

# CS380 Algorithm Design & Analysis

## Assignment 0: Visual Studio and Subversion

Date Assigned: Monday, Aug 26, 2013    **Date Due: Thursday, Aug 29, 2013: 4:00 pm**

Total Points: 25 pts

For this assignment you are to implement a Hello World program using C++ in Visual Studio. You also must connect Visual Studio to Subversion and commit your Hello World program to Subversion.

You must demonstrate to me that you have written the Hello World program and that you have made at least three commits to at least one file in Subversion. Once you are done, I'll want you to walk through your project with me, either in the CS Lab or on your laptop. I will have a short set of Subversion and Visual Studio tasks you will need to run through so you need to be sure before you ask me to view your project that you are familiar with how to operate Subversion from within Visual Studio.

These tasks may include, but are not limited to:

- commit
- update
- checkout
- revert to a particular version of a file
- fix a merge conflict
- view the history including log messages of a file.
- See the differences between two revisions of the same file.

I will grade your project on the spot and you won't have time to search through your notes or Google.

You do not need to turn in a hard copy of the source code.

You must follow the coding standards.

All Subversion commits must have a useful commit log message.

Plan on spending 15 minutes with me and we must be **completely done** by Aug 29, 2013 at **4:00 pm**.

You **must** create a new Subversion repository on Zeus for this class:

```
zeus$ svnadmin create SVNREPOS_CS380_2013
```

◇ If you have trouble getting Subversion setup or performing any of the tasks listed above, see me immediately.

◇ If you have forgotten your Turing password you need to see me immediately.

**Start today.**

**How do I setup Subversion with Visual Studio?**

You will need to create the SVN repository on Zeus, setup SSH Keys on your Windows machine, and install the AnkhSVN plugin for Visual Studio.

**Software:**

Visual Studio

**AnkhSVN:** <http://ankhsvn.open.collab.net/downloads>

**putty:** <http://www.chiark.greenend.org.uk/~sgtatham/putty/> (all the binaries)

**on Zeus:**

you@zeus:~> svnadmin create SVNREPOS\_CS380\_2013

**On Windows:**

Make sure Visual Studio is not running.

run puttygen.exe

Generate

Save Public Key: winsvn.pub

Save Private Key: winsvn.ppk

You can optionally add a passphrase to the private key. **NOTE:** the Lab Machines are not secure. If someone gets your private key they have full access to your zeus account. I strongly recommend using a passphrase on your ssh key. You will be asked for your passphrase ONCE per SVN operation (not 3 or 10 times). If you install Visual Studio and SVN on your home computer, you can use a different ssh key than the one you use in the Lab (recreate both the public and private keys as above, and copy the public key to Zeus in the same file). Look into Pagent (part of putty) to see how to type your passphrase once per login session (a URL is listed in the References).

**The Public Key will eventually go to Zeus.**

**The Private Key stays on Windows and must remain secret (private)!**

Open the public key file you just saved (with Geany or any other text editor).

Copy the key to the clipboard. The key probably begins with an A and ends with an equals sign. The key starts on the line after the "Comment:"

**On Zeus:**

Open or create the file **.ssh/authorized\_keys**

Use pico, nano, vi, emacs, or your other favorite text editor.

Paste the public key into that file. **Make sure the key contains no spaces or newlines (this should be one very long wrapped line).** The key probably will paste with newlines and spaces. Remove them.

The string "ssh-rsa" should be immediately in front of the key. You may have multiple As at the beginning and multiple = at the end. You can add a comment after the final = showing which machine contains the private key. This is shown below as "Lab Machine".

Example (where the periods are replaced with random characters):

```
ssh-rsa A.....= Lab machine
```

Save this file. This file can contain multiple keys, one per line.

## On Windows:

Open putty.exe

Host Name: zeus.cs.pacificu.edu

Saved Sessions: svnzeus (this name is very important)

*If you install Visual Studio and SVN on your home computer, you MUST use the same name (svnzeus) when you setup your putty connection. The SSH key may be different but the putty session name MUST match exactly.*

Connection | Data

Auto-login username: username (your punetid)

Connection | SSH | Auth

Private Key File for Authentication: winsvn.ppk (the file you created above)

Session: Make sure the Host Name and Saved Sessions name is correct.

