

Introduction to Source Code Control in LabVIEW Using TortoiseSVN

Presented by Dan Shangraw, P.E.



Overview

- Presenter Background
- Introduction
- Fundamental Concepts
 - Repository
 - Versioning Models
 - Subversion in Action
- Basic Usage
 - Creating a Repository
 - Basic Work Cycle
 - Examining History
- Branching, and Tagging
- Concluding Remarks
- Further Reading
- Questions

Background

Dan Shangraw, P.E.

- BSME Western Michigan University
- Certified LabVIEW Developer
- Licensed Professional Engineer State of Michigan
- Twelve Years Experience
- Owner of Automated Software Technology
- Manage the South East and West Michigan LabVIEW User Groups

- Develop custom automated measurement systems specializing in LabVIEW software design.
- Focused on Short Term projects from a few hours to 1 month
- Certified Member of the National Instruments Alliance Program
- Established in 2002 and located in East Lansing, MI

Introduction

Why use Source code Control?

- Software is dynamic!
- Manage File Sharing
 - Manage Files on Multiple Machines
 - Manage Files that are used by multiple people
- Revision Control
 - Manage Released Revisions (i.e. executables)
 - Manage different branches of development
 - Ability to go back in time
 - Document changes to files

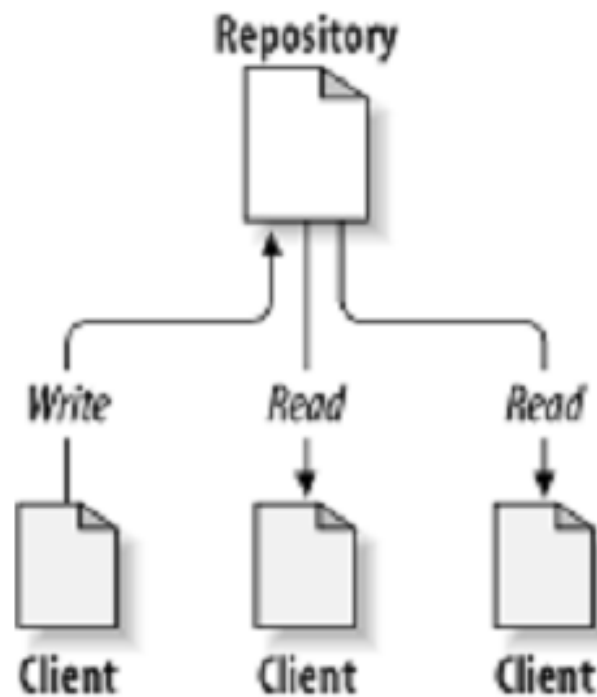
Introduction

TortoiseSVN

- TortoiseSVN is a free open-source client for the Subversion version control system.
- TortoiseSVN is widely used in the LabVIEW community
- TortoiseSVN can keep track of other files that need to be under SCC (i.e. Specifications, Drawings, Wiring Diagrams, BOM, etc)
- TortoiseSVN integrates seamlessly into the Windows shell (i.e. the explorer).
- TortoiseSVN Tool for LabVIEW (JKI). Integrates into the LabVIEW project

