Tools for Requirements Management

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Tools for Management

Overview
What is Requirements Management?
Tasks
Tool support
Presentation of a tools:
  - DOORS (by Telelogic)
Summary

What is Requirements Management?

Tasks of Requirements Management tool
1. Extract
2. Capture
3. Store
4. Collaborate
5. Version
6. Identify
7. Categorize
8. Trace
9. Merge
10. Present

What is Requirements Management? (cont.)

Extract
- Sources for requirements
  - Word Documents
  - PDF Documents
  - Diagrams
  - Photos
  - E-Mails
  - Video, Audio, ...
- Requirements are extracted from these documents
- Requirements are linked to the source

Sometimes it is difficult to “link into the source”
Videos as requirements?

Capture
- Are requirements always plain text?
  - "A picture can say more than a thousand words."
- Technical applications are often specified with mathematical equations.
- Even more difficult: video, audio, photos, etc.

Extract vs. Capture

Store
- More or less a database issue.
- For large and long-term projects, the database with requirements can become very large.
- Fast retrieval of data?
- Query mechanisms or languages?
  - Dynamic Schema
  - Custom fields

Collaborate

Version
- Software Development is a process that happens over time.
- Requirements are a moving target.
- Documents are constantly changed.
- Certain versions of the documents form the basis for contractual agreements.
Identify

- Every requirement needs an identification
- This identification has to be unique and stable over time and space
- The identification should be human-readable:
  - Facilitates communication between developers and stakeholders

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Categorize

- Categorization: intuitive approach to organize data
- Standard techniques:
  - hierarchical structure
  - tags (labels)
  - numbering
- Development of a good categorization structure is critical.
- Categorizations can be reused between projects.
- Categorization schema depend on
  - the software development methodology.
  - the problem domain.

Trace

Requirements do not stand alone.

During the requirements process we identify:
- Requirements that complement other requirements
- Requirements that contradict other requirements
- Requirements that are derived from other requirements

A tool has to
- Record connections
- Present connections
- Allow a “What if?” analysis of a possible change.

Example of a trace

Customer: Access to the server should be available at any time.

Manager: The system has to have a 99.999% availability.

Hardware Maintainer: The software must run in a distributed environment with a seamless failover functionality and no single point of fail.

Merge

- Many sources for requirements
  - At least one for every stakeholder
  - A single document should be produced.
- A tool can support this process:
  - Showing differences between documents.
  - Identifying similarities between documents.
Present

The final requirements document has to
- form the contractual basis between client and supplier.
- be well sorted.
- readable.
- understandable.

The tools should be able to automatically generate a current version of the requirements document at any time.

DOORS

- Developed by Telelogic
- Available for Windows, Linux, Solaris and HP-UX
- Current Version: 8.2
- Made for large projects
- Has its own database engine

Short Tool Demonstration

Tools: summary and discussion

- There are numerous requirements management tools out there.
- They all have their strength and weaknesses.
- Evaluate the tools on the basis of the 10 criteria presented in this talk.

List of requirements engineering tools can be found at
[http://easyweb.easynet.co.uk/~iany/other/vendors.htm](http://easyweb.easynet.co.uk/~iany/other/vendors.htm)