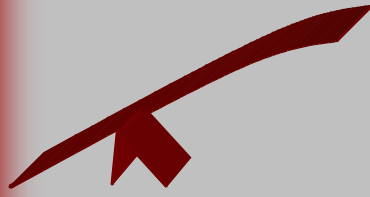


Configuration Management & Change Management



Configuration Management

- ◆ Purpose
- ◆ Establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits.



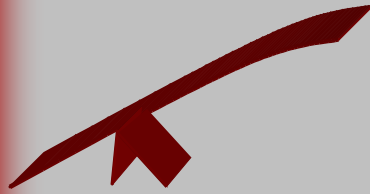
Configuration Management Goals

- ◆ SG 1: Establish Baselines
 - ◇ Baselines of identified work products are established.
- ◆ SG 2: Track and Control Changes
 - ◇ Changes to the work products under configuration management are tracked and controlled.
- ◆ SG 3: Establish Integrity
 - ◇ Integrity of baselines is established and maintained.



SP1.1-1 Identify Configuration Items

Identify the configuration items, components, and related work products that will be placed under configuration management

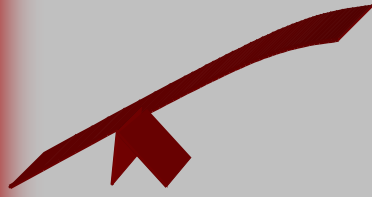


Examples of Configuration Items

Examples of work products that may be identified to be placed under configuration control include:

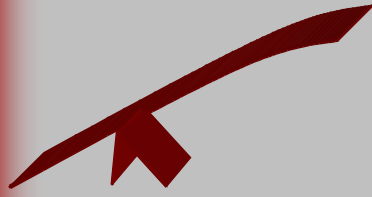
- ◆ Requirements Specification
- ◆ Architecture Specification
- ◆ Interface Specifications
- ◆ Design Specifications
- ◆ Product Specifications
- ◆ Drawings
- ◆ Code Modules
- ◆ Project Plan
- ◆ Quality Plans
- ◆ Configuration Management Plan
- ◆ Risk Management Plan
- ◆ Test Plans
- ◆ Test Procedures
- ◆ Development Procedures
- ◆ Standards
- ◆ Product Technical Publications
- ◆ Compilers
- ◆ Operating Systems
- ◆ Linkers/Loaders
- ◆ Procedure Languages
- ◆ Shell Scripts
- ◆ Other related support tools
- ◆ Third Party Tools
- ◆ Data Dictionaries
- ◆ System Build Files
- ◆ Product Data Files
- ◆ Logical Data Structures
- ◆ User Interface files, data
- ◆ Installation / Configuration files

etc...



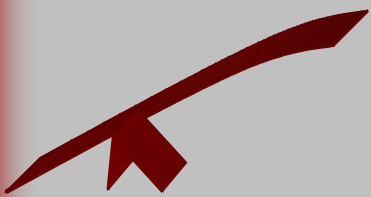
SP1.2-1 Establish a Configuration Management System

Establish and maintain a configuration management and change management system for controlling work products



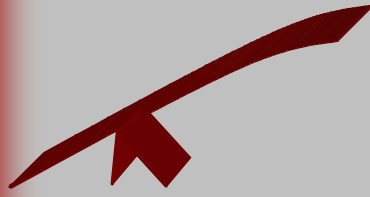
Configuration Management System

- ◆ A configuration management system is established containing the baselines as they are developed
- ◆ A configuration management system includes the storage media, the procedures, and the tools for accessing the configuration system
- ◆ A change management system includes the storage media, the procedures, and tools for recording and accessing change requests – It is part of the CMS



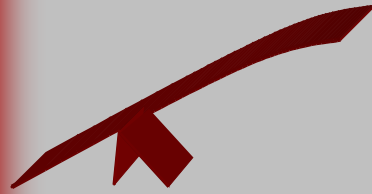
Configuration Management System - 2

- ◆ A well functioning configuration management system includes the following functions:
 - ◆ Managing multiple control levels of configuration management – (Organizational, Product Line, Project)
 - ◆ Creation and dissemination of configuration management status reports to projects
 - ◆ Preserving the contents of the configuration management system
 - ◆ backup and restoring of configuration management files
 - ◆ recovery from configuration management errors
 - ◆ archiving of configuration management files
 - ◆ disaster recovery