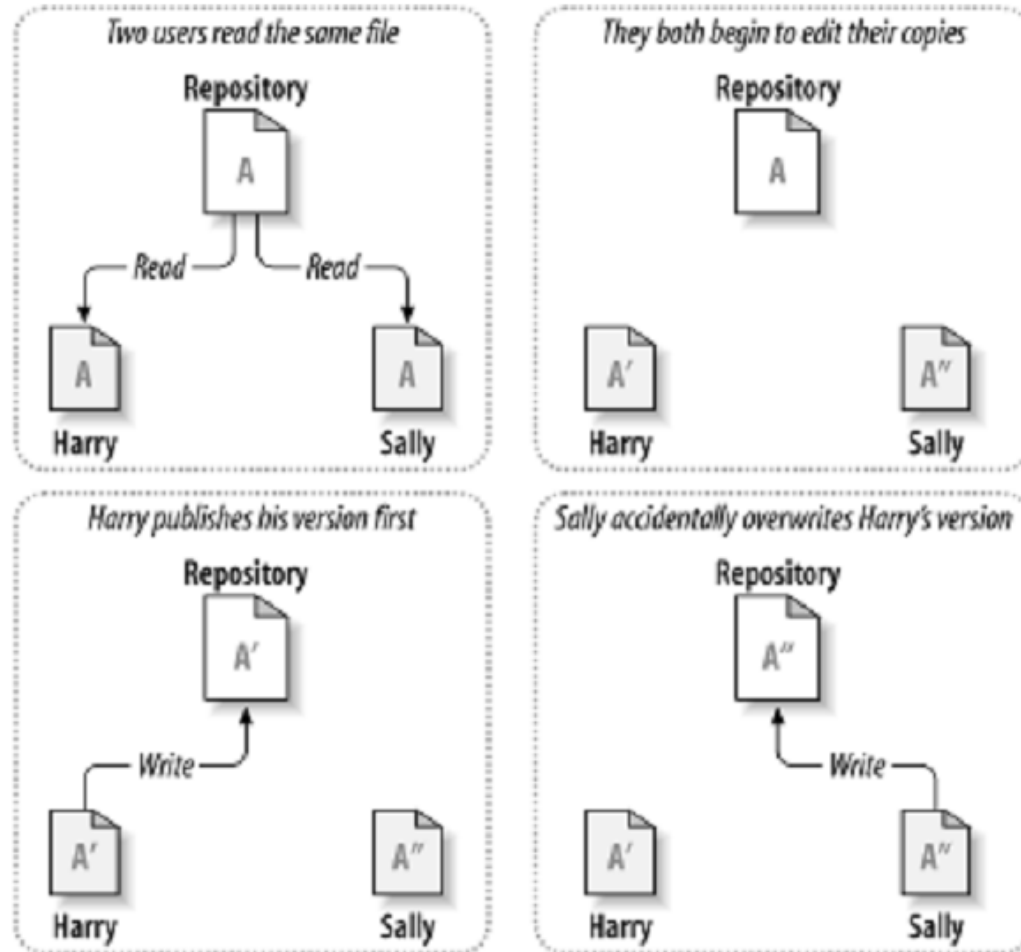
Fundamental Concepts

Repository



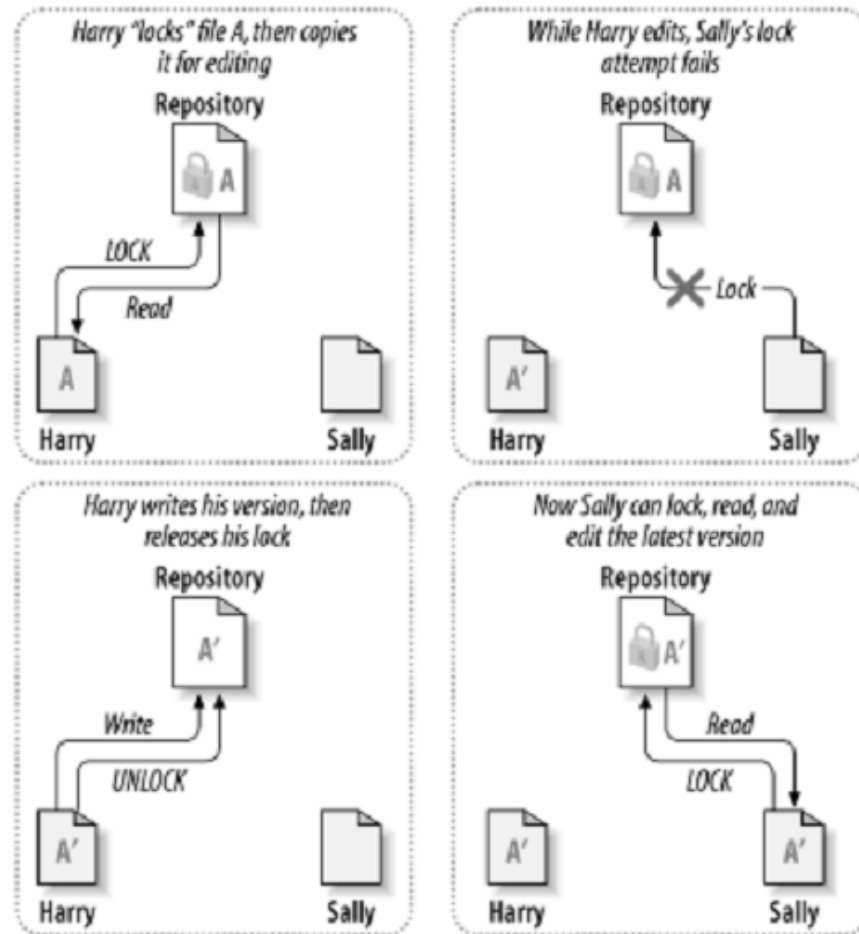
Fundamental Concepts

The Problem with File Sharing



Versioning Models

The Lock-Modify-Unlock Solution



