SUBVERSION

Subversion

- What is source code version control?
  - http://svnbook.red-bean.com/
  - allow multiple people to modify the same source code
  - allow one person to manage multiple versions of their source code
    - move from computer to computer to develop
    - track all changes

Repository

zeus.cs.pacificu.edu
/home/shereen/SVNROOT/

Store your source code on zeus check it out and edit it on any other machine and upload your changes back to zeus.

Client

moe.cs.pacificu.edu
/home/shereen/workspace/HelloWorld

Client

lisa.cs.pacificu.edu
/home/shereen/workspace/HelloWorld

Client

shereen.home
/Users/shereen/workspace/HelloWorld

Topics

- Subversion
  - Source Control
  - Check in
  - Check out
  - Update
  - Commit
  - Merge Conflict
  - Revert a file

SVNTest

- Import CS300SVNTest into Eclipse
  - Start Eclipse
  - Window->Preferences. Type SVN. Make sure that interface client is SVNKit (Pure Java)
  - File->Import->SVN->Projects from SVN
  - Select: Create a new repository location
  - Type in the following for the url: svn+ssh://zeus/home/CS300Public/2015/SVNROOT_CS300_2015
  - Type in your zeus login and password
  - Click Browse then select CS300SVNTest 2
  - Check out as a project with the name specified, then next, finish

SVNTest

- Project has been imported into your workspace
- Right-click on project
  - Team->Disconnect
  - Make sure and delete meta-information
- Run the program and verifies that it works
- Go to the file system and note that the project is in your workspace

Your Own Repository

- Create a repository on zeus
  - do this exactly once!!!
  - use this one repository for all your projects

- ssh into zeus

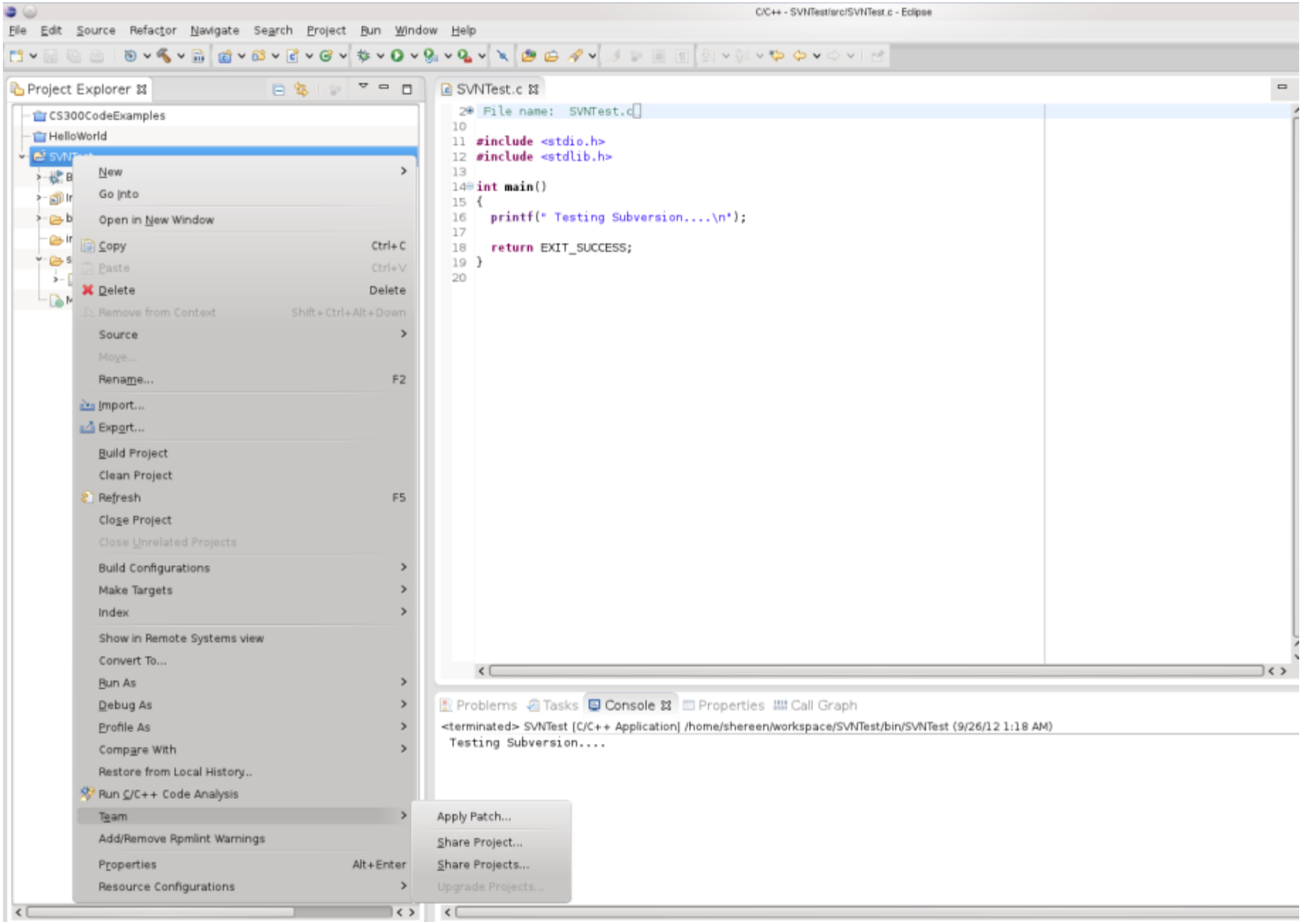
- Type:

