T-base

Rebase Systems

Test & Measurement Automation using .NET and the T-base Framework

The T-base concept is an open and extremely module-based test automation concept. It is typically used to test electronics in production or system test in R&D.

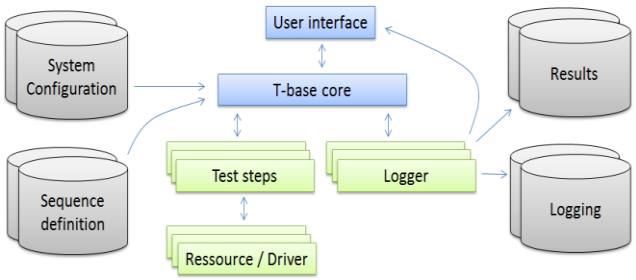
The provided core modules include all the generic functionality needed to build excellent test and measurement software. Add instrument drivers and test cases in .NET and you have a professional test automation solution. The T-base module plug-in concept ensures instrument interchangeability and makes it a perfect platform for distributed development and module reuse.

The concept outlines the full architecture of how to build a top professional module-based test system application.

A test system based on T-base is implemented by using module templates for test steps, drivers and loggers.

T-base is designed in C# and we recommend that also the test system specific modules are made in C# or Visual Basic.NET.

Architecture

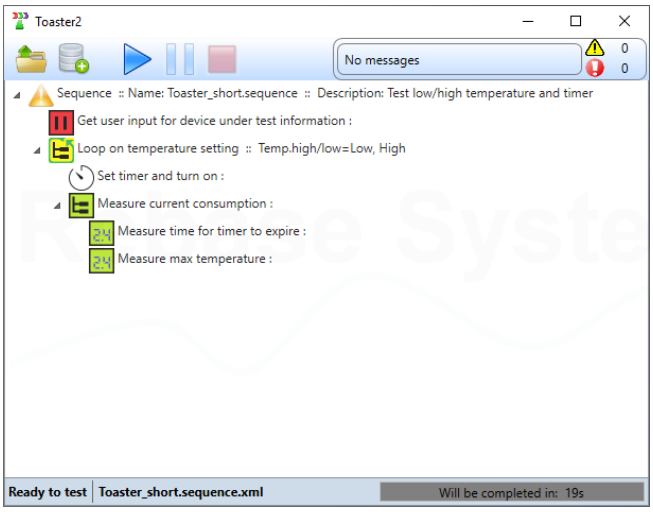


The included sequencer controls the order in which test steps are executed. Steps, child steps and sub sequences (loaded from another file) can be looped using simple or complex looping data structures. The sequencer supports to act on events under test execution and alter how the sequence flow continues.

Easy to learn and easy to use

- Easy and cost-effective to install, configure, maintain and operate
- In seconds you can install and run your first test run using the provided dummy test system
- Commonly used loggers for result and error logging are included in the installer package
- Templates for test steps, instrument drivers and data loggers make it easy to get started and extend the T-base solutions
- Only basic knowledge of C# or Visual Basic needed for making professional test automation solutions
- Easy instrument communication supporting all VISA interfaces
- Look and feel is simple and robust
- Open for customization/tailoring, e.g., UI design and different formats for result reporting
- The concepts modularity, the use of an object-oriented language gives a great support for professional SW processes and multi-site development
- Supports instrument interchangeability
- HW setup and test sequences specified in XML files
- Easy and safe to edit HW configuration and sequence files using the T-base Configurator application (see T-base Configurator section)

Default User Interface



T-base Configurator

The T-base Configurator application complements the T-base framework. Configuration and sequence files are stored in XML format. You have to neither write nor edit XML files manually. The T-base Configurator generates these files and prevents users from entering invalid data when editing. The T-base Configurator Sequence Editor makes it easy to edit and make sequence files/test plans. The concept supports sub-steps, sub-sequences and looping of steps using different test conditions.

The fact that the T-base concept include this concept for system configuration and sequence definition makes it much faster to implement and extend test systems.

