Introducing...

ITEM QT®

A New Dimension in Reliability, Safety and Risk Assessment

Are You Open to Change?

The latest release from ITEM Software is an extraordinary collection of new capabilities that provides a customizable, cross-platform, multi-user, open frame-work. Built on proven and recognized analysis engines, **ITEM QT® (*iQT*®)** is a revolutionary approach to reliability, safety, and risk analysis software tools. With ***iQT***, you are no longer limited by the technology choices of software vendors or chained to infrastructure requirements of their products. Continue reading to learn more about the ***iQT*** design that provides a framework to suit all of your needs.

ITEM Software continues to build and deliver reliable, defensible, and innovative tools your industry requires. Over the years, we have heard from many users in a variety of industries - analysis tools need to be more open and extensible. In developing this new tool, ITEM Software has taken into consideration that not every company or situation has the same requirements and capabilities.

The preliminary modules fully released and currently available are the reliability prediction standards :

- FIDES Guide 2009 (Electronic)
- Telcordia SR-332 (Electronic)
- IEC 62380, UTE C 80-810 (Electronic)
- MIL-HDBK-217 (Electronic)
- BT HRD 4 & 5 (Electronic)
- Siemens SN 29500 (Electronic)
- NSWC-06/LE10 98/LE1 (Mechanical)

Prediction modules coming soon include:

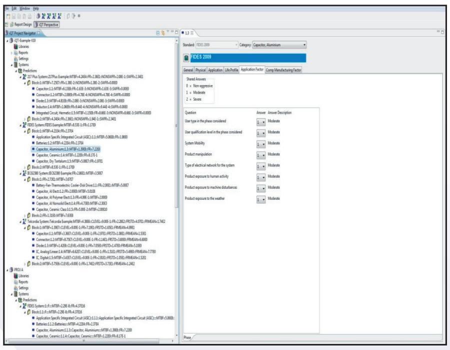
- GJB 299B & GJB 299C (Electronic)

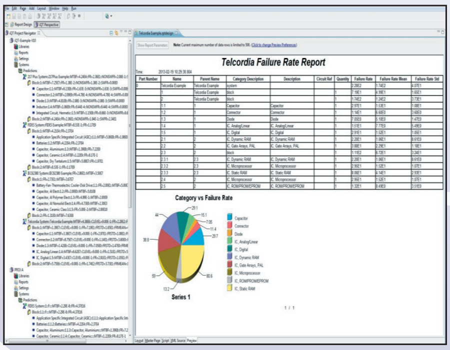
Arranged for different kinds of reliability, safety and risk analyses, ***iQT*** is delivered with several pre-set perspectives.

Furthermore, to support the needs of the individual user or the entire organization, new perspectives can be easily created and shared with other users of ***iQT***. To help eliminate the need to reinstall the software for new releases, an update manager is provided. This allows updating to the latest version online from within ***iQT***.

Also, the ***iQT*** framework refrains from loading and creating models and services until it is first needed. The memory usage and startup time are dramatically reduced using this mechanism.

Configurable Prediction Approaches. A prediction module editor is provided within the ***iQT*** framework. An engineer can easily create or modify an existing company prediction approach. No coding is needed. This newly created approach is automatically recognized within ***iQT***.





Customizable & Efficient Interface

iQT delivers a customizable user interface whereby the user can develop any number of "perspectives". These visual containers can hold a collection of views, editors, or modules available within the ***iQT*** framework. Along with any number of other perspectives, a perspective exists within the framework and, like a page within a book, is visible at any time.

Cross-Platform

In order to leverage the features and functions each has to offer, the computing environment of today's businesses use many different types of operating systems and platforms. It is very common to see a blending of Microsoft™, Unix/Linux™, and Apple™ technologies across the enterprise and within the supply-chain of any organization.

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iQT delivers true cross-platform capabilities through its Java-based framework and analysis engines. Whether installed as a standalone or client-server configuration, ***iQT*** supports the analysis processing on either the local computer or the server. An analyst with a Macintosh in London can easily collaborate with an engineer in Texas using a Unix workstation, or a consultant in China with a Microsoft based PC.

True Multi-User Capability

The ***iQT*** framework provides the capability for multiple users to simultaneously, yet independently modify any model or analysis in any project they have access to. To track the change, a robust version control tool is provided within ***iQT***.

