

ESS Configuration Management (CM) Philosophy

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According to an article by configuration management expert Bob Ventimiglia, effective CM is an integral part of the software development process, should meet the needs of developers as well as management, and should offer a pro-active approach to maintain product integrity ("Effective Software Configuration Management"). ESS management agrees with his philosophy. While the details of defining and executing CM procedures in accordance with this philosophy change over time, all approaches implemented in ESS shall meet the following requirements.

All software and tools developed in ESS that fall in the following categories shall be formally configured:

- ~~///~~ operational code
- ~~///~~ development tools
- ~~///~~ build tools
- ~~///~~ test tools
- ~~///~~ any packages used by multiple teams or organizations

In addition, mission critical files, such as those comprising a project database or load files for a proposal management database or configuration files for a subsystem, shall be formally configured.

Formal configuration in ESS means maintaining:

- ~~///~~ a central repository of software and ancillary data associated with a given subsystem or database.
- ~~///~~ the ability to track progressive versions of software files and data files in the central repository.
- ~~///~~ the ability to trace the history of changes to a particular file in the repository.
- ~~///~~ the ability to identify specific versions of software and data files in the repository with a particular software baseline build or a database baseline build.
- ~~///~~ the ability to recreate a baseline build from scratch from the central repository.
- ~~///~~ the ability to trace the date of a baseline build in the repository.
- ~~///~~ routine backups of the central repository.
- ~~///~~ restricted access on the central repository, as necessary.

A repository shall be easily accessible to all users of that repository, which may necessitate cross-platform compatibility and/or remote access for some subsystems.

All changes to a repository shall be related to a number from the ESS Problem Reporting System. The creation or modification of each file in a repository shall be associated with a PR number. A developer or manager shall be able to query the repository to determine which files were changed for a given PR number, or which PR number was associated with a given file.

All subsystems shall have more than one person able to fulfill the role of configuration manager in order to provide backup CM support if the primary CM person for that subsystem is unavailable. CM procedures shall be sufficiently documented and sufficiently automated for each subsystem to maintain CM backup support. The configuration manager shall maintain all CM tools and scripts and configure them.

No additional configuration management for vendor software (e.g., operating systems, IRAF, Sybase) shall be required beyond what is provided by the vendor. However, all in-house modifications to open-source vendor software *shall* be formally configured. Also, all subsystems shall track which releases of vendor software their baselines are built against.

A request for exemption from any of the above requirements may be presented in writing with appropriate justification to the ESS division office. Subsystem development teams which do not have an approved exemption in writing from the division office shall comply with the philosophy and requirements specified in this document.