

SCM Best Practices

Roundtable TSMS 11.2

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Tugboat Software

- Progress Technology Alliance Partner
- Roundtable TSMS
- Roundtable Team
- Roundtable Enterprise



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Tugboat Software is a technology alliance partner with Progress Software. Our focus is on building OpenEdge applications that enable our customers to better achieve their business goals by making more efficient use of their existing resources.

For OpenEdge development and change management, we offer two solutions: Roundtable Total Software Management System and Roundtable Team.

We now offer Roundtable Enterprise which allows you to purchase both TSMS and Team together at a discount.

Software **C**onfiguration **M**anagement

Today we are going to talk about... SCM!

We'll define the disciplines of software configuration management and what to look for in an SCM solution.

For the 2nd half of the presentation we'll look at how Roundtable TSMS implements those SCM principles.

Software Configuration Management

The discipline of managing the entire life cycle of a software project.

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Define SCM and brief description.

SCM is comprised of 4 well-defined activities that I will discuss.

But first..

What the heck is a **configuration**?



A configuration is a view of your application (or an independent subset of your application) at a given point in the development life-cycle.

Version control alone is not configuration management!



SCM is not defined by version control alone.

The term SCM is often used to describe change control systems. However, just implementing change control does not mean that an organization is practicing SCM.

SCM requires the application of business and engineering policies and procedures to ensure the appropriate level of control (and auditability) throughout the life-cycle of a software project. This involves implementing tools to help manage both the business and engineering domains of the project.

SCM systems should not only be easy for developers to use, but also provide managers and configuration specialists (build engineers) with the tools they need to successfully build projects and manage the development team.

SCM Activities

- Configuration Identification
- Configuration Control
- Configuration Auditing
- Configuration Status Accounting



In brief, these are the activities of SCM. I'll discuss each one in a bit more detail with the following slides.

Configuration Identification

- Uniquely identify the component items of the application
- Define the hierarchy of the items
- Identify and demarcate application configurations

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Configuration Identification is simply the identification of a relative arrangement of software system components.

The purpose of Configuration Identification is to identify your application at a few levels:

- The first objective is to identify the individual items that make up the application: Programs, images, scripts, help files – all the pieces that make up a complete installation of the application; much like the bill of materials for a manufactured item.
- Another part of Configuration Identification is to define how the individual pieces fit together. There is a physical directory structure to the application, as well a functional structure. For example, a financial application might have an accounting component, which is made up of programs for accounts payable, others for accounts receivable, general ledger, and so forth.
- In addition to defining the components and structure of the application, Configuration Identification is concerned with identifying and separating different configurations of your application. Commonly, these are configurations in the development lifecycle, such as Development, Test, and Production. It is also good practice to identify application release configurations, such as the application at release 1.0, at 2.0, etc.

Configuration Identification - EZ

- What components make up my application?
- What kind of components are they?
- What are my life-cycle stages?



Configuration Control

- Establish configuration security
- Manage application changes
- Define workflow

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Configuration Control is the process of controlling changes to the system.

Having identified the content of configurations, Configuration Control is concerned with managing the integrity of those configurations.

- First, you want to be able to control access to the configurations. You don't want just anyone making changes to production code.
- Even with the proper security in place, it's important to control and coordinate the changes that are made to a configuration. In manufacturing, it's common to have a Change Control Board that are the gatekeepers that determine which changes are made to a product's design or materials, and when they are implemented. Software development benefits from the same sort of oversight.
- Another objective of Configuration Control is to establish the path for the promotion of changes through the lifecycle. Can bug fixes be made directly in production, or do they first have to be done in a development environment, and then proceed through levels of testing? How changes move through the development cycle is something that your organization needs to determine.

Configuration Control - EZ

- Who can do what and where can they do it?
- Where do my promotions go?



Configuration Auditing

- Ensure existence of required components
- Utilizes Configuration Identification
- Review configuration changes

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Configuration Auditing is the process of ensuring that a system does contain everything implied by its baseline status.