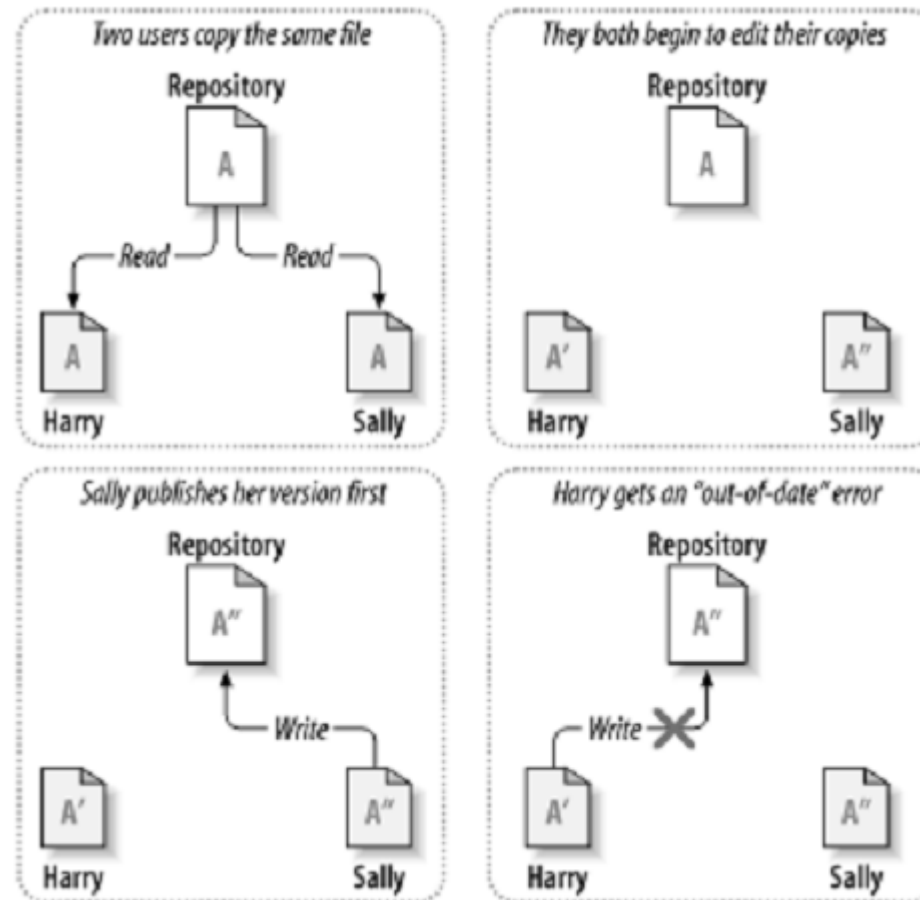
Versioning Models

The Lock-Modify-Unlock Solution

- Locking may cause administrative problems
- Locking may cause unnecessary serialization
- Locking may create a false sense of security.