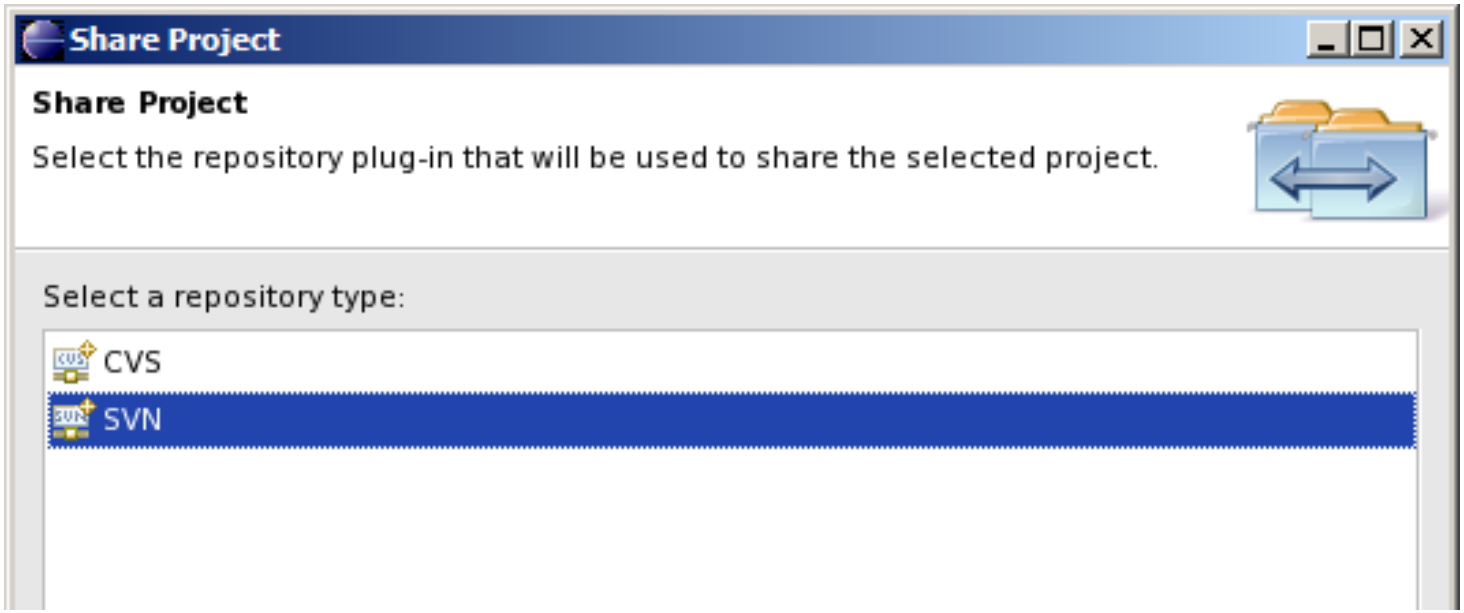
```
zeus$ svnadmin create /home/shereen/SVNCS300REPOS
```

- Replace (shereen) with your PUNetID

Check in SVNTest

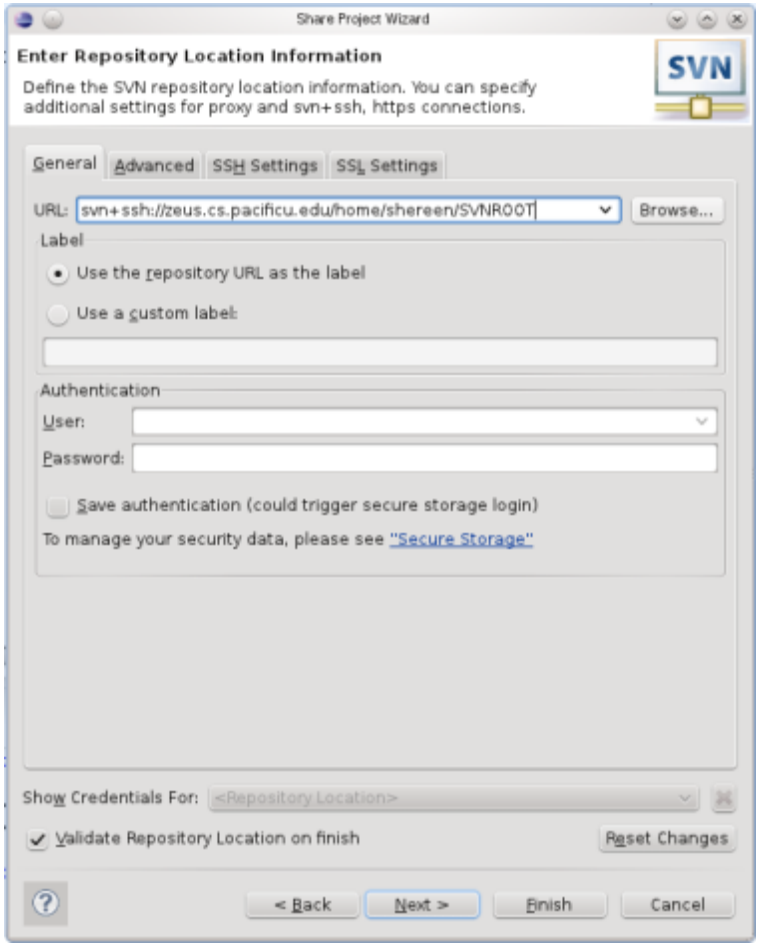
- Problem: Let's check CS300SVNTest into the repository
- How?
- Right click on the SVNTest project, then Team, then Share Project, then SVN, then Next, then Create a new repository location
  - See next slide

