Software Quality Assurance for LCG Projects

SEAL_1_1_0 Report

Jakub T. Mościcki

Contents

- Overview
  - goals, methods and tools of LCG QA
    - analysis/reporting tools
    - support tools for release process
  - activities and work done so far
- SEAL_1_1_0 Report
  - http://spi.cern.ch/qa/reports/SEAL_1_1_0
  - comments and discussion
- Summary

Overview of LCG QA

- The main goal of QA activity is to **help LCG projects assess and improve the quality of their software and procedures**
  - provide tools to collect useful software metrics/statistics which help asses software quality;
  - generate reports;
  - verify if project setup is correct and compliant with LCG Policies.

QA Tools

- Available in standard LCG environment
  - to be announced (soon)
- Reporting tools:
  - lcg-qa-project-report.py
    - analyze project tree in AFS release area
    - time-based analysis (e.g. bugs reports)
    - --> generate HTML pages
- Release process tools:
  - e.g. include all open bug reports in the release notes automatically
  - under preparation

The QA Focus

- Tests/Bugs are central for QA in our environment
  - vague/changing user requirements,
  - no "product specification" to adhere to
  - tools/procedures by agreement rather than by decision
  - sophistcated code metrics exist but these have much less importance for us -> bug report vs test case tracability has much more
- SPI Policies
  - agreed and defined by AF
  - SPI supports them in the tools and procedures and only helps to work them out

QA Checklist

- Build the release
- Run automatic tests
- Statistics
  - Test Inventory
  - Documentation/Examples Inventory
  - Savannah Statistics
  - Code Inventory
  - Rule Checker , Logiscope
- LCG Policies
  - Configuration of a build system
  - CVS directory structure

```
scram project SEAL SEAL_1_1_0
cd SEAL_1_1_0
cvs -d :pserver:anoncvs@lcgapp.cern.ch:/cvs/SEAL co -r
                                        SEAL_1_1_0 -d src seal
eval `scram runtime -sh`
qmtest -D ./src/config/qmtest run -o test_results.qmr
```

SEAL_1_1_0 Report

SEAL_1_1_0

- Data available at:
  - http://spi.cern.ch/qa/reports/SEAL_1_1_0
- Quick summary:
  - Development cycle: 3 weeks (15 Aug 2003 to 05 Sep 2003)
  - Opened bugs: 7 (1 closed)
  - Total number of tests: 217 (161 ok)

- Walkthrough the report
  - remote participants please open the URL above

Summary and remarks

QA Procedure

- Well-defined:
  - clear rules and the checklist of assessed items is available in advance to projects
- Transparent:
  - anybody at anytime may see project statistics and create reports themselves
- Open:
  - anybody may contribute
    - in terms of suggestions (thanks Ilka!)
    - in terms of tools

Caveat

- SPI provides QA tools to spot the potential problems
- …but SPI does not change the projects.
- Responsibility for software quality and compliance with LCG procedures/policies is within projects

- QA to be successful requires active collaboration from the projects.

Activities: Apr-Sept 2003

- Manual / semi-automatic reports
  - POOL QA
    - QA reviews for 0.4.0, 1.0.0, 1.1.0, 1.2.0
  - SEAL QA
    - 0.3.1, 1.0.0
- Development / integration of automatic tools
  - SEAL_1_1_0
  - tools about to be released / announced

Activities: Apr-Sept 2003

- Evaluation of tools
  - Rule Checker
    - LCG Coding Rules vs existing activities (Atlas Rules)
  - Logiscope
    - Test coverage
  - SLOC
  - Valgrind

Outlook

- Activities for the end of 2003:
  - support bug/test tracability
  - investigate test coverage metrics
  - evaluate tools (logiscope)