

Software Engineering

Software Configuration Management

❑ SCM

- Umbrella activity
- Set of tracking and control activities
- Starts with the beginning of the project
- Everyone involved in software engineering process
- Designated person
- Sources of change
 - New business or market conditions
 - New customer needs
 - Recognition of business growth/downsizing
 - Budgetary or scheduling constraints
- Tools
 - SaltStack
 - SmartFrog
 - Puppet

Software Configuration Management

❑ SCM Tasks

- Identification
 - Configuration items
- Version control
- Change control
- Configuration auditing
 - Technical correctness of the configuration items
- Reporting
 - Providing accurate status and current configuration data
 - Developers, tester, end users, customers and stakeholders
 - Admin guides, user guides, FAQs, Release notes, Installation Guide

Software Configuration Management

❑ Version Control

▪ SemVer

1 . 8 . 5

Major

Minor

Patch

Major changes

Add features

Bug fixes

Backwards incompatible

Backwards compatible

Backwards compatible

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❑ Version Control

▪ SemVer

- Each element must increase numerically (1.2.0→1.2.1→1.2.2)
- No modification after release in the same version
- Any modification must lead to a new version
- Patch version must be reset to 0 when minor version is incremented (1.2.2→1.3.0)
- Patch and minor version must be reset to 0 when major version is incremented (1.2.2→2.0.0)
- Major version increment may include minor and patch level changes
- Pre-release version: appending a hyphen and a series of dot separated identifiers (ASCII alphanumeric) immediately following the patch version (1.0.0-alpha, 1.0.0-alpha.1, 1.0.0-0.3.7, 1.0.0-x.7.z.92)
- Precedence of versions:
1.0.0-alpha<1.0.0-alpha.1<1.0.0-alpha.beta<1.0.0-beta<1.0.0-beta.2<1.0.0-beta.11<1.0.0-rc.1<1.0.0

Software Configuration Management

❑ Change Control

- Systematic approach to manage changes
- Why?
 - No unnecessary change
 - Documenting changes
 - No unnecessary disruption of service
 - Efficient resource use

Software Configuration Management

❑ Change Control

- ECO: Engineering change order

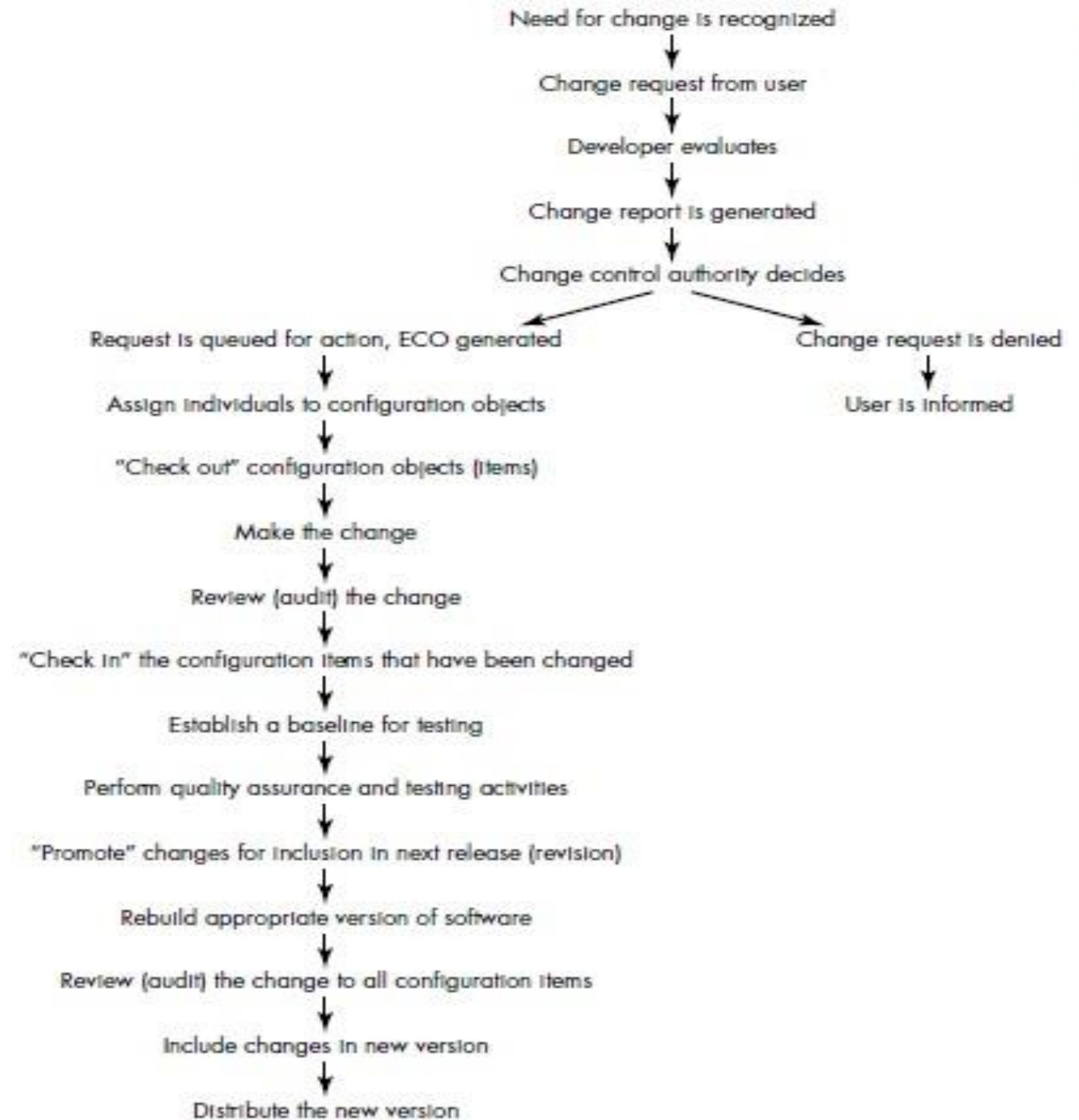


Figure 1: The change control process