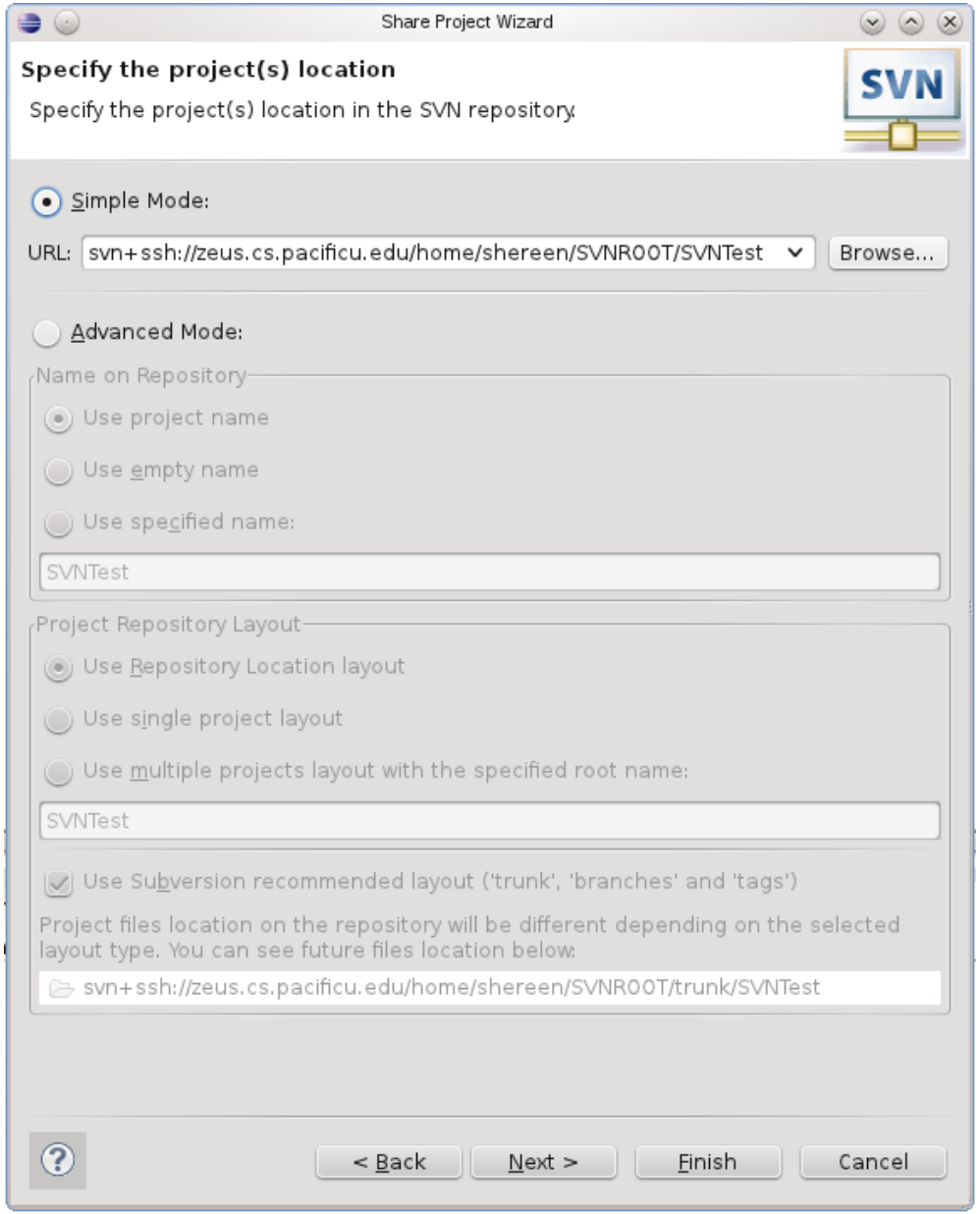

C/C++ - SVNTest/src/SVNTest.c - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
CS300CodeExamples
HelloWorld
SVNTest
New
Go Into
Open in New Window
Copy Ctrl+C
Paste Ctrl+V
Delete Delete
Remove from Context Shift+Ctrl+Alt+Down
Source
Move...
Rename... F2
Import...
Export...
Build Project
Clean Project
Refresh F5
Close Project
Close Unrelated Projects
Build Configurations
Make Targets
Index
Show in Remote Systems view
Convert To...
Run As
Debug As
Profile As
Compare With
Restore from Local History...
Run C/C++ Code Analysis
Team
Add/Remove Rpmlint Warnings
Properties Alt+Enter
Resource Configurations
Apply Patch...
Share Project...
Share Projects...
Upgrade Projects...
SVNTest.c
2 File name: SVNTest.c
10
11 #include <stdio.h>
12 #include <stdlib.h>
13
14 int main()
15 {
16 printf(" Testing Subversion....\n");
17
18 return EXIT_SUCCESS;
19 }
20
Problems Tasks Console Properties Call Graph
<terminated> SVNTest [C/C++ Application] /home/shereen/workspace/SVNTest/bin/SVNTest (9/26/12 1:18 AM)
Testing Subversion....