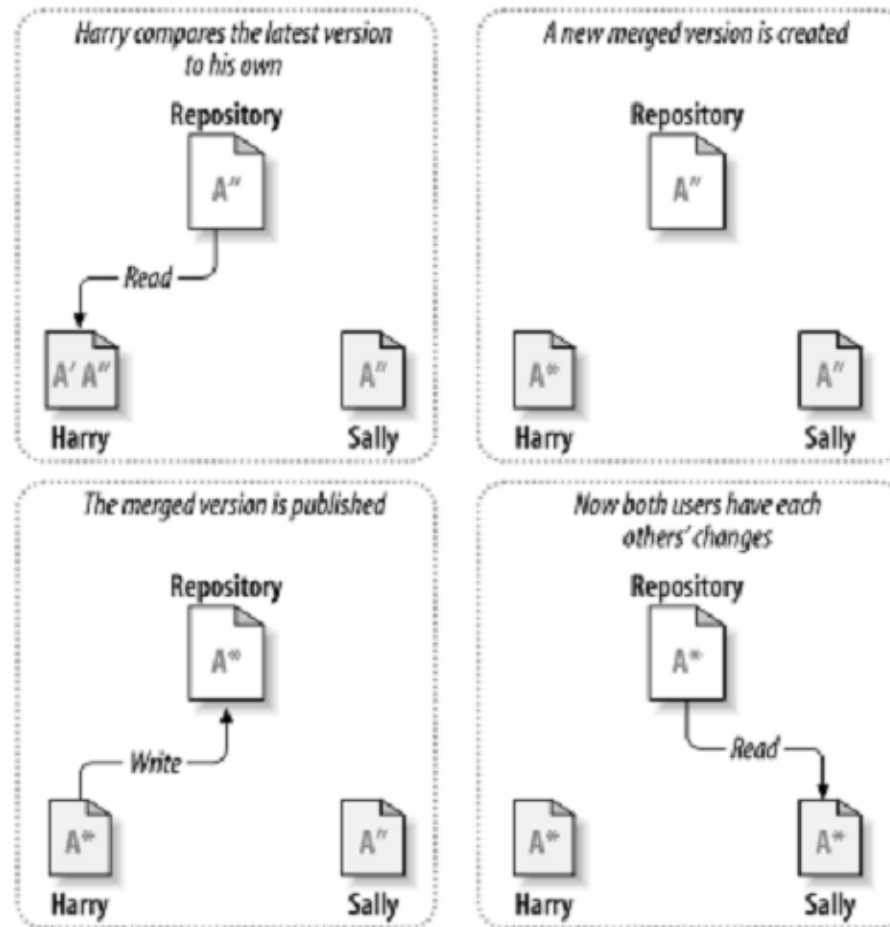
Versioning Models

The Copy-Modify-Merge Solution



Versioning Models

The Copy-Modify-Merge Solution



Versioning Models

The Copy-Modify-Merge Solution

- Merging can be very tricky

Subversion in Action

Working Copy

- Check out
 - Create a private local copy of a subtree of the repository
- Commit
 - Publish changes of the working copy to the repository
- Update
 - Incorporate changes into your working copy others have made since your last commit or check out

Basic Usage

Creating a Repository

- Create Repository at Desired Location (Server, Hard Drive, etc.)
- Layout Repository
 - Trunk
 - Branch
 - Tag
- Import Data Into Repository
- Back up Repository!