Users can checkout and work independently on their local copies of the "project". Plus, individually commit their changes back to the central repository. The repository can be on remote servers, or kept locally, enabling the user to maintain their own version history.

While the project's history is maintained within the central repository, changes from different users can be merged easily, without running the risk of one user accidentally overwriting changes made by others.

At any point, individual users can choose to commit their version of a model or project to a repository, which then captures the changes and records them into the project history. Multiple users can read and write to the repository as needed. Users can bring their local models up-to-date from the repository as they choose.

Parts of the model or project can also be locked in the repository before they can be edited. This way no two people can be working on the same file.

The use of the source control system, in combination with the system hierarchy within ***iQT***, allows for a "library" function in which changes in the master library can be applied to models relying on those libraries. This allows users to update the library incorporated in a project in an automated fashion.

Other multi-user functions provided within ***iQT*** include:

- Easily revert to any previous version of a model
- Restrict the access to a particular model to one team or group of users
- Create different branches and variations of the same model for "what if" investigations
- Merge project work from multiple teams or repositories into a single project or repository
- Publish milestones for the project

Robust and Flexible Storage.
The ***iQT*** storage format consists of sets of freely coupled XML files. The use of XML automatically results in an "open standard", allowing users and other applications to make changes to the model outside of ***iQT***. This flexibility opens the door for a wide range of application integration and ease of capturing data directly from the ***iQT*** project files. Of course, changes are tracked in the history of the repository. Individual modules are stored in the form of XML files. It is also possible to store external documentation, e.g. MS Word™, PDF or CAD drawing files, in the same directory structure. These files are then considered part of the project.

Task Management.
iQT can be configured to incorporate documentation, task management or other features that are available from third-party vendors. If a recognized change management program is in place at the company, ***iQT*** can be configured to interface with that program. This allows the company to take further advantage of the software tool investment they have already made.

Powerful, Proven and Configurable Quantification Engines.
The ***iQT*** quantification engines have been developed, performance refined and used worldwide for many years. They are a solid foundation for accurate analysis results. Their implementation in ***iQT*** may reside locally on the user's computer, or exist as a service on a network server anywhere in the world. More than one analysis engine can be used to solve a particular part of a model. Furthermore, users can specify engine settings for a particular model.

There are no dependencies between the engines. The various engines do not know of each other's existence, or are even aware of the other model types. It is possible that more than one analysis engine is available to perform the analysis of a given module. Users can even add their own engines easily for any particular type of module.

Named Parameters.
Named parameters can be used to efficiently make changes to multiple input parameters in a model. Named parameters can be used to quantify or otherwise assign values to input parameters in the model.

Optimizing Multiuser Projects, Providing Flexibility and Mobility

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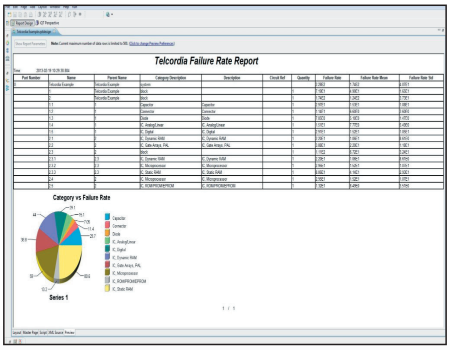

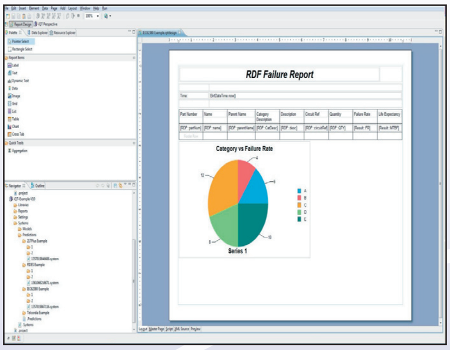

Open and Extensible

Focused on reliability, safety, and risk assessment, our ***iQT*** product is a highly extensible framework that provides common infrastructure for any kind of system modelling.

The capable nature of ***iQT*** is achieved by an existing Java platform foundation that is widely supported in your business environment. By following the predefined interface, your team has the ability to create plug-ins that extend the capabilities of ***iQT***. The following are examples of possible ***iQT*** extensions:

- New editors or viewers for a given model (file) type
- New quantification model types
- New result types
- New analysis engines

The well-established core services of this platform provide the essential functionality to model and analyse reliability, risk and safety projects. Regardless of the configuration of a particular installation, the core services are available in the framework.