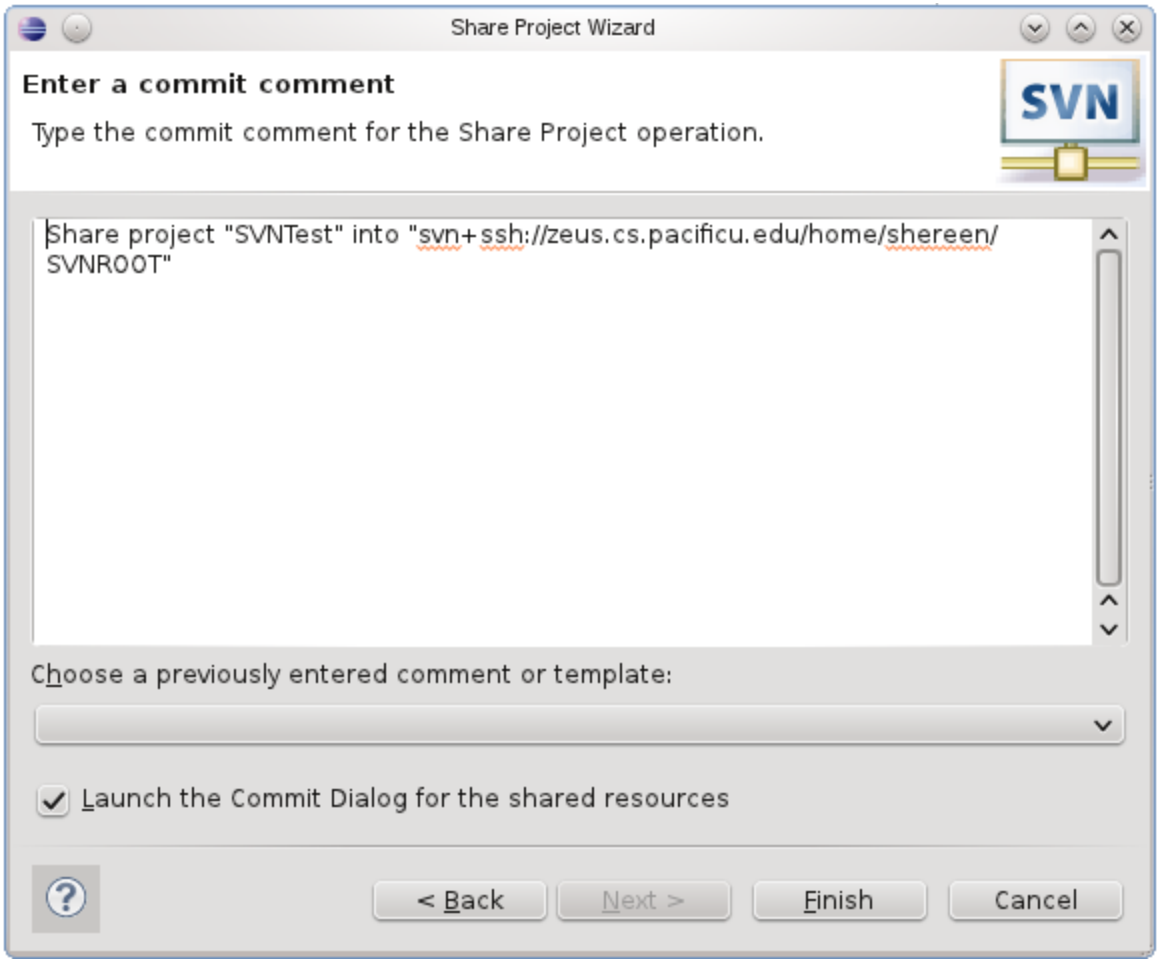

Share Project
Share Project
Select the repository plug-in that will be used to share the selected project.
Select a repository type:
CVS
SVN

