The COSMO Coding Standards

Latest Actions

COSMO Working Group 6: Reference Version and Implementation

Working Group Coordinator: Ulrich Schättler

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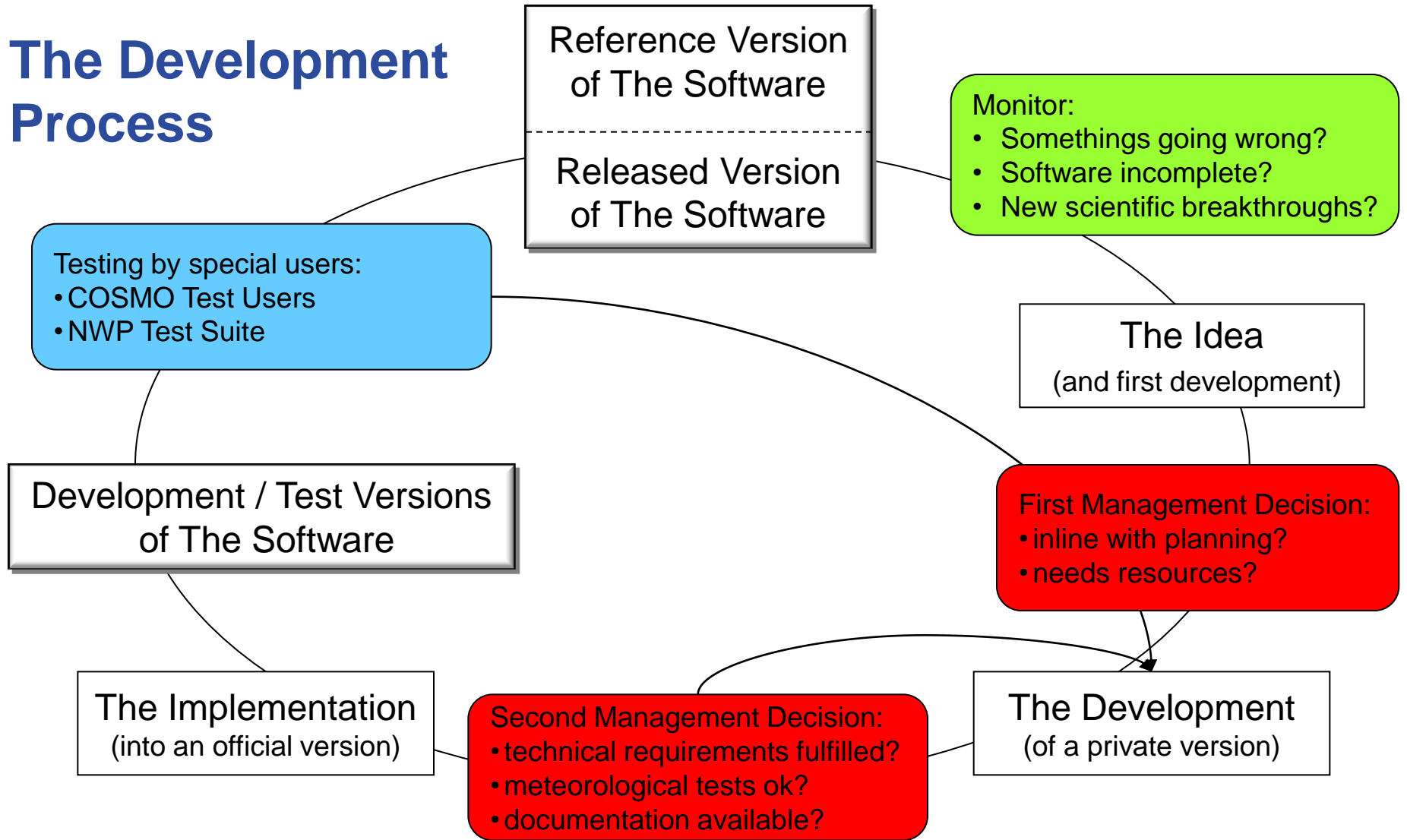
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What is it all about?

→ It should assure a continued quality of the Software under consideration, concerning design, implementation (coding), documentation and testing.

→ It facilitates software maintenance and quality control.