All extensions are highly modular. By allowing capabilities to be added to or removed from the software without affecting other extensions, new functionality, perhaps a new prediction standard, can be added without requiring reconfiguration or redesign of the source code.

iQT is a fully functional open environment, supporting the addition of third-party plug-ins such as:

- Version management plug-ins
- Project management plug-ins
- Computational environment tools (e.g. MATLAB)
- Modelling tools (e.g. data analysis)
- Documentation tools (e.g. PDF)
- Search tools

Included Modules

Prediction Modules

iQT currently contains 7 modules for performing reliability prediction (failure rate and MTBF) analysis, with more on the way soon. These modules conform to the following standards and share many common features and capabilities.

Siemens SN29500

Reliability prediction tool based on the SN 29500 Standard Revision 2013-07. This standard is used by Siemens AG and the Siemens companies as the basis for reliability predictions.

It provides component failure rates for a list of categories. It also contains the underlying conditions for which the component failure rates apply (reference condition). Reference to such conditions is needed when failure rates are stated or when values from different sources are compared. The basis for the definition of the reference conditions and the conversion models for failure rates depending on the stress conditions is the IEC 61709. The stress models described in this standard are used as a basis for conversion of the failure rate data at reference conditions to the actual operating conditions

HRD5

Based on the standard British Handbook of Reliability Data for Electronic Components used in Telecommunication Systems (HRD5). This handbook

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has been undertaken in the light of component field performance data, collected by BT, France Telecom, and laboratory derived data.

The handbook includes failure rates for telecommunication components. It also includes reliability definitions and describes the methodology for estimating circuit reliability from component failure information. The reliability estimation will be used to:

- Provide a basis for comparing the potential reliability of electronic equipment
- Identify reliability critical components
- Provide a means of assessing the reliability impact of design and procurement options

FIDES Guide 2009

The FIDES methodology models failures whose origins are intrinsic (item technology or manufacturing and distribution quality) and extrinsic (equipment specification and design, selection of the procurement route, equipment production and integration) to the items studied.

The methodology takes into account all the influences on reliability, such as:

- Application (naval, airborne, avionics, automotive, industrial...)
- Product Life cycle (specification, design, manufacture, system integration, maintenance)
- Real Mission Profile of the Product
- Actual use conditions (thermal, mechanical, electrical,…)
- Overstresses

FIDES has potential for evolution:

- Integration of new technology without field experience
- Easy update of models
- Completion for new models (new families) in progress

The FIDES methodology is intended to predict realistic reliability levels, close to the average values usually observed (by contrast with pessimistic or conservative values).

Telcordia

Telcordia calculates the reliability prediction of electronic equipment based on the Telcordia (Bellcore) TR-332 and SR-332 standards. These standards use a series of models for various categories of electronic, electrical and electro-mechanical components to predict steady-state failure rates which environmental conditions, quality levels, electrical stress conditions and various other parameters affect. It provides predictions at the component level, system level or project level for COTS (Commercial Off-The-Shelf Parts). The models allow reliability prediction to be performed using three methods for predicting product reliability:

- Method I: Parts Count
- Method II: Combines Method I predictions with laboratory data
- Method III: Predictions based on field data

IEC 62380

IEC 62380 module supports reliability prediction methods based on the latest European Reliability Prediction Standard. Originally, a French Standard published by the Union Technique de L'Electricite (UTE, July 2000 - RDF). The standard has evolved and become the European Standard for Reliability Prediction (IEC 62380). Its unique approach and methodology has gained worldwide recognition. IEC 62380 is a significant step forward in reliability prediction when compared to older reliability standards.

The IEC 62380 module provides models for reliability prediction of electronic components, optical cards, printed circuit boards and equipments, which takes directly into account the influence of the environment. Environment factors are no longer used as they are replaced by mission profile/ thermal cycling undergone by the equipment. These models can handle permanent working, on/off cycles and dormant applications. Failures related to component soldering are included in the component failure rate.

Summary

Yes, ***iQT*** is unique. It is based upon ITEM Software's many years of experience in the reliability, safety, and risk assessment industry. Not only will you continue to get accurate and complete results, but now you, and your team, can benefit from a more comprehensive solution for today's modern work environment.

So, are you open to change?

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