Configuration Control and Management

Tom Swain
Software Quality Research Laboratory
University of Tennessee
Department of Computer Science
Configuration Items

- Software Requirements*
- Software Behavior Specification
- Software Architecture Specification
- User Guide
- Software Test Plan
- Source Code
- Test Record

*superceded by Behavior Spec
Configuration/Release Control
Key Practices

- Source control tool (i.e., Subversion)
- Centrally managed release tagging
- Repeatable automated build procedure
- Formal release criteria
- Change tracking (via Trac)
- Audit trail
Software Configuration Management

Development
- Create
- Check In
- Check Out
- Edit

Source Code & Document Repositories

Release Management
- Tag Next Release
- Build
- Install
- Test
- Fix Errors
- Passed?
- Yes
- No
- Retag Mods
- Update Tags
- Add Tags

Source Code & Docs

Create
Check In
Check Out
Edit
Tag Next Release
Build
Install
Test
Fix Errors
Passed?
Yes
No
Retag Mods
Update Tags
Add Tags
Source Code & Docs
SVN Repository General Structure

- main development area
- named versions
- large changes that should be done in isolation of other developers

root / tags

Slide courtesy of P. Peterson, SNS
Change Request Processing

SQET ≈ Testing and Release Control
What is Trac?

- Software change management
- Forum for sharing and discussing ideas
- Working level project tracking

- Wiki – a place to define the task area and share ideas
- Timeline – what happened when
- Roadmap – detailed milestones are defined here
- Browse Source – access to SVN repository for the task area
- View Tickets – see the status of tickets for this task area
- New Ticket – create a ticket
Problem: Current Trac Workflow

Current Trac Workflow

Planned Trac Workflow

http://projects.edgewall.com/trac/wiki/NewWorkflow
SNS Trac Workflow
Defining the Development Sequence

Subversion Timeline
- Move Release Tag for In-scope Changes and Corrections
- Move Release Tag for Defect Corrections

Trac Timeline
- Add Features per Specification
- Correct Defects Discovered in Test
Take Home Messages

• All work products must be under configuration control

• Independent build-install-test process

• Use tags (or equivalent) to track & ID code for release

• Ticket workflow must include verification step