How-to-install Subversion in CentOS 5

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This short how-to document aims to explain how to install Subversion specifically in CentOS 5. Most of prcedures are similar what have been explained in the precedent document, **How-to-install Subversion for MD++ version control in Linux Computers** which, I suggest, you read beforehand. Actually, I found that CentOS has Subversion-client installed and Subversion-server may be easily installed by using yum. However, the installed client version is 1.4.2-2.el5 which is lower than the previous Subversion setup (v.1.4.3) in Fedora Core 4. Besides, In CentOS 5 Subversion must be configured to use FSFS as the data store type, for Berkeley DB was not installed. Because I did not want to lose any old data due to the different version or data store type, I decided to install Subversion from the source codes again.

1 Installation

Subversion v-1.4.5 is downloded from http://subversion.tigris.org as the date of Oct/04/2007.

1.1 Build Requirement

Before starting installation I checked whether the required programs are installed and what its version is if installed.

```
# yum list installed | grep apr
apr.i386          1.2.7-11              installed
apr-util.i386     1.2.7-6              installed
# yum list installed | grep autoconf
autoconf.noarch   2.59-12              installed
# yum list installed | grep libtool
libtool.i386      1.5.22-6.1           installed
libtool-ltdl.i386 1.5.22-6.1           installed
# yum list installed | grep neon
neon.i386         0.25.5-5.1           installed
# yum list installed | grep python
gnome-python2.i386  2.16.0-1.fc6       installed
```

I found that there are no Serf and Berkeley DB installed. Serf and BDB can be replaced with the alternative programs, but I decided to stick with them not to lose any previous data.

1.2 Install Serf

```
# mv serf-0.1.2.tar.bz2 /usr/local/src/
# cd /usr/local/src
# tar -jxvf serf-0.1.2.tar.bz2
# cd serf-0.1.2
# ./configure
# make
# make install
```

1.3 Install Berkeley DB

Download Berkeley-DB from http://www.oracle.com/technology/products/berkeley-db/index.html and install it.

```
# tar -zxvf db-4.3.29.tar.gz
# cd db-4.3.29/build_unix
# ../dist/configure
# make
# make install
```

1.4 Install APR and APR-util

I didn't want to reinstall APR and APR-util even though the installed version is not 0.9.X.[1] However, I see the following error message when I try to configure Subversion.

```
You don't seem to have Berkeley DB version 4.0.14 or newer
installed and linked to APR-UTIL.  We have created Makefiles which
will build without the Berkeley DB back-end; your repositories will
use FSFS as the default back-end.  You can find the latest version of
Berkeley DB here:
  http://www.sleepycat.com/download/index.shtml
```

I need to link APR-UTIL and Berkeley-DB and decide to install APR and APR-util with the latest version.

1. Install APR.

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[1] I found that the version of APR and APR-util do not need to be 0.9.X. Subversion `INSTALL` file says "Note that although Subversion will compile against Apache 2.2.2 and APR 1.2.7, there is a bug that causes runtime failures with Subversion on Windows. It will hopefully be fixed in the Apache 2.2.3 and APR 1.2.8 release."

```
# tar -zxvf apr-1.2.11.tar.gz
# cd apr-1.2.11
# ./configure
# make
# make install
```

2. Install APR-util.

```
# tar -zxvf apr-util-1.2.10.tar.gz
# cd apr-util-1.2.10
# ./configure --with-apr=/usr/local/apr
         --with-berkeley-db=/usr/local/BerkeleyDB.4.3/bin
# make
# make install
```

1.5   Install Apache Web server and PHP

Because I reinstalled APR/APR-util, I also need to install Apache web server
and PHP again.   Using APR/APR-util 1.2.X can make me choose Apache
HTTPD v.2.2.X. Otherwise I had to install HTTPD v-2.0.X.

1.5.1   Install Apache web server

```
# mv httpd-2.2.6.tar.gz /usr/local/src
# cd /usr/local/src
# tar -zxvf /usr/local/src/httpd-2.2.6.tar.gz
# cd httpd-2.2.6
# ./configure --enable-dav --enable-so
# make
# make install
```

You need to modify `httpd.conf` appropriately. See the detail here[1].

1.5.2   Install PHP

```
# mv php-5.2.4.tar.gz /usr/local/src
# cd /usr/local/src
# tar -zxvf php-5.2.4.tar.gz
# cd php-5.2.4
# ./configure --prefix=/usr/local/php5
      --with-apxs2=/usr/local/apache2/bin/apxs --with-mysql
# make
# make install
```

When I configure, I see the following error message,

```
php configure: error: Cannot find MySQL header files under yes.
```

As a solution, I need to type.[2]

```
# yum install mysql-devel
```

For post-installation procedure of PHP, read this.[1] When you restart the Apache web server, you may see the following error.

```
# /usr/sbin/apachectl restart
httpd: Syntax error on line 53 of /usr/local/apache2/conf/httpd.conf:
Cannot load /usr/local/apache2/modules/libphp5.so into server:
/usr/local/apache2/modules/libphp5.so: cannot restore segment
prot after reloc: Permission denied
```