Press Save.

**Press Open. You should auto login to Zeus without asking for a password (unless you setup a passphrase). If you are asked for a password at this point the above did not work. Do not move past this point until you can login without a password.**

Install Ankhsvn. <http://ankhsvn.open.collab.net/downloads> (already installed in the lab)

Start Visual Studio.

**NOTE:** if you have previously installed Tortise SVN or another SVN Client you may have trouble with AnkhSVN. You may need to point the ssh variable in Subversion\config (under [tunnels]) to plink (or tortise or whatever). You may also need to delete any Tortise entries from the Registry if you uninstall tortise svn. See the [tunnels] lines in the **OPTIONAL** section below.

**Beware:** AnkhSVN will not commit any user created files that are not specifically listed in the Project Explorer. These include text files and images. Make sure to include these files as a Resource file.

Tools | Options | Source Control (this step might already be done for you).

Choose AnkhSVN

OK

Build a Project. Don't bother adding any code yet.

Right Click Solution | Add Solution to Subversion

Click the ... on the right hand side.

svn+ssh://PUNetID@svnzeus/home/PUNetID/SVNREPOS\_CS380\_2013

NOTE: svnzeus MUST MATCH the saved session in putty.

Finish.

Repository URL: Choose the url you just created.

Make sure you select the root URL.

Many black console windows will pop up and disappear.

Fill in the log message.

To commit:  
Right click Solution or a single file:  
Commit.

Close Visual Studio

**\*\*\* Skip down to the OPTIONAL portion at the end, and then jump back up here.**

Open Visual Studio.

Open your project.  
Add CPP files, compile, test.  
To commit:  
Right click Solution or a single file:  
Commit.

To Update:  
Right Click Solution or a single file:  
Update to latest version.

AnhkSVN automatically filters out \*.exe and other object files so they are not stored in Subversion.

IF you have multiple projects in the same solution, and some projects are in subversion and some are not, don't "Add project to subversion" to add the un-subversioned projects. Just use "Commit Project Changes" or "Commit Solution Changes".

To checkout a project from subversion:

File | Open | Subversion  
and choose the correct .sln file for the Solution.

\*\*\*\*\* **OPTIONAL** \*\*\*\*\*

The following allows you to use SVN Keywords (\$Id\$, \$Author\$, etc) in comments.  
<http://svnbook.red-bean.com/en/1.7/svn.advanced.props.special.keywords.html>

On Windows:  
Edit C:\Users\PUnetID\AppData\Roaming\Subversion\config  
(The above directory may vary. AppData is probably a *hidden directory*).  
**NOTE: The above file may not exist until you perform an SVN action from Visual Studio.**

Add the lines:  
[tunnels] # these two lines were not necessary in the CS Lab computers  
ssh=plink # but may be necessary on your home computer

[auto-props]  
\*.c = svn:eol-style=native;svn:keywords="Author Date Id HeadURL Revision"  
\*.cpp = svn:eol-style=native;svn:keywords="Author Date Id HeadURL Revision"  
\*.h = svn:eol-style=native;svn:keywords="Author Date Id HeadURL Revision"

Enable auto-props via:

[miscellany]  
enable-auto-props = yes

\*\*\*\*\* **References** \*\*\*\*\*

<http://the.earth.li/~sgtatham/putty/0.58/html/doc/Chapter9.html> – Pagent

<http://svnbook.red-bean.com/en/1.7/> – SVN

<http://ankhsvn.open.collab.net/wiki/Faq> – AnkhSVN

[http://help.collab.net/index.jsp?topic=/com.collabnet.doc.anksvn\\_001/action/ankh\\_getting\\_started.html](http://help.collab.net/index.jsp?topic=/com.collabnet.doc.anksvn_001/action/ankh_getting_started.html)

<http://stackoverflow.com/questions/935057/how-to-make-ankhsvn-remember-my-svn-ssh-password>

<http://ankhsvn.open.collab.net/ds/viewMessage.do?dsForumId=582&dsMessageId=322662>

<http://stackoverflow.com/questions/323462/subversion-auto-props-woes> – SVN Keywords