

SubVersion – the new Central Service at DESY

by Marian Gawron



What is Subversion?

- Revision Control System
- made to replace CVS



SVN Basics

- Client Options

- Command line client
- Different GUIs for Windows, Linux and Mac
- Web access

- Svnserve

- Integrated server communicates over TCP/IP
- Tunnel mode (e.g. ssh)

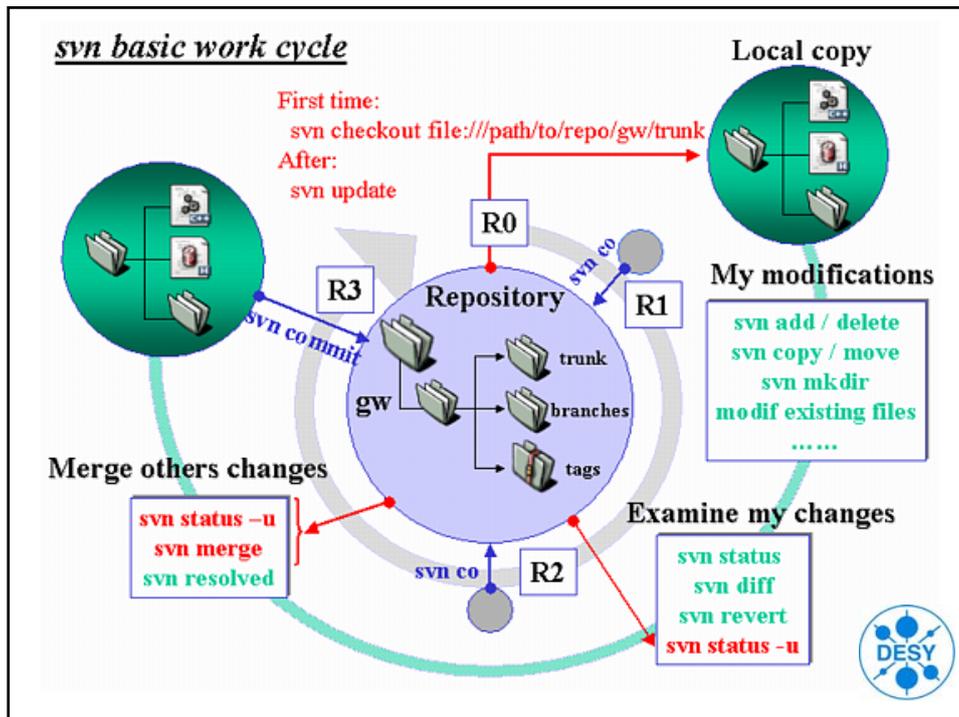
- Apache based Web Server



Introducing SVN work cycle

- Checkout a working copy at the beginning (one time)
- afterwards **update** the local working copy (very often)
- SVN remembers the path to the repository and looks for changes itself
- Work on this copy: make and test changes
 - Use **svn add** to add various files or directories
 - **svn move** to move files or directories
 - or **svn delete** to delete files or directories
- **Before every commit update** your copy again maybe there are some conflicts
- **Commit** changes to the central project





Conflicts in SVN

- can happen that another developer works on the same file like you and he commits his work earlier
- because you know it could happen update your local working copy again before commit
 - svn update
- You see symbols in front of each file a change was made with (e.g. A(dd), M(odified), D(eletion) or C(onflict))
- We got a "C" in front of our working file
 - e.g. C branches/file.cgi
- Merge Conflicts by hand: look in the file
 - the conflict part is surrounded by "<<<<<<" and ">>>>" the own part is on top if a line like "====" in the middle edit this file as you want
 - Afterwards run svn resolved and commit the file

DES

Basic SVN Commands

- **svn checkout (co)**
 - only first time after one checkout for each project SVN knows where to find it
- **svn update (up)**
- **svn add, delete(del, rm), copy(cp), move(mv)**
 - Working commands on working copy only
- **svn status(st), diff, revert**
 - Commands to test changes or undo them
- **svn merge, resolved**
 - Commands to find a solve conflicts
- **svn commit (ci)**



Differences between CVS & SVN

- **Similar to CVS in many ways**
 - Commands like checkout, add, commit
- **New useful features and commands**
 - Merge, resolved, mkdir, copy, move
- **SVN works faster**
- **SVN has no direct rollback function**



Differences between CVS & SVN in detail

- **Revision numbering**
 - Each revision
 - is a timestamp for one commit
 - defines a whole tree not only one file
- **Commits**
 - In SVN a commit is done all at once
 - better if there is a network problem SVN repository is save
- **Binary Files**
 - Take less space in SVN (algorithm Vdelta)



Differences between CVS & SVN in detail

- **Directories**
 - Changes to directories are tracked in SVN
- **Renaming Files**
 - possible in SVN with "svn move" without losing history
- **Branching Tagging**
 - not generated automatically in SVN
 - expensive operation in CVS but a normal operation in SVN cause no difference between a normal directory and branches or tags





Details

- Repository

- With URL <https://svnsrv.desy.de/...>
- Local access <file:///home/usr/repo>
- same as an array of trees



Viewing repositories

- Online tool : ViewVC

- Only for viewing, downloading, reading
- No write permissions in ViewVC for anybody

- <https://svnsrv.desy.de/viewvc>



/ [calice]