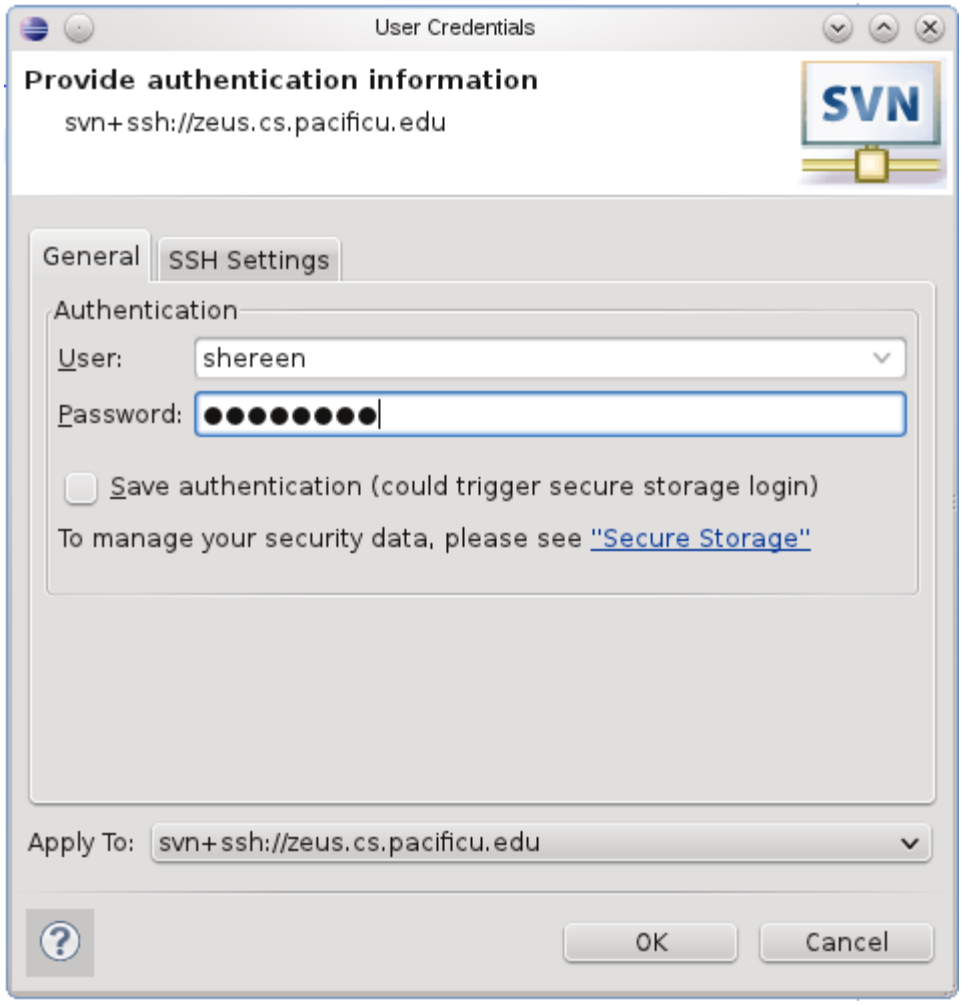
Select Create a new repository location

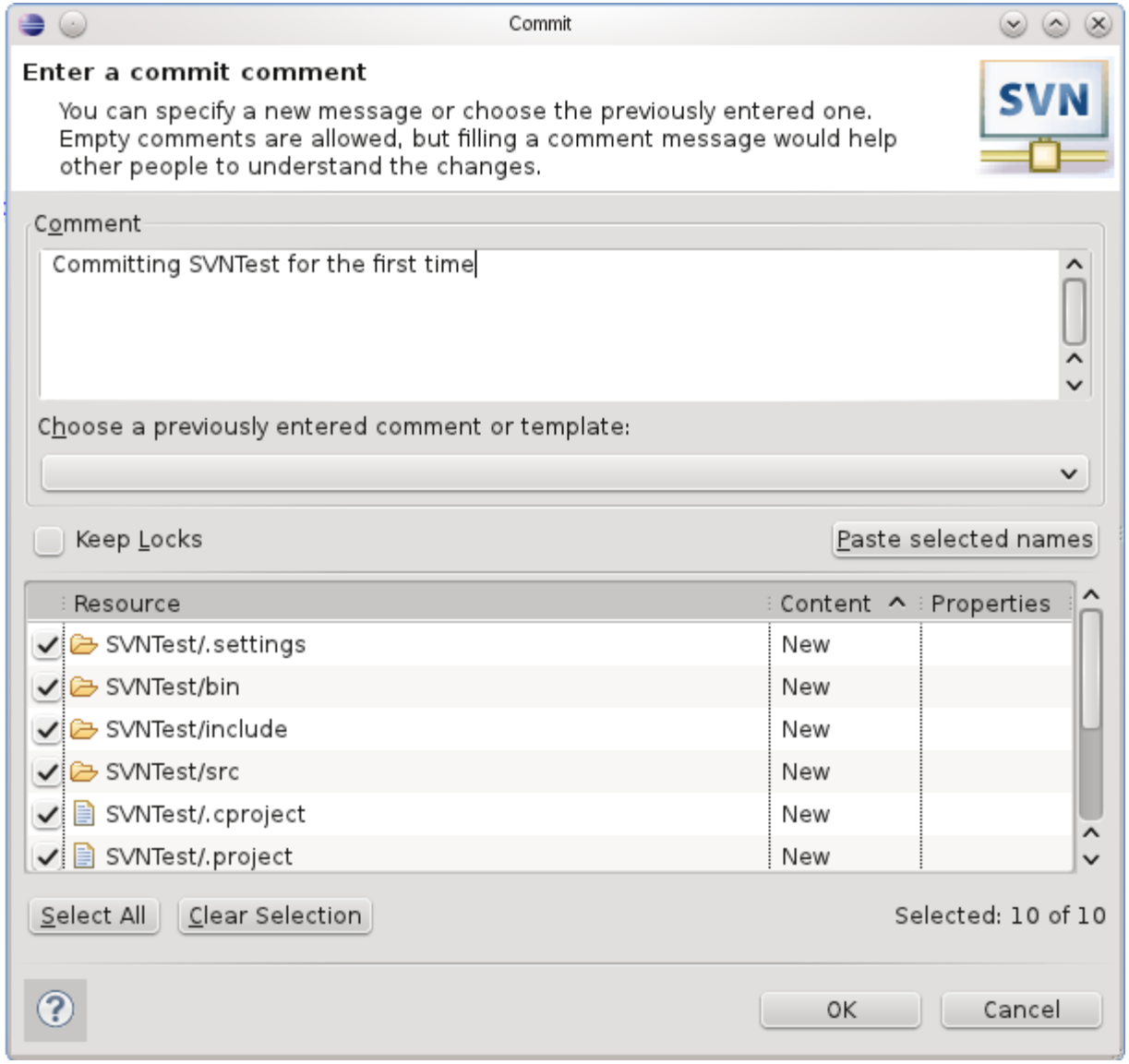
URL should use /home/punetid/SVNCS300REPOS on all subsequent slides