Basic Usage

Icon Overlays



normal



readonly



added



normal.cpp



readonly.cpp



added.cpp



modified



deleted



ignored



modified.cpp



deleted.cpp



ignored.cpp



conflicted



locked



non-versioned



conflicted.cpp



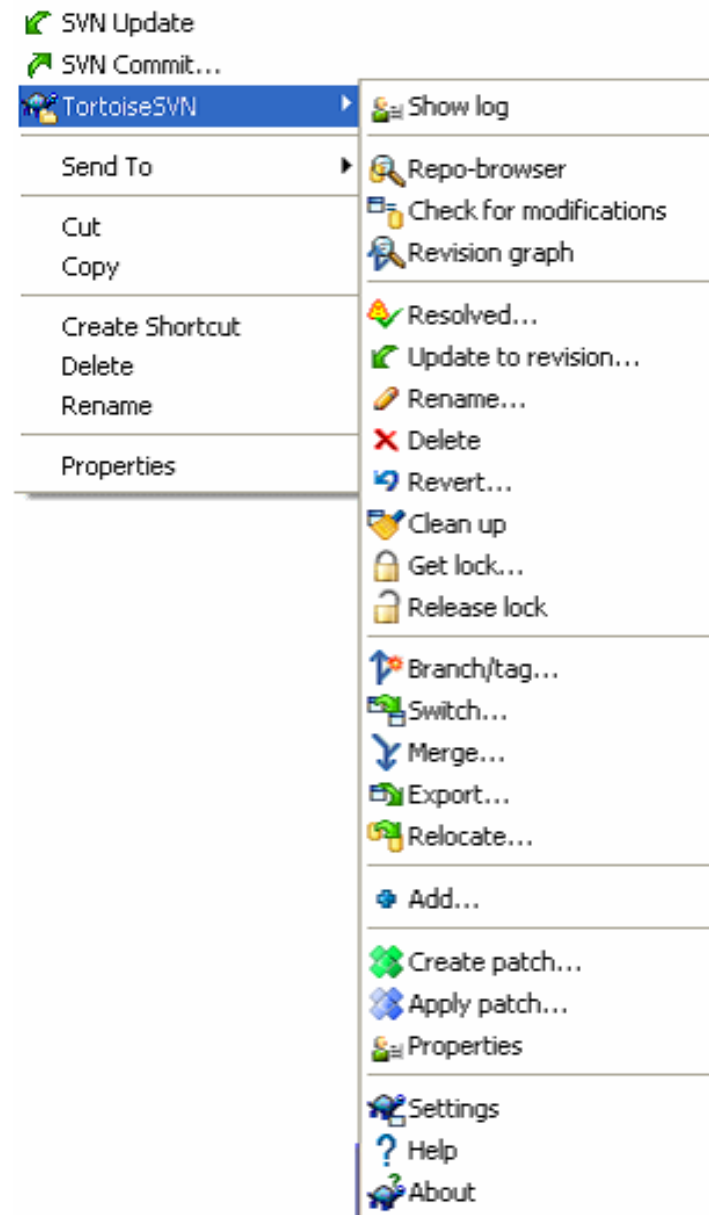
locked.cpp



non-version..

Basic Usage

Context Menus



Basic Usage

Work Cycle

- Import Data Into Repository
- Checkout Working Copy
- Commit Changes to Repository
- Update Working Copy

Basic Usage

Examining History

- Revision Log Dialog

Basic Usage

Branching/Tagging

- Branching
- Tagging

Conclusion

- Discussed Purpose of Source Code Control
- TortoiseSVN for Revision Control
- Repository
- Subversion Usage
 - Create a Repository
 - Check out
 - Commit
 - Update
 - Branch/Tag

Further Reading

- Merging
- Ignoring Files and Directories
- Exporting a Working Copy from Revision Control

Further Reading

- TortoiseSVN Website

<http://tortoisesvn.tigris.org/>

- Subversion Book

<http://svnbook.red-bean.com/>

- LAVA Forum on Source Code Control

<http://lavag.org/forum/29-source-code-control/>

- Jim Kring's Blog on TortoiseSVN

<http://thinking.com/category/tortoisesvn/>

- Source Code Control and Group Development Practices in LabVIEW

<http://decibel.ni.com/content/docs/DOC-1681>

Questions?