Index of /

Files shown: 0
 Directory revision: 2199 (of 2199)
 Sticky Revision: 5et

File	Rev.	Age	Author	Last log entry
CondDB MySQL/	1499	16 months	poeschl	Fix to prevent condbview.acl from crashing, # added to print statement
calice/	299	2 years	poeschl	Update
calice_eddata/	1769	10 months	lima	GL: update to TCMT strip ordering wrt Heal coords
calice_kicoconv/	1860	9 months		This commit was manufactured by cvs2svn to create tag 'v04-02-06'.
calice_maps/	2046	4 months	magnan	correct exit behaviour
calice_monitor/	1252	21 months		This commit was manufactured by cvs2svn to create tag 'v01_00'.
calice_online/	1864	9 months		This commit was manufactured by cvs2svn to create tag 'v04-05'.
calice_recut/	2196	2 months		This commit was manufactured by cvs2svn to create tag 'v04-06-mc02'.
calice_sim/	2199	2 months		This commit was manufactured by cvs2svn to create tag 'v01-00'.
calice_userlib/	2185	2 months		This commit was manufactured by cvs2svn to create tag 'v04-10-mc03'.
ksof/	58	3 years	gmavroma	removed

[Download GNU tarball](#)

Powered by [ViewVC 1.1-dev](#)

[ViewVC Help](#)

Internal Structure

- A Look in a Repository
 - /conf directory containing repository configuration files
 - /dav directory for communication with apache
 - /db main directory with all stored files of the repository
 - format a file which contains values like version number of the repository
 - /hooks directory with scripts which SVN will execute if an action is made
 - /locks directory with locking data of SVN

Never change things manually!!! If you are not sure



Authentication and Authorization to Web Server

- Anonymous

- all repositories are readable to everybody
- Location "public"
- e.g. <https://svnsrv.desy.de/public/marlin>

- Via SSL

- write permission is given to users with valid certificates
- Location "svn"
- e.g. <https://svnsrv.desy.de/svn/marlin>

- Via Kerberos

- write permission is given to users with valid DESY account
- Location "desy"
- e.g. <https://svnsrv.desy.de/desy/marlin>



Authentication with Apache

- Basic realm is global and exists for all pages
- Only necessary for writing permission (Limits)
- protects Location "public", with User rights and permissions
- Successful authentication only in other Locations when server sends request for Username of Certificate or Kerberos name
- FakeBasicAuth important
- Apache does Authentication and a general Authorization

Authentication and Authorization in SVN

- Via SVN authorization file

- Gets Username from apache
- File where Administrators can give read/write permissions of their projects and subprojects
- Easy to handle and clear structure in the file

- example:

```
[repository:/...]  
User 1 = rw  
User 2 = r
```



Administration

- After registration: maintainer is administrator of own projects
- Maintainer has the rights to add / delete members or to create new subprojects

- Online Interface for Administration

- <https://svnsrv.desy.de/admin/desy> for Kerberos based Authentication
- <https://svnsrv.desy.de/admin/svn> for SSL based Authentication



Hello Marian Gawron

You are a registered user (ID 3) <https://svnsrv.desy.de/admin>

Details of the Person you want to add or modify

Name/full DN-String of Certificate if exists?

DESY account name

E-Mail?

Write access to Project

Commit-Mails yes no

(data fields with * are required) or form contents

You are allowed to administer all projects except global
You are member of global, afbackup and afadmin

Members of global

DN-String	DESY account	E-mail	Delete?
/O=GermanGrid/OU=DESY/CN=Wolfgang Friebel	fribel	wolfgang.friebel@desy.de	<input type="checkbox"/> delete
/O=GermanGrid/OU=DESY/CN=Frank Gaede	gaede	gaede@mail.desy.de	<input type="checkbox"/> delete
/C=DE/O=GermanGrid/OU=DESY/CN=Marian Gawron	mgawron	mgawron@fb.de	<input type="checkbox"/> delete

Members of afbackup

DN-String	DESY account	E-mail	Delete?
/O=GermanGrid/OU=DESY/CN=Wolfgang Friebel	fribel	wolfgang.friebel@desy.de	<input type="checkbox"/> delete
/C=DE/O=GermanGrid/OU=DESY/CN=Marian Gawron	mgawron	mgawron@fb.de	<input type="checkbox"/> delete

Members of afadmin

DN-String	DESY account	E-mail	Delete?
/O=GermanGrid/OU=DESY/CN=Wolfgang Friebel	fribel	wolfgang.friebel@desy.de	<input type="checkbox"/> delete
/C=DE/O=GermanGrid/OU=DESY/CN=Marian Gawron	mgawron	mgawron@fb.de	<input type="checkbox"/> delete

PROJECT CREATION AREA

Name of the new Project

REQUESTS

User	requested Membership in	Status	action
fribel	fribel	<input type="checkbox"/> reject <input checked="" type="checkbox"/> accept	
gaelich	frictools	<input type="checkbox"/> reject <input checked="" type="checkbox"/> accept	

request(s) or form contents

- add new members
- change own membership
- change own user information
- delete group members
- reject/accept requests




Status


- SVN server is working
 - svnsrv.desy.de
 - Intro: <http://svnsrv.desy.de>
- Repositories available and updated to current status in CVS soon
- Work on Online Administration Interface finished soon



Sources

- SVN manual like on
 - <http://svnbook.red-bean.com/en/1.4/index.html>
- “Apache Webserver 2” by Sebastian Wolfgarten