Share Project Wizard
Specify the project(s) location
Specify the project(s) location in the SVN repository.
SVN
Simple Mode:
URL:
svn+ssh://zeus.cs.pacificu.edu/home/shereen/SVNR0OT/SVNTest
Browse...
Advanced Mode:
Name on Repository
Use project name
Use empty name
Use specified name:
SVNTest
Project Repository Layout
Use Repository Location layout
Use single project layout
Use multiple projects layout with the specified root name:
SVNTest
Use Subversion recommended layout ('trunk', 'branches' and 'tags')
Project files location on the repository will be different depending on the selected layout type. You can see future files location below:
svn+ssh://zeus.cs.pacificu.edu/home/shereen/SVNR0OT/trunk/SVNTest
< Back
Next >
Finish
Cancel


Share Project Wizard
Enter a commit comment
Type the commit comment for the Share Project operation.
SVN
Share project "SVNTest" into "svn+ssh://zeus.cs.pacificu.edu/home/shereen/SVNROOT"
Choose a previously entered comment or template:
Launch the Commit Dialog for the shared resources
< Back
Next >
Finish
Cancel


User Credentials
Provide authentication information
svn+ssh://zeus.cs.pacificu.edu
SVN
General
SSH Settings
Authentication
User:
shereen
Password:
Save authentication (could trigger secure storage login)
To manage your security data, please see "Secure Storage"
Apply To:
svn+ssh://zeus.cs.pacificu.edu
OK
Cancel


Commit
Enter a commit comment
You can specify a new message or choose the previously entered one.
Empty comments are allowed, but filling a comment message would help
other people to understand the changes.
SVN
Comment
Committing SVNTest for the first time
Choose a previously entered comment or template:
Keep Locks
Paste selected names
Resource
Content
Properties
SVNTest/.settings
New
SVNTest/bin
New
SVNTest/include
New
SVNTest/src
New
SVNTest/.cproject
New
SVNTest/.project
New
Select All
Clear Selection
Selected: 10 of 10
OK
Cancel

How to do a code commit

To commit a project, right click on the project folder → Team → Commit

Do not commit (i.e. uncheck) any binary files!!!!!

Add very descriptive comments for EACH code commit. You will not be sorry.

Version Control

- Each change you make to the source code is a ***revision*** stored in the repository
  - can annotate your change with a note
    - why did I do that?
  - you can browse back through the repository to find old revisions of file
    - changed a data structure and it did not work
    - rewrote an algorithm and it got slower!
  - check out the old (working) revision from the repository

Hmmm….

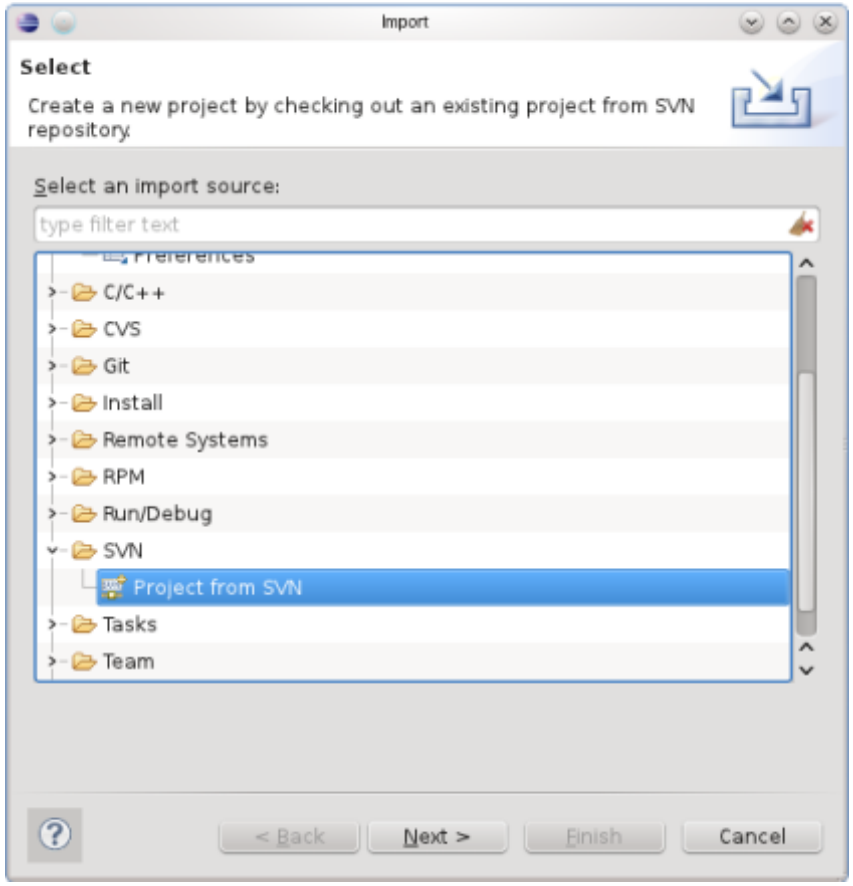
- How often should I ***update*** and ***commit***?
  - every major change
  - once every 15 minutes
  - right before you do something you think may be a bad idea
  - be sure to update and commit before you log off of a lab machine!
    - Or before you leave the lab
    - Someone may reboot your machine!

