

Automated Test Designer V6.0

The new release offers a lot of new features regarding test case design, test data generation and test automation.



The problem with Testing

Testing is the last phase a system must go through before going live. However, by the time tests must start, it's almost too late to have complete or understandable requirements, testing environments in place or a sound test plan.

This often raises several difficulties that lead to low quality, over budget activities and dramatic delays.

Having the test team starting their work alongside with the development team leads to better requirements, a clear vision on resources and more realistic plans. But this is only possible with suitable tool

Testing Phase Challenges

Tests are executed to prove conformance with customer requirements. Although the customer states the majority of the requirements in advance, most of these are changed, forgotten, prioritized, de-prioritized and diluted during implementation. Requirements' tracking is one of the most challenging issues to ensure tests can be performed.

According to widely publish studies, specification errors are less costly to correct early in the development process. As the process moves forward through the several development phases the cost of corrections increases, since it comprises the result of several tasks.

ATD - Automated Test Designer

ATD is a unique tool for creating Test Cases based on Functional Requirements. ATD can be used in a collaborative environment by all project team members and can handle changes and requirements of any complexity. It uses an advanced and rigorous Neural Network Optimization algorithm and reduction methods, in order to generate the minimum number of test cases to certify 100% of the Requirements rules.

Test Cases can be selected to meet available resources, budget and functional coverage allowing project and QA managers to control risk and target quality according to test strategies.

ATD main benefits

ATD is designed to help project managers, QA and testing teams:

Reducing time needed to produce Test Cases

Keep or improve your competitive advantage delivering systems and products faster into the market. ATD ensures your testing process to be more efficient and productive.

Achieve 100% functional coverage with Test Cases

Ensure that you can control your functional testing coverage based on the total tests required to test 100% of your application. ATD generates the minimum number of test cases required to certify 100% of requirement rules.

Optimize Quality / Cost ratio

Control the Quality you can achieve within your project budget. ATD is a strong tool to help you deciding the effort you should affect to the Testing phase to achieve higher Quality in time and budget.

Manage project risk based on test strategy

Decide based on precise data, the risk you are taking when selecting Test Cases. ATD lets you associate factors to Requirements, such as relevance or risk, allowing management chose what tests must be performed and those that can be missed.

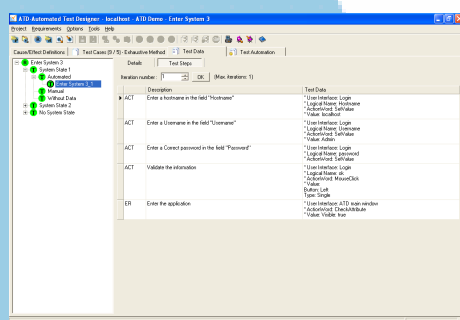
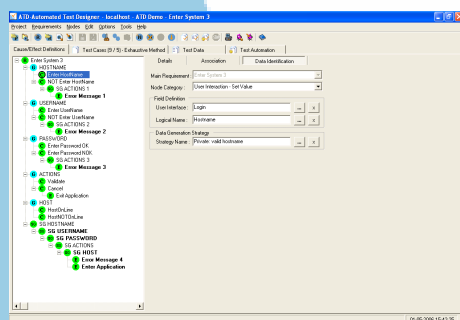
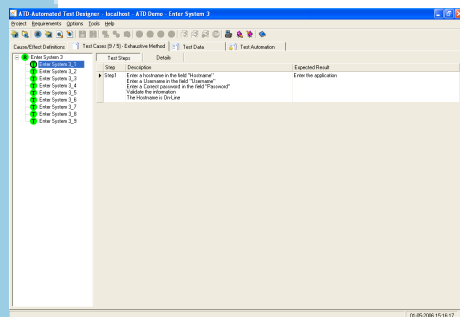
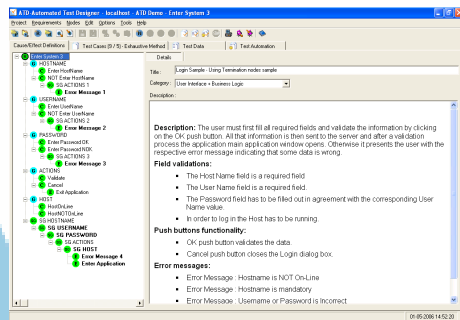
Reduce time and effort maintaining Test Cases

Keep your Test Cases updated as requirements are changed frequently during development life cycle. ATD keeps Requirements and Test Cases synchronized keeping all information in a central repository and generating Test Cases when needed.