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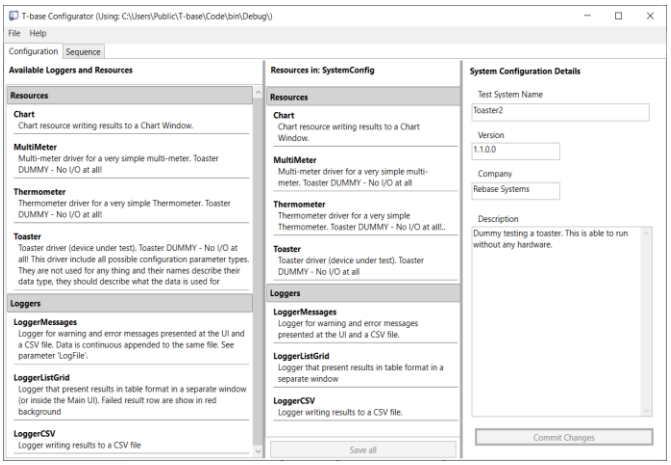
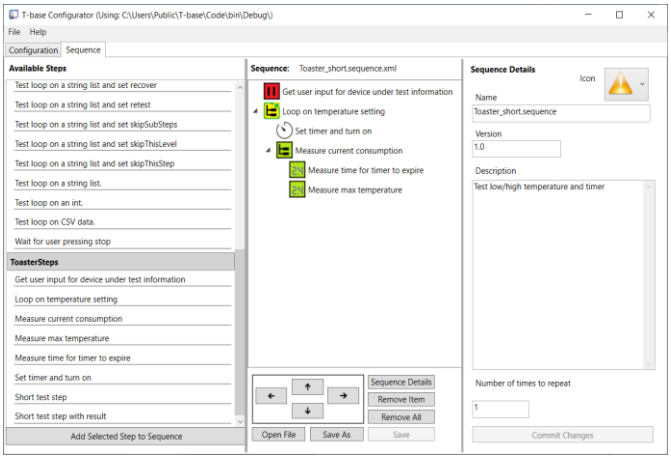
This configuration concept is a truly generic approach and makes the test system application smaller, simpler and more robust.





Use cases

T-base is mature and have been used to develop many very different systems for a number of customers since 2012. T-base is presently used by 12 companies in Denmark, Holland and UK. More than 80 system are running, many in factories in the far east.

The following is a list of completed projects proving that T-base is a truly versatile concept:

- **FCC type approval system** testing products with 2G (incl. GPRS and EDGE), WCDMA (incl. HSUPA and HSDPA), CDMA2000 (1xRTT and 1xEV-DO), LTE (TDD and FDD), Bluetooth (EDR and BLE) and WI-FI (802.11 a, b, g, n)
- **R&D NFC test system** is testing according to the ISO/IEC 10373-6 and NFC Forum specifications
- **Six different inline systems testing microswitches** Supporting different products and test system hardware
- **Intelligent Headset tester** containing GPS, Magnetometer, Gyroscope and Accelerometer. Two production systems (board tester and final tester)
- **Production test system of RF modules** for Wireless Ad-Hoc Mesh networking
- **Production test system for UHF-RFID tag.** In-line production test system
- **Software test in target of satellite communication system for commercial aircrafts**. The test system simulates the product environment using a number of simulators and the user interactions with the product
- **Production test of fitness gear.** Testing LEDs, audio and sensors
- **R&D System Test of 5G Radio Heads.** Testing newest cellular features
- **Production test of Wireless Conferencing System.** Including cameras, audio, Bluetooth and WLAN.
- **Concept for customer making the transition from NI TestStand to T-base over time easy.**

Feedback

Users and developers of T-base are amazed by the architecture and the flexibility it provides to solve real life complications without compromising the test system architecture. This secure that T-base based systems will be maintainable for many years to come.

Cooperation

In many cases Rebase Systems have developed and maintained the systems for customers. But it is becoming more common that Rebase Systems just support companies in the start-up phase. T-base modules developed by Rebase Systems for a project is owned by the sponsor and the source code is provided.

About Rebase Systems

Rebase Systems ApS is based on the R&D test automation team from Nokia Copenhagen. The team was supporting Nokia R&D globally providing many test automation solutions over 15 years. Rebase Systems was founded in 2011/2012. Rebase Systems have developed approx. 25 different test systems for 15 customers over the years.

We have a lot of experience using LabVIEW and TestStand, but prefer C#.NET and T-base.

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