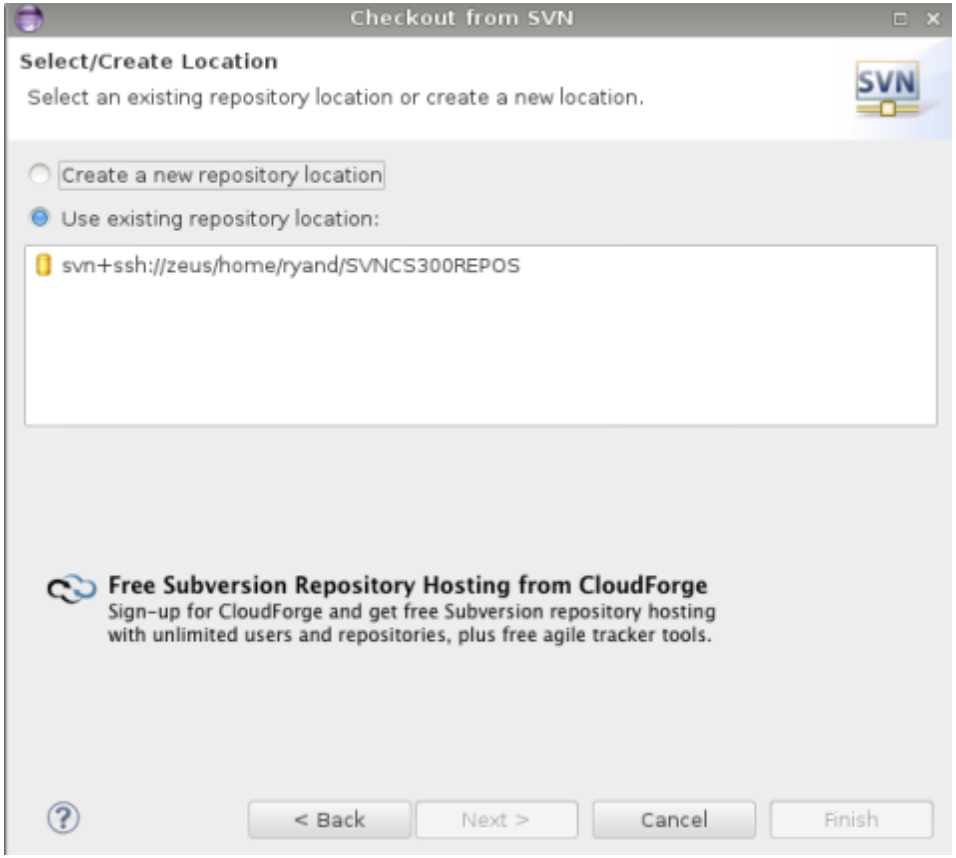
Let's Delete SVNTest

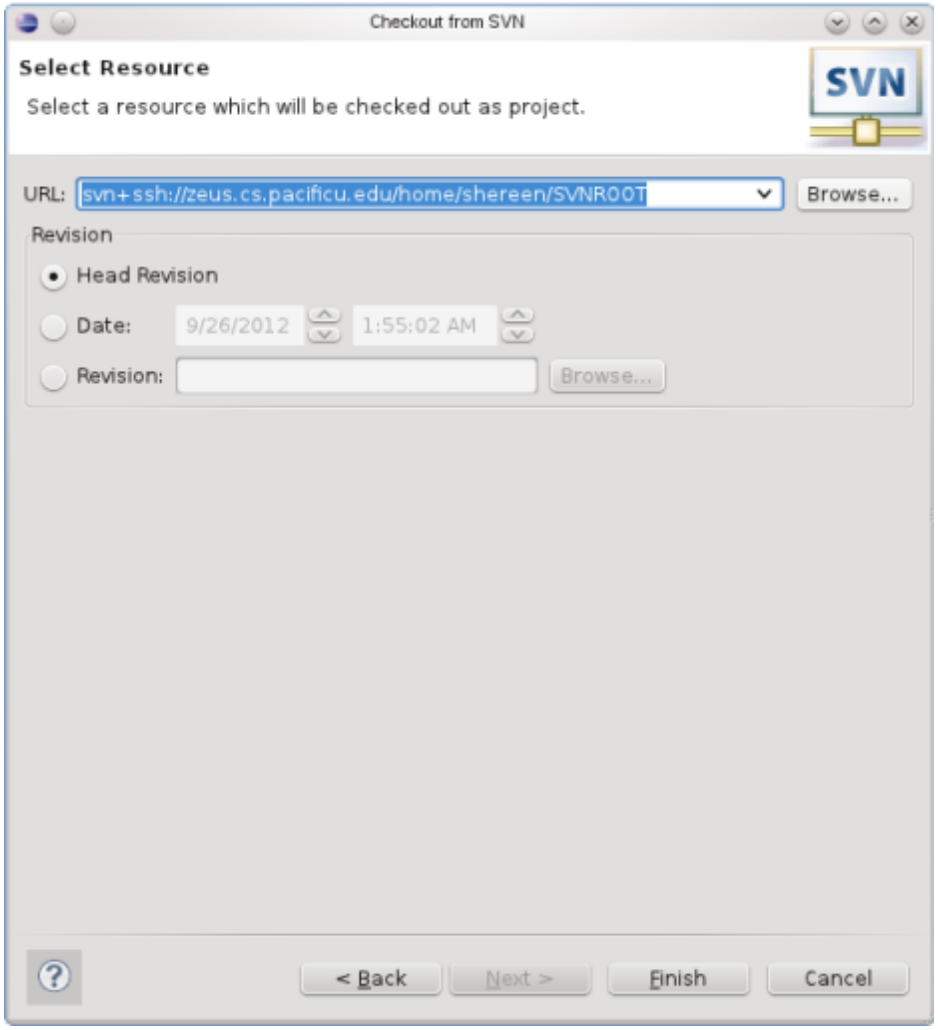
- Right Click the SVNTest project -> Delete
- CHECK → Delete project contents on disk