→ Some developers criticize it as slowing down the development process

   → Well: this might be true for the original development, but should not be seen as a disadvantage: Again: it facilitates (and shortens) maintenance

What has been unclear / incomplete?

→ Chapter 2: The Development Process – Some Mandatory Aspects

  → Requests from STC:

    → Clarify chapter 2 and make it fully compatible with the remainder of the document

    → Replace „released version" by „reference version": STC only approves reference versions.

→ Chapter 6: Software Maintenance and Quality Control

  → Incomplete sections 6.5 (Standard Test Suite) and 6.6 (Meteorological Test Suite)

→ Chapter 7: Implementation Issues

  → is also incomplete

The Development Process

Reference Version of The Software

Released Version of The Software

Monitor:
- Somethings going wrong?
- Software incomplete?
- New scientific breakthroughs?

Testing by special users:
- COSMO Test Users
- NWP Test Suite

The Idea
(and first development)

Development / Test Versions of The Software

First Management Decision:
- inline with planning?
- needs resources?

The Implementation
(into an official version)

Second Management Decision:
- technical requirements fulfilled?
- meteorological tests ok?
- documentation available?

The Development
(of a private version)

Latest Changes to the Document: Section 2

→ Each version in the VCS gets a certain status

  → Development: intermediate versions only given to the developers for cross-checking (decided by SCA)

  → Test: versions given to special test users to conduct extensive tests with e.g. different configurations, domains, etc. (decided by SCA and SMC with regard to the „Release Planning")

  → Release: if a version fulfilles all technical requirements (e.g. documentation) and passes the tests successfully, it becomes a release and is available to all users (decided by SMC)

  → Reference: A reference version is the official software version approved for operational use by the STC

→ The STC approves a special released version of The Software based on general planning in line with the COSMO Science Plan and concerns especially unified software versions.

→ But not every released version needs to become a Reference Version

Latest Changes to the Document: Section 2

→ For the COSMO-Model the STC defined some extra rules to coordinate the software development between the NWP, COSMO-CLM and COSMO-ART communities:

The STC confirms the importance of these three COSMO applications and the fruitful cooperation between the respective communities. For accomplishing this goal it stresses in particular the key role of the common reference COSMO code and its long-term stability. Consequently, the ART and CLM communities take part in the source code management process via scientific cooperation with the respective Working Groups and via their representatives in the SMC. The STC will thoroughly consider their opinions while making the final decisions on the reference software. For functions which are mission critical for CLM or ART, it will be open for implementing them with ifdefs.

Latest Changes: Section 6.4 „Release Planning"

➔ There is a (perhaps) iterative process, how accepted contributions are incorporated into the official code

- ➔ an accepted contribution (Second Management Decision) is assigned to a special future release (in the Release Planning)

- ➔ The SCA implements accepted contributions to the official code. Depending on the scope of the contributions, several contributions can be put to a single or to several new development versions.

- ➔ After implementing some or all of the accepted contributions, the SCA in collaboration with SMC defines a certain version to be a test version.

- ➔ This test version is tested by designated COSMO users (and by the NWP Test Suite?)

- ➔ If the tests are successful

  - ➔ either other contributions are implemented on top of this test version

  - ➔ or this test version is defined to be a release version

Latest Changes: Section 6.5+6.6: Test Suites

→ Work has started at MeteoSwiss to implement a first version of the Standard or Technical Test Suite.

    → A prototype will be distributed in the next weeks to the COSMO Test Users

→ A new Priority Task will be proposed to define a „NWP Test Suite" and to put up an environment to run such a suite.

Latest Changes: Section 7

→ Nothing Changed. This is still incomplete.

Implication on Daily Work

→ If you are working on a contribution, which is not listed in the *Planning for Future Developments* , please contact your WG Coordinator immediately: see http://www.cosmo-model.org/content/model/releases/developments.htm

→ It would be very beneficial for all of us, if the daily development work is done according to the COSMO-Standards:

  → „The source code provided is properly designed"

  → „The source code provided conforms to the coding rules"

  → „All source code modifications are documented"

  → „All changes have been tested. The results are published appropriately"

  → „A code responsible person is available in the future"

Thank you

very much

for your

attention