

# Configuration Management

## Summary

Configuration management tools document functional or physical features of system configuration factors(source code, documentation, and etc) and manage their changes on features. They also verifies specified requisite is met by writing/reporting the course of change or implementation status and provide features for those process to work.

## Major features and Concept description

### Configuration

- Covers everything related to software development such as application architecture, program code, disk containing the code, design specification, guide documentation and so forth

### Configuration Management Process

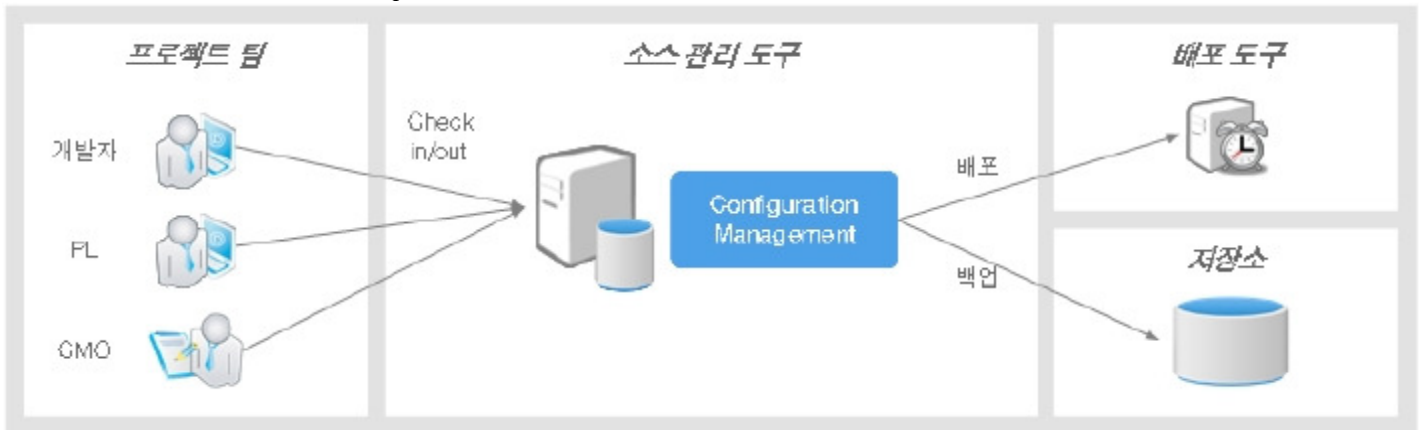
1. Identification : Pre-defines modifiable area of software
2. Version Control : Record precisely before and after the change
3. Change Control : Evaluate performance and quality after the change.
4. Configuration Audit : check the change is valid.
5. Report : Document the change.

## Source Version Control Tool

Source Version Control Tool(Source Control Tool) focuses on source (source code, image, binary files, and etc.) as control target from configuration factors and configuration process. The tool manages changes according to source version control process, and becomes a restricted environment to efficiently control those.

Here' s features list of general source version control tools.

- Manages changes of configuration factors(source)
- Performs version control, and deploys changes with deployment tool
- Perform backup periodically using backup tool



Popular Open Source based source version control tools are CVS, Subversion, OpenCM, and etc.

At the early stage, CVS was popular thanks to its easy installation and simple manage policies, however, as it exposed many problems and weaknesses, now the tool has handed over its place to Subversion which is much improved and solved problems

Following table compares these source version control tools.

Name	Description	License Policy
CVS	CVS originates from version control system of early days, called Revision Control System. In 1989, changed its name to CVS. It manages each file as version control target, however, has lots of limitations such as version control for project is not supported.	GNU Public License(GPL) →Changed to Non-GNU License
Subversion	Subversion is free software version control system. It is called SVN as the command line command SVN. It's created to replace restricted CVS. Active improvement/updates are going on for the tool.	Subversion License
OpenCM	Aims for complete and safe configuration managing tool to replace restricted CVS. However, development is stagnant, and user base is too shallow.	GPL

Among these SCM tools, CVS and Subversion are most popular. Following list compares Subversion to CVS.

- Almost identical to CVS in usage. CVS users can adapt to SVN quickly.
- Based on Commit : CVS manages file-level revision. SVN manages revisions in change-sets.
- Atomic Commit: When single or more file fail within multiple file commit, SVN rollbacks to previous status, unlike CVS leaves updated partial files untouched.
- Tree-, file-based access control list support.
- File name change/location change, directory version management support.
- Faster than CVS (Update/Branching/Tagging Time)

To take these advantages of Subversion, eGovFrame IDE includes Subversion.

## SCM Client(Subversion Client)

You can use Subversion with terminal, however, it's more general for users to use GUI clients for Subversion. Lots of Window based, Eclipse IDE based SVN client have been developed and widely used.

In this eGovFrame development project, Eclipse IDE based Subversion clients were compared and analyzed. Subversive Eclipse plug-in was chosen to be included in eGovFrame IDE. Comparison between Subversive Eclipse plug-in and Subclipse Eclipse plug-in is listed below.

- Subversive
  - Developed by Polarion Community Group
  - Included in Eclipse Ganymede and later versions as Official SVN client
  - Fast update, Stable
  - Official Website: <http://www.eclipse.org/subversive/> [<http://www.eclipse.org/subversive/>]
- Subclipse
  - Developed by Tigris Community Group (Subversion Developers Community)
  - Popular at early days of Subversion
  - Slower update and unstable compared to Subversive
  - Official Website: <http://subclipse.tigris.org/> [<http://subclipse.tigris.org/>]

## References

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- Concurrent Versions System (Wikipedia): [http://en.wikipedia.org/wiki/Concurrent\\_Versions\\_System](http://en.wikipedia.org/wiki/Concurrent_Versions_System) [[http://en.wikipedia.org/wiki/Concurrent\\_Versions\\_System](http://en.wikipedia.org/wiki/Concurrent_Versions_System)]
- CVS Open Source Project Site: <http://www.nongnu.org/cvs/> [<http://www.nongnu.org/cvs/>]
- Subversion Open Source Project Site: <http://subversion.tigris.org/> [<http://subversion.tigris.org/>]