SP1.3-1 Create or Release Baselines

Create or release baselines for internal use and for delivery to the customer

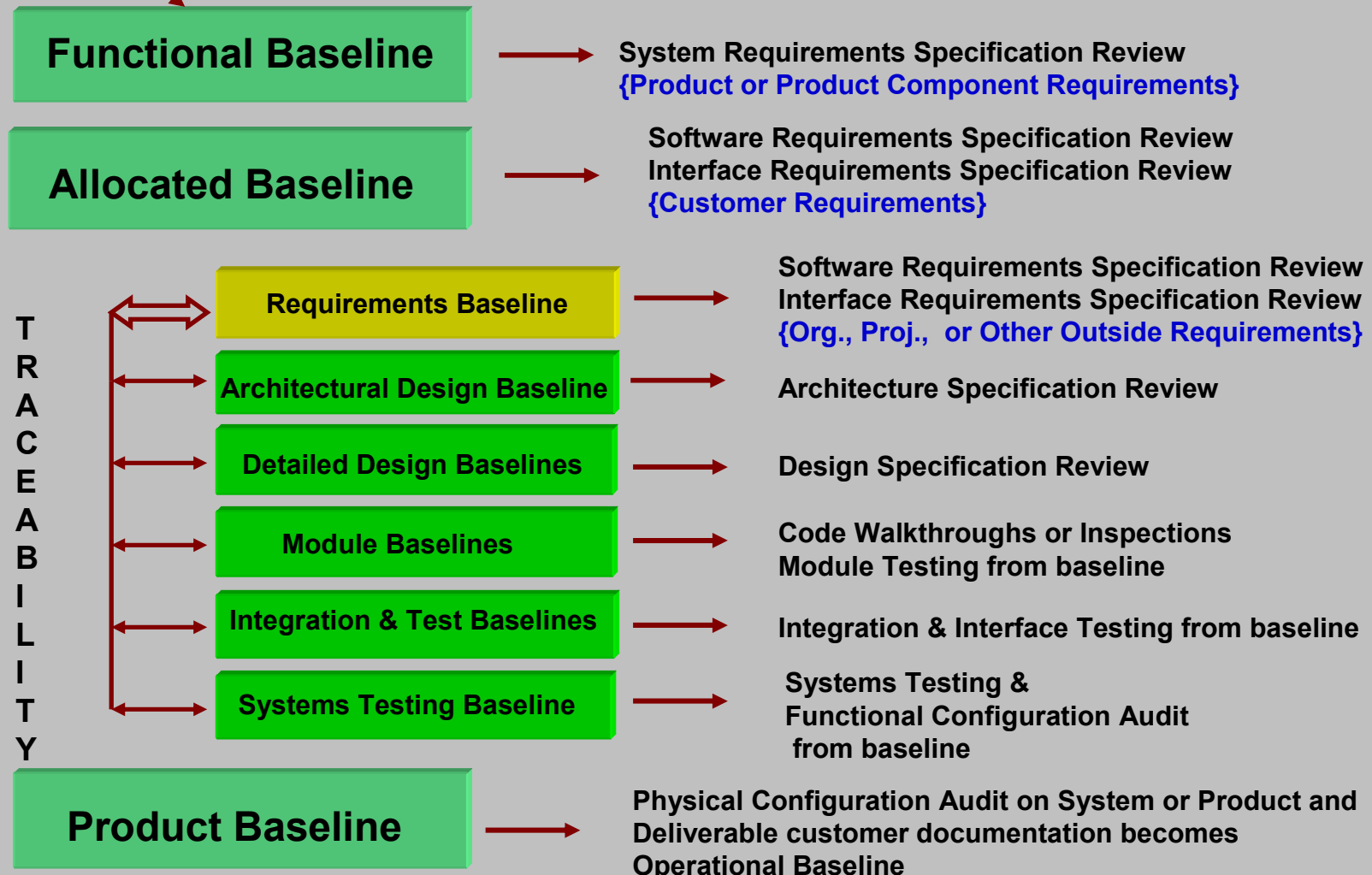
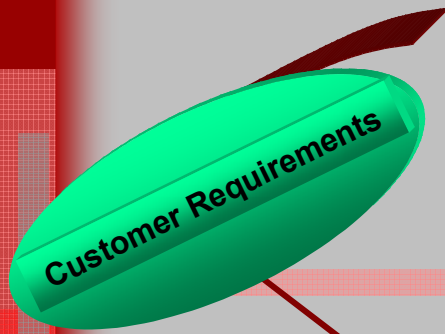


