

Business Domain

Hi-Tech and Software Platforms

Project Type

Web application for project management

TETRA™ Discovered Significant Improvements in the Quality of The Redmine Cross-Platform Operating in 49 Languages

Client

Redmine is a free and open-source, web-based project management and issue-tracking tool.

Users can manage multiple projects and associated subprojects. The tool features project Wikis and forums, time tracking, and flexible, role-based access control. It also integrates with various version control systems and includes a repository browser and diff viewer.

Project

Redmine is a cross-platform and cross-database written using the Ruby on Rails framework. It supports 49 languages.

Analysis of the Redmine project was made under the 8 dimensions that Technical Debt Reduction Platform (TETRA™) covers.

Objective

TETRA™ Helps Redmine to assess the quality of the product using 8 essential parameters, including relevance and scalability. Analysis are allowed to improve the open-source tool performance and user experience.

Team Reinforcement

Redmine is an open source tool built and maintained by developer community volunteers. The TETRA™ team joined the project aiming to serve the developer community with its expertise, experience and unique values.

Challenge

Redmine is a flexible project management web application. Written using the Ruby on Rails framework, it is cross-platform and cross-database software. Redmine is open-source and released under the terms of the GNU General Public License v2 (GPL).

Initially, a weak server was chosen to evaluate the performance of the application. Subsequently, a replacement to the cloud version was required.

Redmine was evaluated on 2 different versions in order to identify the vector of the project's movement and adapt the approach to its testing.

Quick Facts

- ✓ The project assessment took 2 months
- ✓ 8 key product and user-side parameters were revised
- ✓ Stack of 10 top-notch evaluation tools used

Technologies

Ruby/ Sonar/ Jenkins/ Fluent Assertions /
Gulp / HTML5 / JQuery / Knockout / Mocha /
MS Azure / OWIN / React / Selenium / SPA
JavaScript / SpecFlow / Web API / Webpack /
xUnit

Solution

★ 01

Based on the quality assessment, the usability and performance of Redmine can be improved to provide a better experience for end users.

★ 02

TETRA™ performed an in-depth audit and assessment of the product in order to measure technical debts, evaluate product efficiency, and rate compliance with industry standards.

★ 03

The TETRA™ team implemented a unique scientific approach: project evaluation was made using 10 tools based on 8 essential parameters.

★ 04

A 5-point scale was used to obtain summary assessments for each dimension of the product. The obtained values were translated into letter indices with color identification.

- The highest grade, A – no technical debt or associated component in the parameter
- The lowest, E – a signal of critical problems that needed to be solved before any further work on the product

★ 05

General TETRA™ Quality level description:

- | | |
|-------------------|----------|
| • Perfect | A |
| • Good | B |
| • Medium | C |
| • Low | D |
| • Critical | E |

★ 06

The following major features were analyzed:

- Multiple project support
- Role-based access control
- Issue-tracking system
- Gantt chart and calendar
- News, document, & file management
- Feeds & email notifications
- Per project wiki
- Time tracking
- Issue creation via email
- Multiple LDAP authentication support

The following **TETRA™** dimensions were verified.
Evaluation Results:

General TETRA™ index	
1. Code Quality	B
2. Usability	C
3. Security	B
4. Performance	C
5. Business Logic	B
6. Architecture and Data Model	B
7. Quality of Data	A
8. Open Source code	A

Client Reference



Technical Debt Reduction service TETRA™ helps to fully analyze the open-source tool Redmine and make necessary suggestions.

Founder and CEO

Benefits and Results

- ★ The analysis highlighted that the application's performance needed to be improved. The best option was to move to cloud services.
- ★ TETRA™ discovered there was a need to update the user interface because it did not satisfy the needs of the users and was partially outdated.
- ★ Concerning the security of the tool, no serious problems were found, but maintenance in perfect condition is required.
- ★ Compared to previous estimates, the quality of the product has increased significantly, which indicates the absence of serious issues.
- ★ The TETRA™ team did two assessments 6 months apart. Product metrics significantly improved during this period.

Techstack:

Ruby, Sonar, Jenkins, Fluent Assertions, Gulp, HTML5, JQuery, Knockout, Mocha, MS Azure, OWIN, React, Selenium, SPA JavaScript, SpecFlow, Web API, Webpack, xUnit

Team: 4

Project Manager, System Analysts