The planning approach of some development shops is “You go start coding, and I’ll go find out what they want.” Rather than just keeping developers busy with impending deadlines, Configuration Auditing is concerned with assessing the modifications to ensure that the objectives for those changes are accomplished.

- If the next release X is to have features A, B, and C, then we should be able to look at the changes made and see if the required new components have been added.
- The benefits of Configuration Identification facilitate the recognition of the new components as well as the components that were modified in order to implement the new features.
- Configuration Auditing is also concerned with evaluating the changes made in order to measure them against the objectives for the changes. In short, Configuration Auditing seeks to determine if everything that should be there *is* there.

Configuration Auditing - EZ

- What did we release?
- Did we do what we said we were going to?



Configuration Status Accounting

- Identify changes made to a configuration
- Identify work in process

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Configuration Status Accounting ensures that a complete record of the changes to a system and the reasons for those changes are available. You may already do this without realizing it (comments in source code, spreadsheet, etc).

Configuration Status Accounting is all about tracking changes - in the past as well in the present.

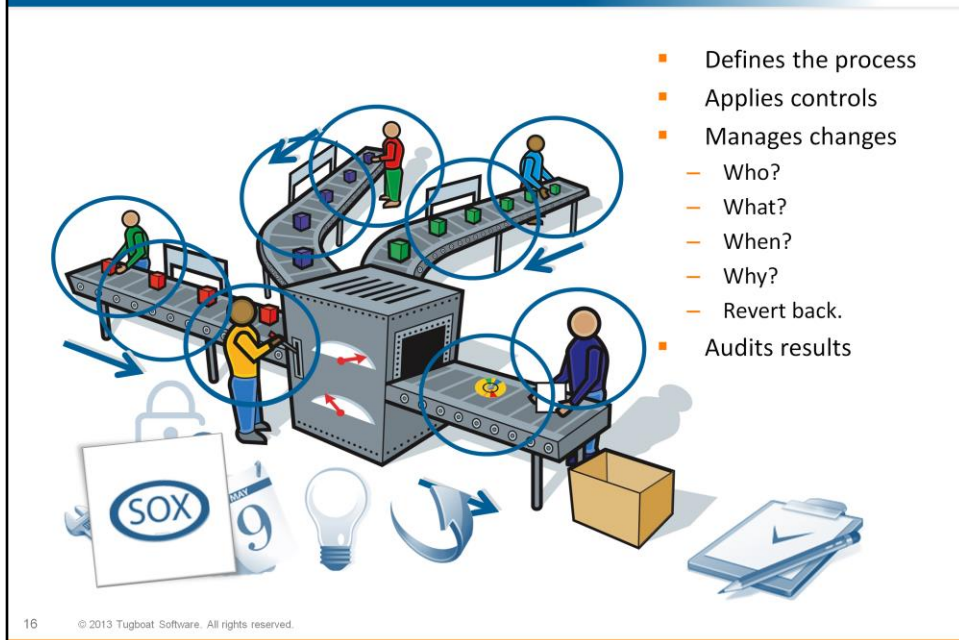
- For past changes, we want to know what was changed, when it was changed, who changed it, and why they changed it. This is often exactly the information needed to satisfy governance and compliance requirements. From a practical developer's point of view, if weeks down the line, you discover that some feature is no longer working, you'll have a much easier time finding out why it isn't working with this type of accounting in place.
- When this level of accounting is implemented for current changes, it facilitates communication and project management during development. Both project managers and developers can benefit from knowing who is working on what and why.

Configuration Status Accounting - EZ

- Who is working on what?
- Who changed what?
- Where did they make the change?
- When did they make the change?
- Why did they make the change?



SCM Heartbeat



Software Configuration Management is the heartbeat of any serious software development effort. One would not start mass producing a car without first building a factory and defining the production line. SCM is THE factory for software development. It is the discipline, based on the principles of the manufacturing industry that brings repeatable, high-quality production to your software applications.

DEFINE THE PROCESS: Identifies items and processes that make up an application. Maximizes efficiencies (e.g., promote changes).

