rhapsody[®]

**IBM[®] Rational[®] Rhapsody[®]
TestConductor Add On**

Testing on a VxWorks Target

Release 2.4.3



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Before you contact IBM Rational Software Support, gather the background information that you will need to describe your problem. When describing a problem to an IBM software support specialist, be as specific as possible and include all relevant background information so that the specialist can help you solve the problem efficiently. To save time, know the answers to these questions:

What software versions were you running when the problem occurred?

Do you have logs, traces, or messages that are related to the problem?

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.

Introduction

This document describes how TestCases can be executed with IBM® Rational® Rhapsody® TestConductor Add On on a VxWorks target, while Rhapsody is running on a Windows or Linux host. We assume that the basic installation is already done: the tools needed to develop software for a VxWorks target are installed (for example Wind River WorkBench, VxWorks simulator, etc.). Rhapsody is installed on the Windows or Linux host with the option enabled to develop applications for a VxWorks target, and a TCP/IP connection between the host and the WorkBench is available. Rhapsody running on the host will invoke the tested application on the target via this TCP/IP connection, and during test execution the communication between Rhapsody animation and the application uses TCP/IP. We will describe the execution of TestCases with the VxWorks simulator using an example.

Execution of TestCases on the VxWorks Target

Please follow the steps as described in the sections below.

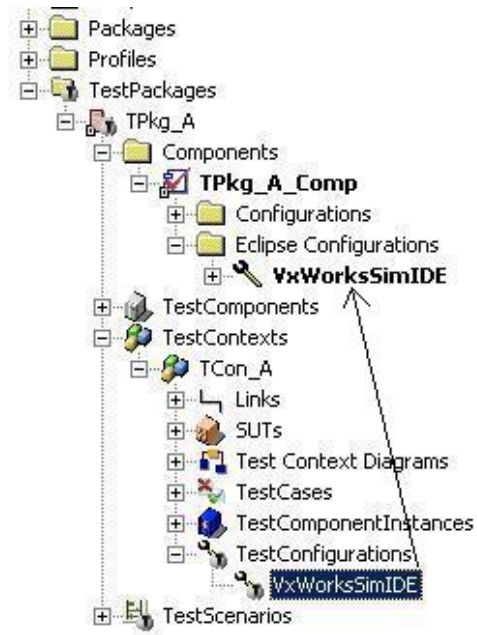
Preparing the CG Configuration

- Features dialog of the CG Configuration, tab Settings: Select the correct environment, for example “VxWorks6diab”.
- Properties of the CG Configuration (when testing a C application use the corresponding properties of the subject C_CG instead):
 - CPP_CG:VxWorks6diab:BSP set the value to “SIMNT”
 - CPP_CG:VxWorks6diab:RemoteHost set the value to the IP of the VxWorks simulator, for example 192.168.200.254
 - CPP_CG:VxWorks6diab:DisableDebugBreakpoints must be checked.
 - CPP_CG:VxWorks6diab:RTC_ConnectTargetName: Enter the name of the VxWorks simulator. RTC automatically connects Rhapsody to the running simulator when starting the TestCase execution if the name is entered here.
 - CPP_CG:VxWorks6diab:RTC_DownloadApplication: Check this property if RTC should automatically download the application to the simulator or target.

NOTE: The last three properties are only visible if the configuration is located underneath a TestPackage. If the Configuration is not located underneath a TestPackage, the configuration must be moved inside a TestPackage in order to have these properties available.

Preparing the Test Architecture

- The TestConfiguration of the TestContext shall depend on the CG Configuration with the proper settings for VxWorks. This way the application is started in the VxWorks simulator if the TestCase execution is activated.



The TestConfiguration depends on the VxWorks CG Configuration

Executing a TestCase

- Start the Wind River WorkBench
- Start the VxWorks simulator
- Connect Rhapsody with the simulator: in Rhapsody, menu Code->Target->Connect (this can be skipped if the property CPP_CG:VxWorks6diab:RTC_ConnectTargetName contains the simulator name)
- Update the TestCase (from the context menu of the TestCase)
- Build the TestCase (from the context menu of the TestCase). it generates code, compiles and builds the application.
- Download the built application to the simulator: in Rhapsody, menu Code->Target->Download (this can be skipped if the property CPP_CG:VxWorks6diab:RTC_DownloadApplication is checked)
- Execute the TestCase (from the context menu of the TestCase): the application is launched on the target (within the VxWorks simulator), while TestConductor is driving and monitoring the TestCase execution on the host machine

Pitfalls and Limitations

Rhapsody/WorkBench

- To compile applications for VxWorks it might be necessary to rebuild the Rhapsody Framework for VxWorks
 - open a cygwin shell
 - invoke `<path to WorkBench installation>/wrenv.exe -p vxworks-6.4`
 - cd to the Rhapsody/Share/LangCpp folder
 - invoke `make -f vxbuild.mak PATH_SEP=/ VX_VER=6.4`
- Build of the tested application fails with error message

Building ----- TPkg_A_Comp.out -----

Executing: "E:\RhapsodyAries\Share\etc\vx6make.bat" TPkg_A_Comp.mak build

wrenv: package "vxworks-6.2" not found

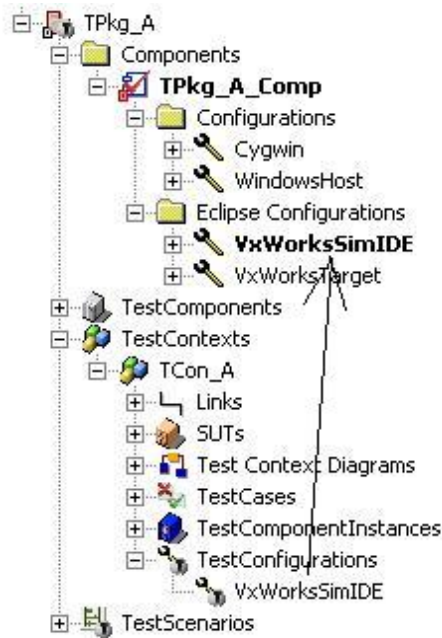
- Edit file `<RhapsodyInstallation>/Share/etc/Vx6make.bat`, line
`set vxver=x.y` should be
`set vxver=6.4`
- Edit file `<RhapsodyInstallation>/Share/LangCpp/`, line

`VX_VER=x.y` should be
`VX_VER=6.4`

Executing TestCases on the Target

- If a TestCase shall be executed TestConductor checks if the executable of the application already exists. If the CG configuration is an Eclipse configuration and the setting “Build configuration in IDE” is active, then TestConductor might search for the executable in the wrong directory and refuses to execute the TestCase. For example TestConductor expects the executable in `$IDEWorkspace/$IDEProject`, while the executable is located in `$IDEWorkspace/$IDEProject/default`. A workaround is to copy the executable to the location `$IDEWorkspace/$IDEProject`.
- If the TestCase execution is activated TestConductor starts the application of the used TestConfiguration (if the TestContext of the TestCase does not have a TestConfiguration, then the currently active CG Configuration is used). Currently, TestConductor does not support having more than one TestConfiguration for a TestContext. If there are multiple CG Configurations (for example for different

environments, Windows host, VxWorks simulator, VxWorks target), and the user wants to perform tests with a different CG Configuration, then the existing TestConfiguration has to be deleted and a new TestConfiguration pointing to another CG Configuration has to be added to the TestContext.



Multiple CG Configurations with different settings are defined; the TestConfiguration depends on the CG Configuration which shall be started when executing a TestCase