Optimize your testing process

By automatically creating all test cases and test data needed to validate your functional requirements you are giving effectiveness to your testing process. By automating the generated test scripts you will improve the speed and the reliability of your test cases execution giving efficiency to your testing process.

ATD Features



Requirements Specification

This module provides the means for requirements rules to be specified. Requirements specifications are translated from natural language to formal language using Cause / Effect Definitions tree.

Using the Cause / Effect Definitions tree, the project team can analyze every aspect of the requirements in ATD. ATD can identify several characteristics that testable requirements must comply with, such as unambiguous and deterministic. These situations must be corrected before proceeding.

Test Case Generation

Once requirements have been reviewed and any errors and ambiguities are corrected, ATD uses an advanced and rigorous Neural Network Optimization algorithm in order to generate a complete set of test cases to certify 100% of your requirement rules.

Optionally, in order to get a more efficient test process, ATD supports proven methods for reducing and prioritizing the number of test cases while also achieving high requirements coverage.

These generation methods taking advantage of multi-server processing to dispatch the compilation of Test Case Generation Agents on other computers. The result: dramatically reduce the time required to process larger amounts of requirements.

Analysis

After a successfully Test Case generation, all case sequences could viewed in natural language using a tabular form. This standard output shows the steps and expected results of each test case. Analysis could be performed on the Test Cases generated as ATD provides an approach of selection of requirement based test cases using "Node in Analysis" functionality. The information extracted from this functionality is used to reduce the number of test cases by identifying repetitive tests, i.e., tests that exhibit the same pattern of interactions. This approach may significantly reduce the size of selective test cases to be manually executed or automated. This function allows Risk analysis to be performed to select only significant Test Cases.

Test Data Identification

After specified the requirements and generated all associated test cases you still need to execute one of the hardest tasks before start running the generated test suite.

This is a very complex and very time consuming task. ATD can now help you doing this. The new ATD Test Data Generator (TDG) module allows you to identify your functional test data.

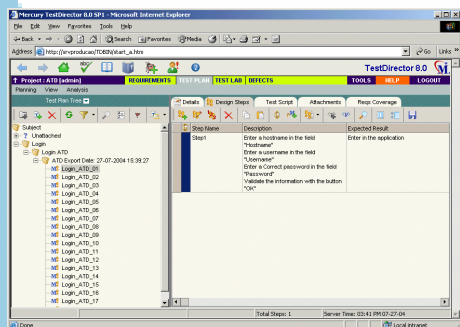
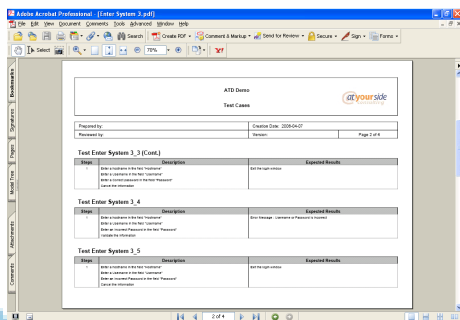
Using ATD TDG you can easily identify data to use as valid or invalid input for causes as well data to use as output for effects in order to validate your expected results. ATD is a requirement based testing tool. That means you identify the data for the generated test cases based on your requirement needs.

Test Data Generation

After identifying your test data based on your requirement specification you can start generating the test data needed to execute your test cases.

Test Automation

The biggest benefit of automated test tools is that they (if implemented properly) allow you to be more productive, testing your systems quicker without losing quality. With automated test scripts you will improve the speed and the reliability of your test cases execution. The new ATD Test Script Generator (TSG) module allows you to automatically generate test scripts for the main automation tool in the market, such as HP's WinRunner, HP's QuickTest, Compuware's TestPartner or IBM Rational Robot.



Reporting

ATD is closely integrated with Portable Document Format (pdf), Web Page (html), Microsoft Excel WorkBook (xls), Microsoft Word Rich Text Format (rtf), Comma Separated Value (csv) and Extended Markup Language (XML) allowing users to generate a suite of test case reports in any of these formats in an easy-to-read format. Business analysts and project stakeholders can collaboratively review the natural language test cases generated by ATD, enabling them to identify and correct any requirement errors made earlier in the development cycle.

