

Configuration Management

Definition: Configuration Management

Concerned with the policies, processes and tools with managing changing software systems

You need CM because it is easy to lose track of what changes and component versions have been incorporated into each system version

1 Overview

Change management:

- Keeping track of requests for changes to the software for customers and developers, working out the costs and impact of changes, and deciding the changes should be implemented

Version management

- Keeping track of the multiple versions of software components and ensuring that changes made to components by different developers do not interfere with each other

System building

- The process of assembling program components, data and libraries, then compiling these to create an executable system

Release management:

- Preparing software for external release and keeping track of the system versions that have been released for customer use

2 Change management

To be effective must:

- Identify areas of potential conflict
- Address the needs of everyone in the organisation
- Bridge the gap between the aspirations of managers and the people affected by the change

2.1 Impact analysis

Factors in impact analysis:

- The consequence of not making the change
- The benefits of the change
- The number of users affected by the change
- The costs of making the change
- The product release cycle

3 Version Management

Definition: Codelines

A sequence of versions of source code with later versions in the sequence derived from earlier versions
Known as a branch in Git

Definition: Baselines

Specifies the component versions that are included in the system plus a specification of the libraries used, configuration files etc

4 System Building

This is just an automated build system, think make for C or any of the build systems static site generators use

5 Release management

- A system release is a version of a software system that is distributed to customers
- For mass market software it is usually possible to identify two types of release:
 - Major releases which deliver significant new functionality
 - Minor releases which repair bugs and fix customer problems that have been reported
- For custom software or software product lines, releases of the system may have to be produced for each customer and individual customers may be running several different releases of the system at the same time

6 Release tracking and reproduction

When a system release is produced, it must be documented to ensure that it can be recreated exactly in the future

- Customers may use a single release of these systems for many years and may require specific changes to a particular software system long after its original release date

To document a release, you have to record:

- The specific versions of the source code components that were used to create the executable code
- The versions of the operating system, libraries, compilers and other tools used to build the software
- And keep copies of the source code files, corresponding executables and all data and configuration files