

SCM: SOFTWARE CONFIGURATION MANAGEMENT

Why Software Configuration Management ?

- Have you ever needed to determine what pieces make up a particular build or release?
- Have you ever needed to determine the state (development, test, or production) of the life cycle of a particular file?
- Have you ever needed to determine who did what to what and when on a particular file?
- Have you ever received a visit from your friends the auditors?

Definition of SCM

- Software Configuration Management is the ability to control and manage the changes in a software project.

Some of the SCM tools used :

- GIT
- SVN
- CVS

SCM resolves four major components

- Version control
- Build management
- Release management
- Process control

Version Control

Advantages of version control

- Roll back to any version
- Compare any of the versions
- Provides locking and forced serialized change to any given file
- Creates branches to parallel concurrent changes

Build Management

- Its generally known as a version of a software program
- This term is generally used in reference to a program which is still under development

Release Management

- Closely tied-up with build management
- Includes the deployment together with update of related meta-data
- Application to be available to its end-users

Process Control

- Combination of the business defined by the team and with the implementation of these process with your CM tool

General SVN commands

Svn export

Used to export the file or the directory from the repo or from the working copy to the desired location

```
$ svn export "working copy" my-export
Export complete.
```

```
$ svn export "repos" my-export
A my-export/test
A my-export/quiz
...
Exported revision 15.
```

Svn blame

Shows author , revision and content which is added to the file

```
$ svn blame "working copy"/"repos"  
2 sam testing
```

Svn log

Displays the commit log messages

```
$ svn log a
```

```
-----  
Query Optimisation - Optimising "Select All" queries.  
Inside Function getCurrentSpaceDeatils();  
For Bug ID :710
```

```
r293 | harry | 2010-08-16 16:59:24 +0530 (Mon, 16 Aug 2010) |  
1 line
```

```
-----  
r292 | harry | 2010-08-16 16:56:46 +0530 (Mon, 16 Aug 2010) |  
1 line
```

Svn status

Prints the status of the file or directory

```
$ svn status --show-updates --verbose  
M * 44 23 sally README  
M 44 20 harry bar.c  
 * 44 35 harry stuff/trout.c  
D 44 19 ira stuff/fish.c  
A 0 ? ? new  
stuff/things/bloo.h  
Status against revision: 46
```

Svn lock

Lock a file or directory in the working copy

```
$ svn lock "file/directory"
```

```
'a' locked.
```

```
Killed by signal 15.
```

```
$ svn status
```

```
K a
```

Svnlook

Print information about the history of a path in the repository
(or the root directory if no path is supplied)

```
$ svnlook history -r 9 /usr/local/svn/repos/tags/1.0 --show-ids
```

<u>REVISION</u>	<u>PATH <ID></u>
9	/tags/1.0 <1.2.12>
8	/branches/1.0-rc2 <1.1.10>
7	/branches/1.0-rc2 <1.1.X>
6	/trunk <1.0.q>
5	/trunk <1.0.o>
4	/trunk <1.0.k>
3	/trunk <1.0.g>
2	/trunk <1.0.e>
1	/trunk <1.0.b>

Svnlook youngest

Print the youngest revision number

```
$ svnlook youngest /tmp/repos/  
42
```

Svn list

Lists the directory entries in the repository

```
$ svn list --verbose http://repo-url
```

```
16 sally      28361 Jan 16 23:18 README.txt
27 sally      0      Jan 18 15:27 INSTALL
24 harry      Jan 18 11:27 examples/
```

Svn switch

Switch the working copy to desired revision

```
$ svn switch -r 5 http://repo-url
```

```
D staging_db
D styles
D download.php
A getphoto.php
Updated to revision 5.
```

Svn acl

This is generally used to create authentication and access control list for a particular user or groups

Steps to set svn acl

Create a authentication file (say /etc/svn-acl-conf) and mention this location in the apache's configuration file as shown below:

```
<Location /repos>
  DAV svn
  SVNParentPath /var/www/svn/repos
  #SVNListParentPath on
  AuthType Basic
  AuthName "Subversion repos"
  AuthUserFile /etc/svn-auth-conf
  Require valid-user
  AuthzSVNAccessFile /etc/svn-acl-conf
</Location>
```

Enter the authentication details in the file /etc/svn-acl-conf as shown below :

```
svn-acl-conf
[repos:/mytestproj/configurations]
jon = r
joe = rw
```