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A brief introduction to the open-source test management system: TestLink

by Terry Zuo

About TestLink

TestLink is a web-based test management and **one of the best QA open-source tools** available.

The tool includes reporting and requirements tracking and cooperates with well-known bug tracking systems, such as Bugzilla, JIRA, Mantis and Test Track Pro from Seapine, Inc.

We've used this system for many years in various large projects, even in a project team of more than 20 engineers and over 1000 cases.

You can use the Test Link during the whole test lifecycle in the project activities.

The current release version is 1.9.

Main features of TestLink:

- The products are tested in test plans, in accordance to standard testing procedures. See [IEEE 829](#), which is compatible with ISTQB terms.
- Users have defined roles (for example: leader, tester, guest).
- Test cases are organized in an hierarchical structure and hold traceable history data.
- Keyword support, allowing greater depth in test organization
- Testing prioritization, tester-specific assignment, and milestone definitions
- Reporting and test metrics
- Documentation export to [HTML](#), [MS Word](#) and [MS Excel](#)
- Direct e-mailing of reports from the tool
- Localization and internationalization (into English, French, German, Italian, Spanish, Brazilian Portuguese, Polish, Czech, etc.)
- Direct collaboration with bug tracking systems
- Requirements-based testing
- SOAP API for collaboration with functional testing tools.
-

Basic Terminology

- **Test case** describes a testing task via steps (actions, scenarios) and expected results. Test cases are the fundamental elements of TestLink.
- **Test suite** (test case suite) organizes test cases into units. It structures the test specification into logical parts.
- **Test plan** is created when you want to execute test cases. Test plans can be made up of the test cases from the current test project. The test plan includes builds, milestones, user assignments and test results.
- **Test project** is a permanent entity in TestLink. The test project will undergo many different versions throughout its lifetime. The test project includes the test specification with test cases, requirements and keywords. The users within the project have defined roles.
- **User:** Each TestLink user has a role that defines the available TestLink features.

Testlink offers **integration interfaces to different defect control systems**, such as Bugzilla, Mantis, Jira. This way, each defect found can be linked directly to the respective test case and become easily accessible. Testlink also offers a report for the number of defects found in each case, as well as detailed information about each of the problems found.

Case1: Enable the email function as below

(modify the config.inc.php file):

```
/* [SMTP] */
$g_smtp_host = ,sampleserver.corp.dresser.com'; #
SMTP server MUST BE configured
# Configure using custom_config.inc.php
$g_tl_admin_email = ,terry.zuo@dresser.com'; # for
problem/error notification
$g_from_email = ,TestLink.admin@dresser.com'; #
email sender
$g_return_path_email = ,terry.zuo@dresser.com';
// Configure only if SMTP server requires authenti-
cation
$g_smtp_username = ,terry.zuo'; # user
$g_smtp_password = ,password'; # password
```

Case2: Customized the bug interface system with Mantis:

Herethewebsserver(XAMPP)isrunningonhttp://10.40.160.9:8600/

Step1: Enable the /* [Bug Tracking systems] */ in the config.inc.php file as below:

```
/$g_interface_bugs = ,NO';
$g_interface_bugs = ,MANTIS';
```

Step2: Modify the cfg/mantis.cfg.php as below:

```
*/
define(,BUG_TRACK_HREF`, „http://10.40.160.9:8600/
mantis/view.php?id=");
/** link to the bugtracking system, for entering
new bugs */
define(,BUG_TRACK_ENTER_BUG_
HREF`,„http://10.40.160.9:8600/mantis/");
```

Shown below is the main page after the TestLink system has been set up:



Figure 0,0 - Log-in page

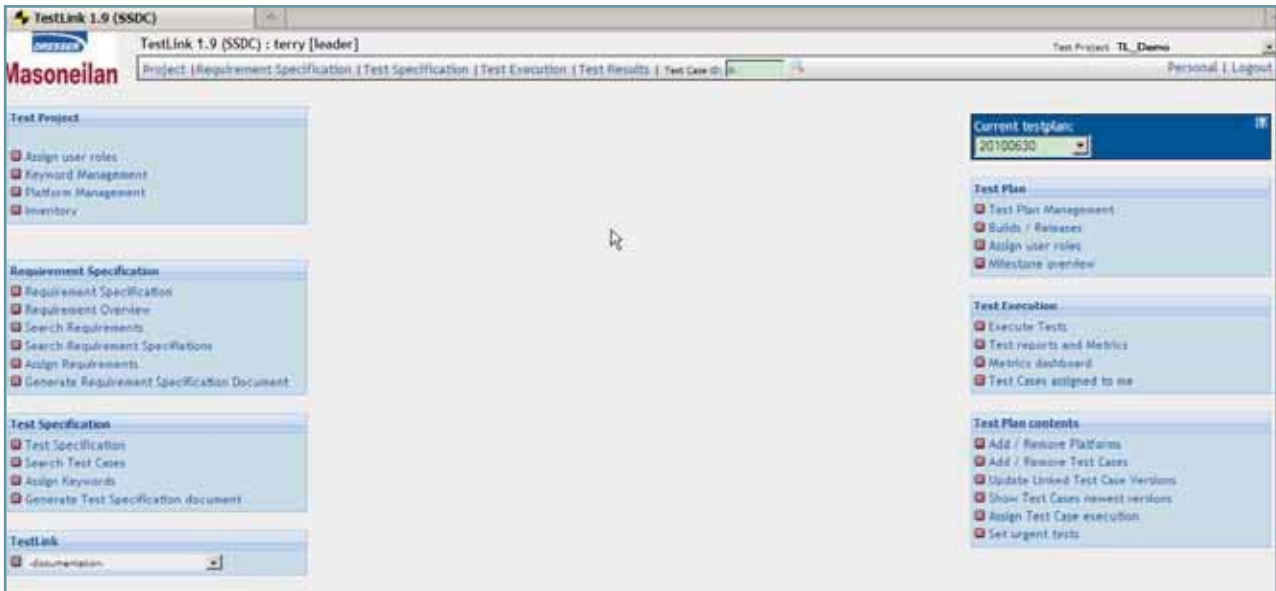


Figure 0,1 - Main Page of TestLink

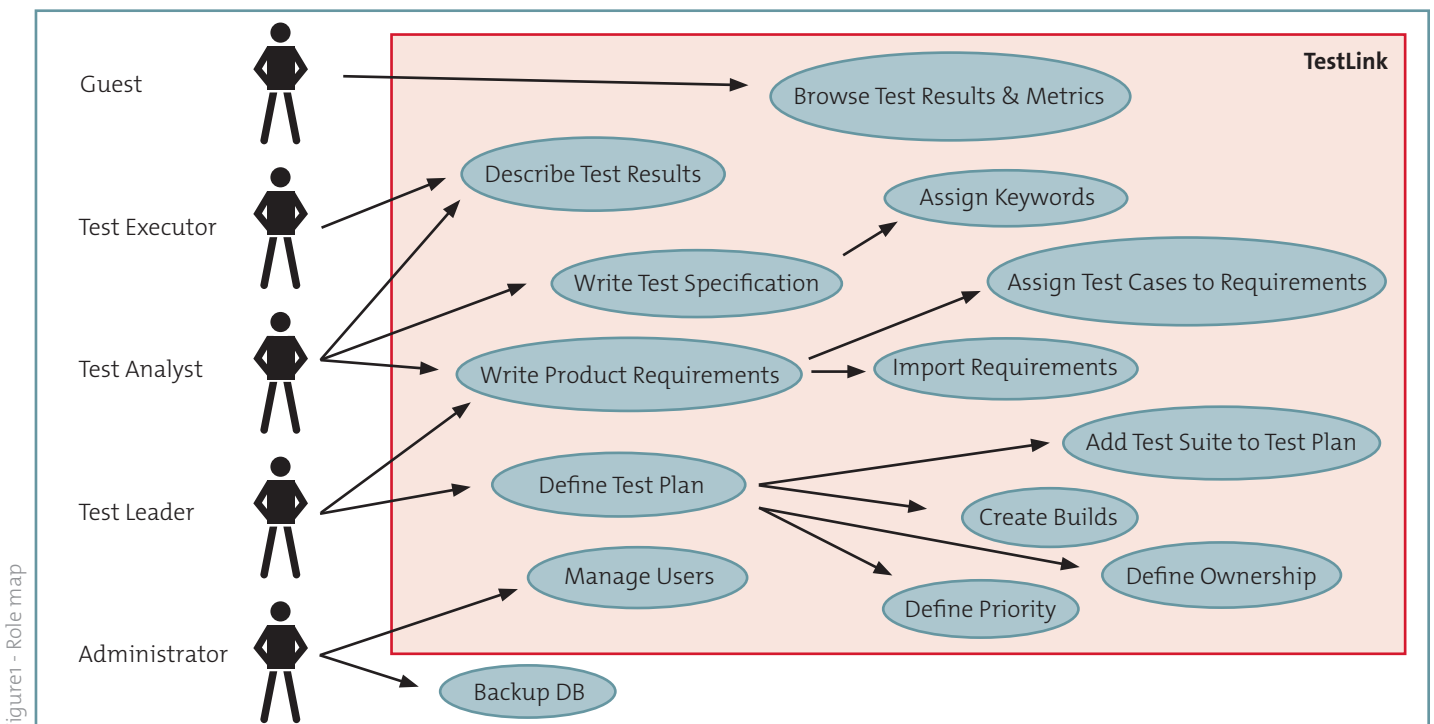


Figure1 - Role map

Why should we use TestLink

During the software testing routine activities, we have a chance to research advanced and effective tools for test management to handle the increasing test tasks.

Background

According to our internal Quality Management System, and in particular its section concerning testing activities, we had to describe test cases and enter from their execution results in Word & Excel formats as these were suitable and easily understandable for our customers.

The maintenance of these documents was taking up a significant amount of the time for testing activities on the project.

Goal

The research goal was to find a suitable system, which allows the software test engineers to create, perform, manage test cases/scenarios in a centralized repository, and to generate reports from the execution of each test in the same comprehensive way as our Excel template did.

Result

We finally chose Testlink for the easy-to-use and powerful, portable features.

A typical workflow has the following 4 steps:

1. **The first step after you log into the system is to create a test project.** The system allows editing and deleting of projects. If you do not see your test project displayed when you log into the system, make sure you have the appropriate project user role assigned.
2. After you already have a project in TestLink, **you need to create a test plan.** The system offers editing, erasing and deactivating of test plans and test plan versioning. The test plan can be created from an already existing test plan in the project. An option for assigning test scenarios for execution from different users is offered. All test scenarios included in the test plan can be saved in MS Word or HTML format.
3. **Import the requirements** into the system and generate the

desired test cases, making sure of the test coverage.

4. After you have created the test plan and the test cases, the next step is to create builds (equivalent to the versions of your development builds). Once your build is created, you are ready to execute all test cases assigned to the current test plan.

Test Execution:

Test execution is available after:

- A test specification has been written.
- A test plan has been created.
- Test cases have been added to the test plan.
- At least one build has been created.
- Testers have appropriate rights for execution of work with the test plan.

Define a tested build

Users should specify one of all the active builds to add results.

The latest build is set by default.

The build label specifies the exact package of the product under test for tracking purposes. Each test case may be run several times per build. However, it's common practice that just one testing round is executed against a build for a test case.

Builds can be created by the test leader using the 'Create New Build' page.

Typical functionalities

TestLink offers an opportunity to **deactivate different components** of the system – project, test plan, test case, users, build. For example, if a given test case is deactivated, it will not be included in the test plan and can therefore not be executed.

The system provides a separate module for **managing customers' requirements**. Each customer requirement can be associated to one or several test scenarios. At the end of testing, QA engineers will have a status report for the tested requirement.

