

CANTATA



INTELLIGENT TESTING

What's New in 6.2

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Introduction

Cantata 6.2, available from October 2012, is the latest version of the Cantata++ product. The acquisition of the technology by QA Systems in March 2012 from IPL has also involved a re-branding of the product as Cantata.



This release contains more than 30 separate enhancements and over 40 fixes. The full set of changes is documented in the Release Notes shipped as part of the product documentation. The most important changes are highlighted below.

Initial Values for Test Cases

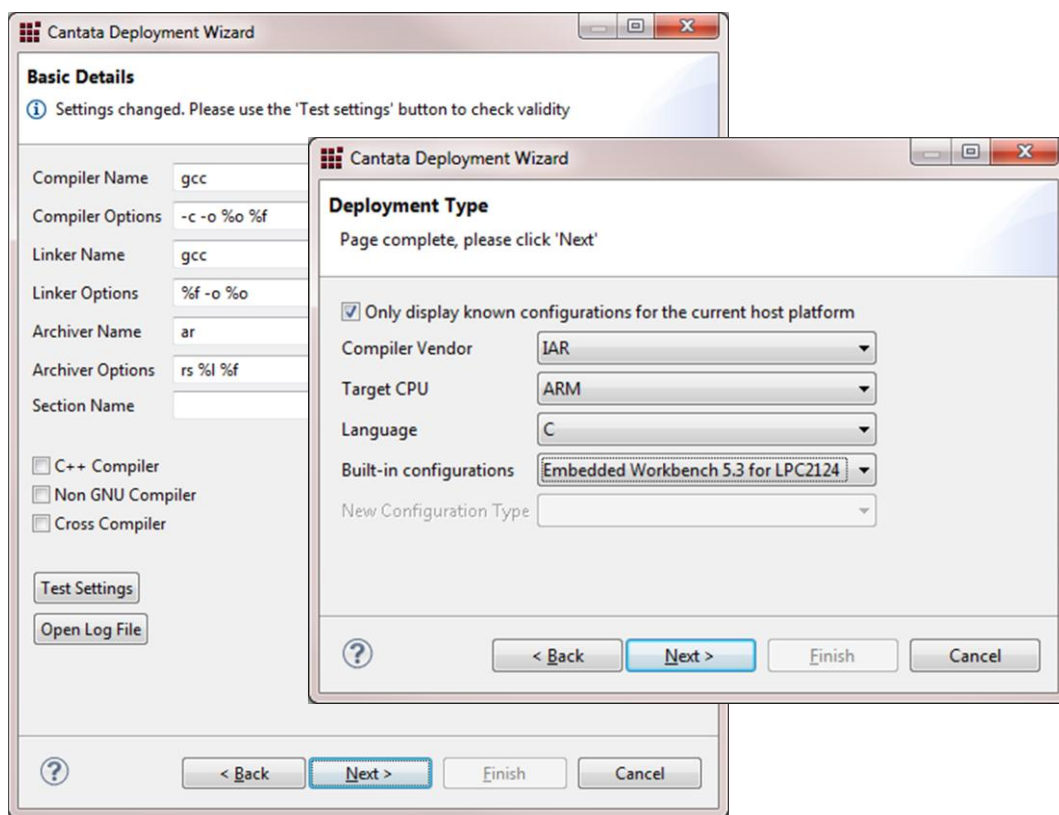
Cantata 6.2 generates test script templates for selected source code files and assigns an initial value (default is zero) to function input parameters, expected function returns, stub returns and added checks on parameters passed over call interfaces controlled with stubs, isolates or non-default wrappers. This improvement brings the following advantages:

- > The generated test can build and run straight away.
- > It removes the need to manually assign initial return values to potentially large number of stubs for isolation unit tests.
- > The default initial zero value provides a useful data set for test cases, which can then be simply replaced in further test cases to verify functional requirements of the code.
- > Whether a default initial value is used, and the value assigned to it are both configurable within the Cantata test script manager user interface.

Simpler Deployment to Target Platforms

Cantata 6.2 significantly improves and simplifies deployment of the tool for use on target environments, through a range of enhancements and new capabilities:

- > Built-in Cantata target configurations for a wide range of targets
- > Built-in New Configuration Types for families of targets
- > Faster deployment process for target environments with file I/O and no memory constraints
- > Extended output mechanism support for target deployment snippet tests
- > Support for custom target initialisations
- > Improved support for Cosmic compilers



Single Click 'Run-on-Target'

Cantata 6.2 hugely simplifies running tests on target with the availability of a new 'Run-on-Target' add-on. It seamlessly invokes Cantata makefiles employing a unique Target Deployer technology from [Willert Software Tools](#) to build, download, execute and collect test results directly back into the Cantata IDE. The Run-on-Target add-on for a target deployment of Cantata can be used either as a single-click Build/Run button in the Cantata Eclipse IDE, or from the command line for regression runs.

For availability of the Cantata 'Run-on-Target' add-on for your target platform, please contact QA Systems or your supplier.

Enhanced Code Coverage

Cantata 6.2 adds Loop Coverage to the existing range of industry standard code coverage metrics. This reports code coverage of: 0, 1, and greater than 1 iterations around loops. Counts of how many times each has been exercised, and percentage loop coverage for each function are reported. Loop coverage is reported in the .CTR file as below and is subject to all the normal Cantata coverage instrumentation controls including infeasible pragmas and full coverage trace reporting.

```
<filename><line number>:<function signature>
loop coverage details (with executed and un-executed cases)

<filename><line number>: loop <loop number> (for)      0   3
<filename><line number>: loop <loop number> (for)      1  >> NOT EXECUTED
<filename><line number>: loop <loop number> (for)     >1  1
<filename><line number>: loop <loop number> (while)    0  >> NOT EXECUTED
<filename><line number>: loop <loop number> (while)    1  1
<filename><line number>: loop <loop number> (while)   >1  >> NOT EXECUTED
<filename><line number>: loop <loop number> (do)       1  2
<filename><line number>: loop <loop number> (do)     >1  >> NOT EXECUTED
<filename><line number>: loop <loop number> (do)      1  >> INFEASIBLE

"<function name>"                               executed           4
"<function name>"                               >>EXECUTED INFEASIBLES 1
"<function name>"                               un-executed        4
"<function name>"                               loop coverage      50.0%
```

The Loop coverage metric is valuable when determining whether while-loops and for-loops execute more than once, information which is not reported by other coverage metrics.

Cantata 6.2 also adds the ability gather and report code coverage per test script rather than by individual test. This can usefully reduce the memory footprint for large suites of test cases or limited memory targets.

Extended Platform Support

Cantata 6.2 is available as a complete built-on-Eclipse full test development environment (based on the Indigo 3.7 version) and as a set of Eclipse-Ready plug-ins for installation into an existing Eclipse IDE built on any of the following:

- > Eclipse 3.5 (Galileo)
- > Eclipse 3.6 (Helios)
- > Eclipse 3.7 (Indigo)
- > Eclipse 3.8 (Juno)
- > Eclipse 4.2 (Juno)

Cantata 6.2 also adds support for the latest GNU GCC/g++ compiler version 4.7.x, bringing the standard supported host native platforms available with this version to:

Host Operating System	Host Compilers
Windows XP, Vista, 7	Microsoft Visual C++: 6.0, 2003, 2005, 2008, 2010 GNU GCC/g++: 3.3x to 4.7.x
Linux kernel 2.4, 2,6 distributions	GNU GCC/g++: 3.3x to 4.7.x

For further information on Cantata 6.2 please visit the website qa-systems.com/cantata, or contact your local supplier.