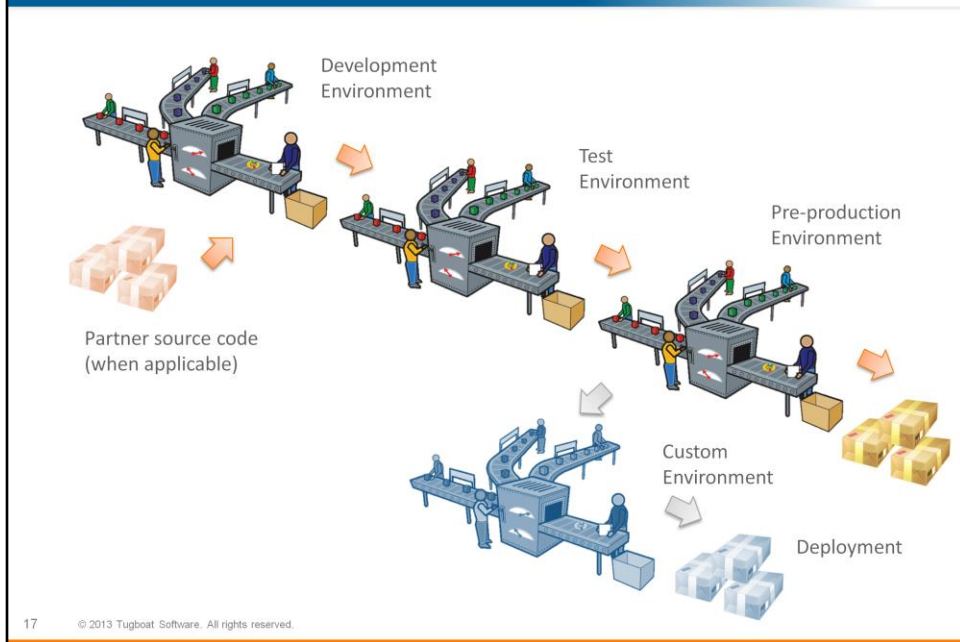
APPLIES CONTROLS: Defines who has access to what and under what conditions.

MANAGES CHANGES: Identifies who changed what, when, and why. Allows for reverting changes (code and schema).

AUDITS RESULTS: Enables users to determine if what has been planned has been completed to specifications.

These are industry best-practice items that also satisfy Sarbanes-Oxley (and similar) compliance requirements.

... applied to every level

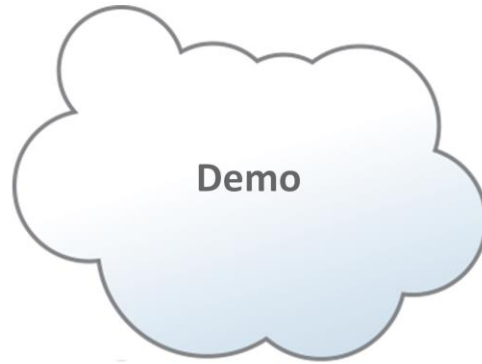


The software application “assembly line” looks more like this, though it can vary from organization to organization.

The advantages that SCM provides at one development stage (previous slide) apply through all stages of the software lifecycle (this slide).

NOTES:

The orange packaging in the image indicates a scenario in which the development team is working with source code from a third-party (e.g., the delivery of MFG Pro). The blue assembly line in the image represents a scenario in which the core application is copied and modified for another site(s).



What Did We Learn?

- The 4 basic principles of SCM
 - Identification
 - Control
 - Auditing
 - Accounting
- You tell me!



More Information

- **Come by the booth!**
 - Jaclyn Barnard, Director of Business Development

- ***Continuous Integration with Roundtable***
 - Thomas Hansen, Director appSolutions
 - Roundtable champion and expert
 - www.app-solutions.com



Roundtable Resources

- Roundtable TSMS at
 - www.roundtable-tsms.com
- Roundtable Team
 - www.roundtable-team.com



Questions