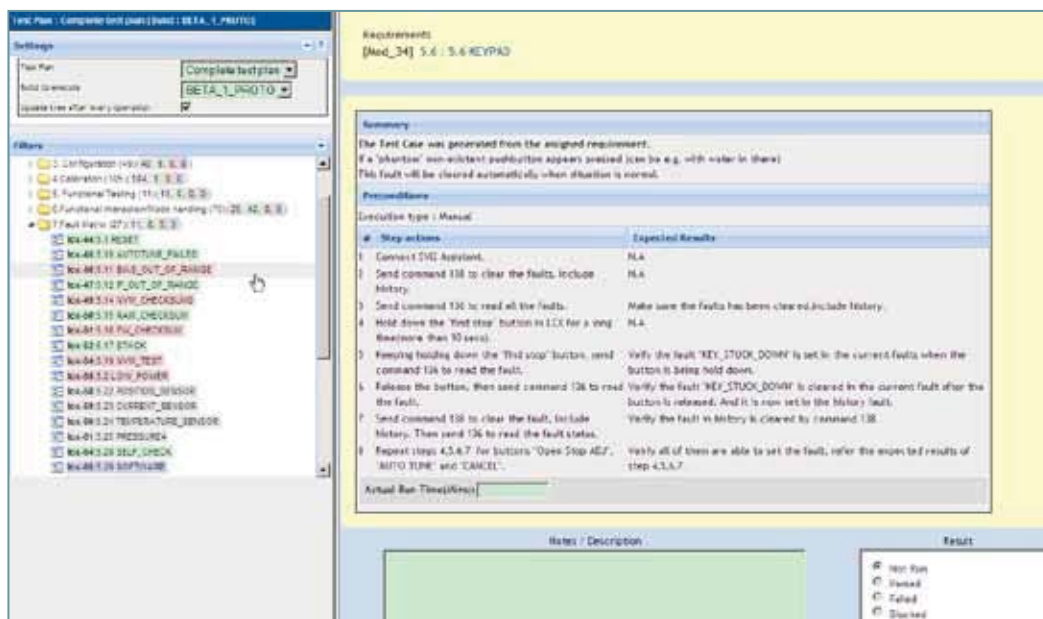


Figure 2 - Test case execution page

In TestLink you can easily **manage your test cases (scenarios)**; different versions of the test cases can be created and merged in a test suite.

Users can also copy, move, arrange and search cases in the test suite. All cases can be printed or saved in HTML and Word formats, and you could also export/import them from XML file. You can attach different files to cases, suites, and requirements.

What I also liked is that you can paste texts from Word and thus continue to follow the format of your test scenarios, which up to this moment had been created in MS Word.

By default, test cases in TestLink are assigned a status during execution, which can be pass, fail, not run or blocked.

During testing, you can generate different reports including the requirement and test case matrix report for the status of the build. The reports can be saved in MS Word and in HTML email format, which is automatically sent to the user via e-mail.

A final, but important, tip is to look into the details available in the system manual.

Good luck!

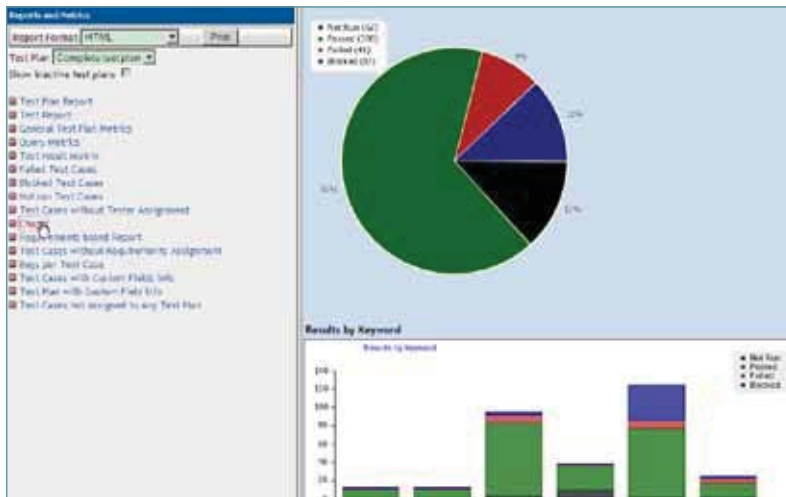


Figure 3 - Test results: Charts



Figure 4 - Test results: General test plan metrics



Biography

Terry Zuo works as Software Testing Group Leader at the Shanghai software development center, Dresser, Inc. in Shanghai, China.

He graduated from East China Normal University and is an ISTQB® Certified Test Manager. For more than 10 years he has worked in the fields of software testing and quality engineering for medical devices (*Philips Healthcare*) and process control/SMART products. He can be reached via terry.zuo@gmail.com.