Baselining

- ◆ A baseline is an approved snapshot of the one or more configuration items at appropriate points in the development lifecycle
 - ◇ Record of a contract
 - ◇ Serves as the basis for further development
 - ◇ Can be changed only through an agreed upon change control procedure

- ◆ A baseline could be
 - ◇ A specification (i.e., requirements specification, design specification)
 - ◇ A product that has been formally reviewed and agreed upon
 - ◇ A partial system

Mapping of System and Developmental Baselines





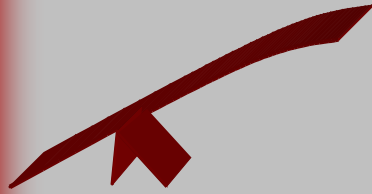
SP 2.1-1 Track Change Requests

- ◆ Change requests apply to not only new or changed requirements, but also system failures and defects in work products
- ◆ The change request process typically contains the following steps:
 - ◆ The change request is recorded
 - ◆ The impact the change will have on the work product, related work products, and schedule and cost is determined
 - ◆ The change request is reviewed and agreement is reached with those affected by the change request
 - ◆ The change request is tracked to closure



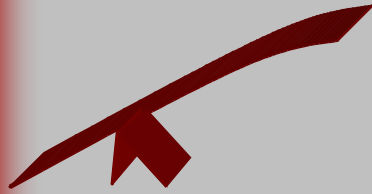
SP2.2-1 Control Configuration Items

Control changes to the configuration items



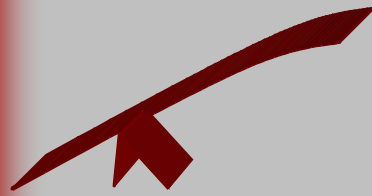
Change Control

- ◆ Change control involves:
 - ◇ Tracking each configuration item
 - ◇ Approving a new configuration
 - ◇ Updating the baseline
- ◆ Check-in, check-out procedures are used to maintain the correctness and integrity of the CMS
- ◆ Reviews and regression testing are performed to ensure that changes have not caused unintended effects on the baselines
- ◆ Authorization from the Configuration Control Board must be obtained before changed configuration items are re-entered into the CMS
- ◆ All changes and the reasons for the changes must be recorded in sufficient detail to provide change history and support configuration management status accounting



SP3.1-1 Establish Configuration Management Records

**Establish and maintain records
describing configuration items**



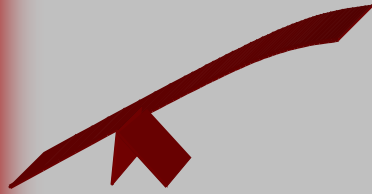
Configuration Management Status Accounting

- ◆ Status reports on a given baseline and changes made to it are readily available
 - ◇ All relevant stakeholders, especially project leaders should have access to and knowledge of the configuration status of the configuration items
 - ◆ may involve a human being
 - ◆ may be provided by the Configuration Management tool
 - ◆ Periodically sent out to affected groups and individuals
 - ◇ Previous versions can be recovered
 - ◇ The difference between successive baselines is able to be clearly described
 - ◇ Current status and history of each configuration item are maintained and updated as necessary



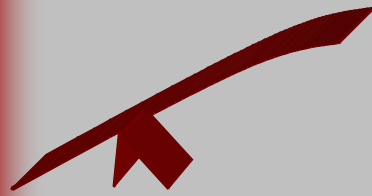
SP3.2-1 Perform Configuration Audits

**Perform configuration audits to
maintain integrity of the
configuration baselines**



Configuration Auditing

- ◆ Configuration audit verifies that the product is built according to the requirements, standards, or contractual agreement
- ◆ Verifies that all product components have been produced, correctly identified and described, and that all change requests have been resolved



Configuration Auditing - 2

- ◆ Baseline audits are conducted:
 - ◇ The integrity of the baselines is assessed
 - ◇ The completeness and correctness of the baseline library contents are verified
 - ◆ based on the requirements as stated in the plan and the approved requirements change requests
 - ◇ The product's functionality and performance are compared to the requirements
 - ◇ The documentation that is baselined for maintenance activities and for operational use is compared to the requirements