



Study for Migration from CVS to SubVersion (SVN)

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Why to migrate

- ◆ **svn is more powerful**
 - ◆ Usage largely similar to cvs
 - ◆ Except handling of cvs style tags
- ◆ **G4 cvs repository hosted by CERN/IT cvs/lcg service**
 - ◆ Service provided by CERN/IT
 - ◆ CERN/IT runs two services, cvs/general and CVS/lcg
 - ◆ Strong push to migrate to SVN



Overview

- ◆ What is SVN
- ◆ What is needed before migration
- ◆ Current status
- ◆ Timeline for migration
- ◆ Documentation links



What is Subversion (SVN)

“Subversion

- ◆ was designed to be a successor to CVS
- ◆ its originators set out to win the hearts of CVS users in two ways
 - ◆ by creating an opensource system with a design (and “look and feel”) similar to CVS,
 - ◆ by attempting to avoid most of CVS's noticeable flaws.
- ◆ Subversion *is very powerful, very usable, and very flexible.*”



SVN differs from CVS

“Subversion tracks tree structures, not just file contents. It's one of the biggest reasons Subversion was written to replace CVS.”

from SubVersion book, App. B



SVN features

- ◆ **SVN versions everything**
 - ◆ Including directories
 - ◆ Allows to keep under 'revision' control the renaming, move, or deletion of files or directories
 - ◆ Revisions IDs are not per file, but on repository
 - ◆ Commits are transactions
 - ◆ No notion of cvs style Tag
 - ◆ Branch, which is a named copy, places Tag
- ◆ **Improved access to repository**
 - ◆ Svn, also over ssh,
 - ◆ dav(http or https)
 - ◆ local



WHAT IS NEEDED BEFORE MIGRATION



Prototype migration

- ◆ **Snapshot of cvs migrated in svn**
 - ◆ <https://svnweb.cern.ch/cern/wsvn/g4test/>
 - ◆ `svn co svn+ssh://svn.cern.ch/repos/g4test/tags/geant4/_symbols/geant4-09-03-ref-07`
- ◆ **Directory structure ok, i.e. as wanted – can be changed**
 - ◆ Set of tools developed to achieve this
 - ◆ Conversion needs about one working day
- ◆ **Emulation of sticky tag**
 - ◆ Will be implemented via svn hook (still missing)
- ◆ **Performance is good**
- ◆ **More technical details on migration in session 2-B, Przemyslaw Paprocki**



Development tools (1)

Bonsai

- ◆ **Tag collection**
 - ◆ **Ok, much simpler with svn**
- ◆ **Web interface**
 - ◆ **Bonsai web interface needs re-write independent of svn!**
 - ◆ **Careful testing needed before switch to svn**
 - ◆ **replacement exists in alpha version**
 - ◆ <https://sftweb.cern.ch/geant4/geant4tags>
 - ◆ **Testing starting using tags from current db**
 - ◆ **New tags copied across**
 - ◆ **Needs testing, volunteers please contact me!**



Development tools (2)

◆ Adapt other procedures and scripts

◆ system testing

◆ release building

◆ Currently moving tag

◆ Prepare in branch, 'tag' final ?

◆ Disclaimer, check for std::, ...

◆ Adapt procedures to svn

◆ Documentation

◆ Work on documentation has started



Current status

- ◆ **Migration possible**
 - ◆ Still work to be done, but no problems expected
- ◆ **G4Tags - Bonsai replacement**
 - ◆ Alpha version ready
 - ◆ Should be fully ready and tested before actual migration
 - ◆ Do with tags from cvs
 - ◆ Switch before svn migration, if all goes well?
- ◆ **Need decision to go ahead with migration**



Proposed schedule

- ◆ Provide updated documentation by end 2010
- ◆ G4Tags tested by December 2010
- ◆ Migrate to svn early January 2011

- ◆ Decide upon migration – this workshop



svn References

- ◆ SVN home page:
 - ◆ <http://subversion.tigris.org/>
- ◆ Ben Collins-Sussman, Brian W. Fitzpatrick, C. Michael Pilato
“Version Control with Subversion”,
 - ◆ O’Reilly: <http://www.oreilly.com/catalog/0596004486/>
 - ◆ Online version of book: <http://svnbook.red-bean.com/>
- ◆ SVN service at CERN:
 - ◆ <http://cern.ch/svn>
- ◆ cvs2svn home page
 - ◆ <http://cvs2svn.tigris.org/cvs2svn.html>



Summary

- ◆ **Propose to migrate to svn**
- ◆ Lots of work for some
- ◆ Some learning to do for all
- ◆ **Long term profit from modern repository**
- ◆ **More in session 2-B today at 14:10**

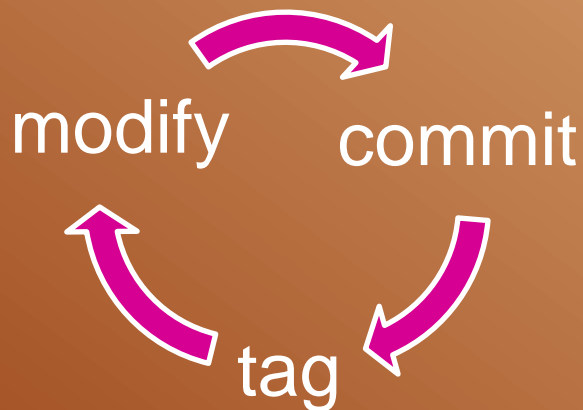


BACKUP



Geant4: cvs use by developer

- ◆ Developer checks out a reference tag
- ◆ Updates files in partial directory tree to head,



- ◆ Tags are not changed after creation
- ◆ See differences to previous versions, log files,...



CVS use by testing or release manager

- ◆ Checkout reference tag
- ◆ Update list of dirs to more recent tag
 - ◆ Global to global-V09-02-02
 - ◆ Particles to ...
 - ◆ ...
- ◆ Frequent need to move tag prior to release
 - ◆ Release manager



Re-organization Clean-up?

- ◆ **Chance to re-organize repository**
 - ◆ **Several directories probably not in best place**
 - ◆ **But SVN supports fully support move, so can be done in transparent way later**
- ◆ **Clean-up**
 - ◆ **No longer needed or (near-)duplicate directories**
- ◆ **But do we want to break possibility to go back?**