Export / Import

ATD provides a process to export / import requirement definitions and correspondent generated test cases, data identification and generated test data, and test automation information to / from different servers. This functionality is very useful when testing teams are working in different locations and needed to share resources among them.

Integrations

ATD is currently integrated with TestDirector, the leading test management system from HP. This new integration provides import / export information from / to TestDirector. Users can now import requirements description from TestDirector, specify the requirements rules in ATD, generate test cases, test data and correspondent test scripts and finally export all generated information back to TestDirector. The exportation process will automatically link all new test cases to the respective requirement in TestDirector.

Team Collaboration

Information sharing is supported in a collaborative environment so that team members could validate and reuse Requirement specifications, references to Requirements and Test Cases.

Test Case Maintenance

As requirements are always changing, one of the most time consuming and error prone activities in testing is Test Case maintenance. After requirements are changed, ATD can easily re-create a whole new Test Case set freeing analysts and testers time. This way, maintenance time is dramatically reduced keeping requirements and Test Cases synchronized.

Technical Information

ATD V6.0 is based on a client-server architecture.

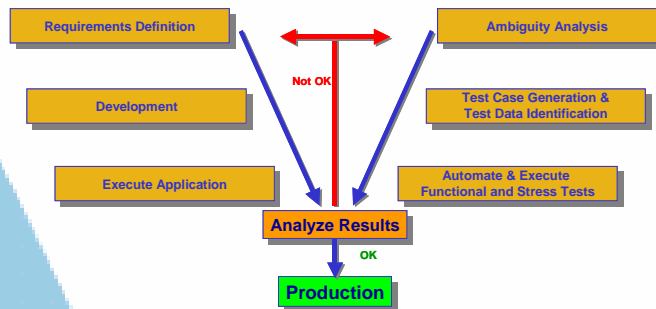
In the Standalone model, both client and server components run on the same computer using MS Windows and MS Access as a central repository.

In the Workgroup model, clients and server run in separate computers with MS Windows. ATD Server can use MS Access or SQLServer as the database repository

In the Enterprise model, clients, agents and server run on separate computers using MS Windows. ATD Server can use MS Access or MS SQLServer as the database repository

The ATD Clients, Agents and Server are available for x86 platforms.

ATD Testing Process



The idea behind ATD is to support the testing activities in a V-Model process.

Although real projects proved that ATD could be used successfully with other development processes, working along with development, leads to timely and on budget delivery, increasing the software quality and reliability.

ATD provides Testing and QA Teams a strong tool to help supporting the testing process to be more productive and effective.

Ambiguity Analysis

Both programmers and testers must have the same understanding on requirements; otherwise implementation could not be validated.

ATD provides the means for requirements rules to be validated for basic characteristics, such as unambiguity and deterministic value, helping analysts translating requirements from natural language to formal language using Cause / Effect Definitions tree.

Using the Cause / Effect Definitions tree, the project team can analyze every aspect of the requirements and solve misunderstanding problems before they hurt the project.

Test case Generation and Data Identification

Test Cases are built to validate requirements. Even if requirements are not stabilized, building Test Cases early give Testing teams a greater abstraction of the system under test.

ATD creates Test Cases to cover 100% of functional requirements and helps identifying all information required to create and execute them so that QA teams are not caught with major misses in the last minute.

After specified the requirements and generated all associated test cases you still need to execute one of the hardest tasks before start running the generated test suite. This is a very complex and very time consuming task. ATD can now help you doing this. The new ATD Test Data Generator (TDG) module allows you to identify your functional test data.

Using ATD TDG you can easily identify data to use as valid or invalid input for causes as well data to use as output for effects in order to validate your expected results. ATD is a requirement based testing tool. That means you identify the data for the generated test cases based on your requirement needs.

Automate and Execute Functional and Stress Tests

Testers could execute Test Cases manually or, using capture & replay tools. When Test automation is considered, the Test Cases generated by ATD, can be used as a template for scripts development.

ATD helps keeping testing process managed and aligned with project goals meeting resources, time and budget.

ATD also helps synchronizing ever-changing Requirements with Test Cases providing means of creating new Test Cases every time changes are made.

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Analyze Results

ATD is currently integrated with TestDirector, the leading test management system from Mercury Interactive so that Test Cases can be assigned to Teams, prepared for automation, scheduled for execution, tracked for completion and execution results analyzed.

At AtYourSide Consulting we are specialists in Testing and we are aware of problems companies face when critical software application systems must go through testing phases.

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