This issue seems to be related with SElinux configuration.[3] Before restart the Apache web server, type

```
echo "0" >/selinux/enforce
```

and then you can re-enable it afterwards, by

```
echo "1" >/selinux/enforce
```

1.6 Install Subversion

```
# cd /usr/local/src/subversion-1.4.5
# sh ./autogen.sh
# rm /usr/local/lib/libsvn* /usr/lib/libsvn*
# ./configure --prefix=/usr/local/svn-1.4.5 --with-apr=/usr/local/apr/bin
          --with-apr-util=/usr/local/apr/bin
          --with-berkeley-db=/usr/local/BerkeleyDB.4.3/bin
          --with-serf=/usr/local/serf --without-neon
          --with-apxs=/usr/local/apache2/bin/apxs
# make clean
# make
# make install
```

For post-installation procedure of Subversion, read this.[1] If you see the following error message when you start Subversion server,

```
Can't set position pointer in file '/u01/svn/repos/db/revs/1': Invalid argument
```

it is often the result of having Subversion linked to a different version of APR than Apache is. Make sure that they're both linked against the same version.[4] After all the post-installation, if you see an error message below when you try to check out from client-side,

```
$ svn checkout https://micro.stanford.edu/svn/test-repo/trunk
svn: PROPFIND request failed on '/svn/test-repo/trunk'
svn: PROPFIND of '/svn/test-repo/trunk': 403 Forbidden
```

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you add the following lines to `httpd.conf`.

```
<Directory /usr/local/apache2/htdocs>
    Order allow,deny
    Allow from all
</Directory>
```

1.7   Install ViewVC

Donwload ViewVC from http://www.viewvc.org/ and install it.

```
# tar -zxvf viewvc-1.0.4.tar.gz
# cd viewvc-1.0.4
# ./viewvc-install
```

For post-installation procedure of ViewVC, read this.[1] If you see the following error when you type

```
# mysql --user=root
ERROR 2002 (HY000): Can't connect to local MySQL server through
socket '/var/lib/mysql/mysql.sock' (2)
```

it means there is no MySQL server running. Actually, I found CentOS 5 even does not have MySQL server installed. In this case, you need to type

```
# yum install mysql-server
# mysql_install_db --user=mysql
```

The 2nd command is one-time command right after installing MySQL server to initialize the MySQL data directory and create the system tables. Then start MySQL daemon with

```
# /usr/bin/mysqld_safe --user=mysql &
```

During the post-installation procedure, if you see the following error when you type

```
# bin/svndbadmin rebuild /var/www/svn/test-repo
ImportError: libsvn_swig_py-1.so.0: cannot open shared object file:
 No such file or directory
```

it results from that there is no `libsvn_swig_py-1.so.0` or Python can not locate the library file even if it exists. To build the library file, refer Appendix.A Restart the Apache web server and try to connect to `http://micro.stanford.edu/viewvc`. If you see an 403 error related with forbidden access or permission, you check your `httpd.conf` to see it has the following expression.

```
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Order deny,allow
    Deny from all
</Directory>
```

You can simply modify it such that

```
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Order allow,deny
    Allow from all
</Directory>
```

or you can declare another rule for accessing and running ViewVC cgi files.

```
<Directory /usr/local/viewvc-1.0.4/bin/cgi>
    Order allow,deny
    Allow from all
</Directory>
```

A   Build SVN library, `libsvn_swig_py-1.so.0`

[5]

1. Download `MySQLdb` from http://sourceforge.net/projects/mysql-python/ and install it.

   ```
   # tar -zxvf MySQL-python-1.2.2.tar.gz
   # cd MySQL-python-1.2.2
   # # edit site.cfg if necessary
   # python setup.py build
   # sudo python setup.py install
   ```

2. Download `swig` from http://www.swig.org/ and install it.

   ```
   # tar -zxvf swig-1.3.29.tar.gz
   # cd swig-1.3.29
   # ./configure
   # make
   # make install
   ```

   Note that you do not install the latest version 1.3.31, becuase you would see the warning message below later,

   ```
   configure:24080: WARNING: Detected SWIG version 1.3.31
   configure:24082: WARNING: Subversion requires 1.3.24 or later,
   and is known to work
   configure:24084: WARNING: with versions up to 1.3.29
   ```

3. Build and Install Subversion.

```
# cd /usr/local/src/subversion-1.4.5
# make clean
# make clean-swig-py
# ./configure --prefix=/usr/local/svn-1.4.5
               --with-apr=/usr/local/apr/bin
               --with-apr-util=/usr/local/apr/bin
               --with-berkeley-db=/usr/local/BerkeleyDB.4.3/bin
               --with-serf=/usr/local/serf --without-neon
               --with-apxs=/usr/local/apache2/bin/apxs
# make
# make swig-py
# make install
# make install-swig-py
```

4. Copy library files to Python library directories

```
# cd /usr/local/svn-1.4.5/lib/svn-python
# cp -r libsvn/* /usr/lib/python2.4/site-packages/libsvn
# cp -r svn/* /usr/lib/python2.4/site-packages/svn
```

References

[1] Keonwook Kang, How-to-install Subversion for MD++ version control in Linux Computers

[2] http://php.mirrors.ilisys.com.au/manual/en/faq.databases.php

[3] http://forums.fedoraforum.org/archive/index.php/t-84060.html

[4] http://svn.haxx.se/users/archive-2006-03/1253.shtml

[5] http://www.gossamer-threads.com/lists/trac/users/27684