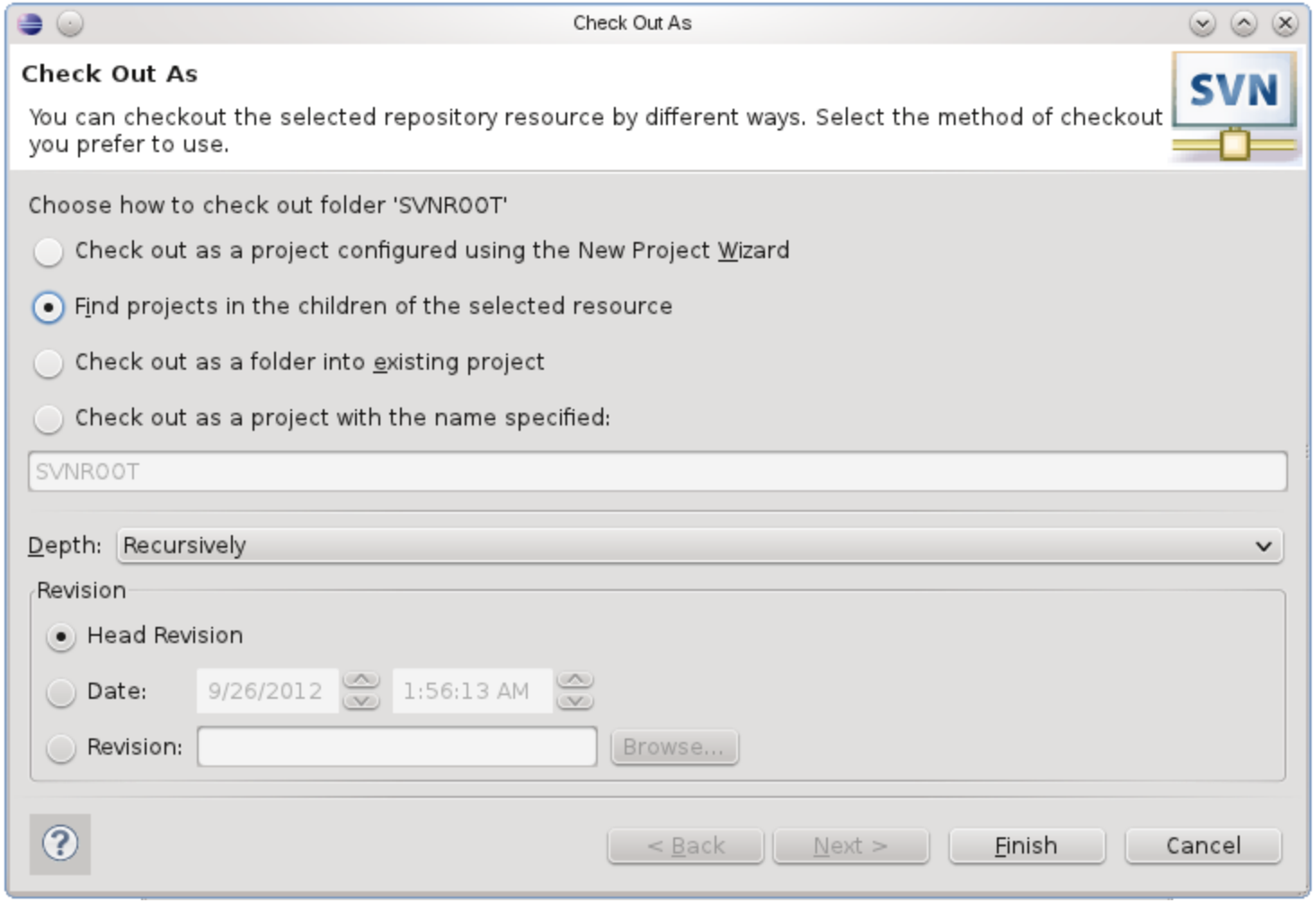
How to checkout

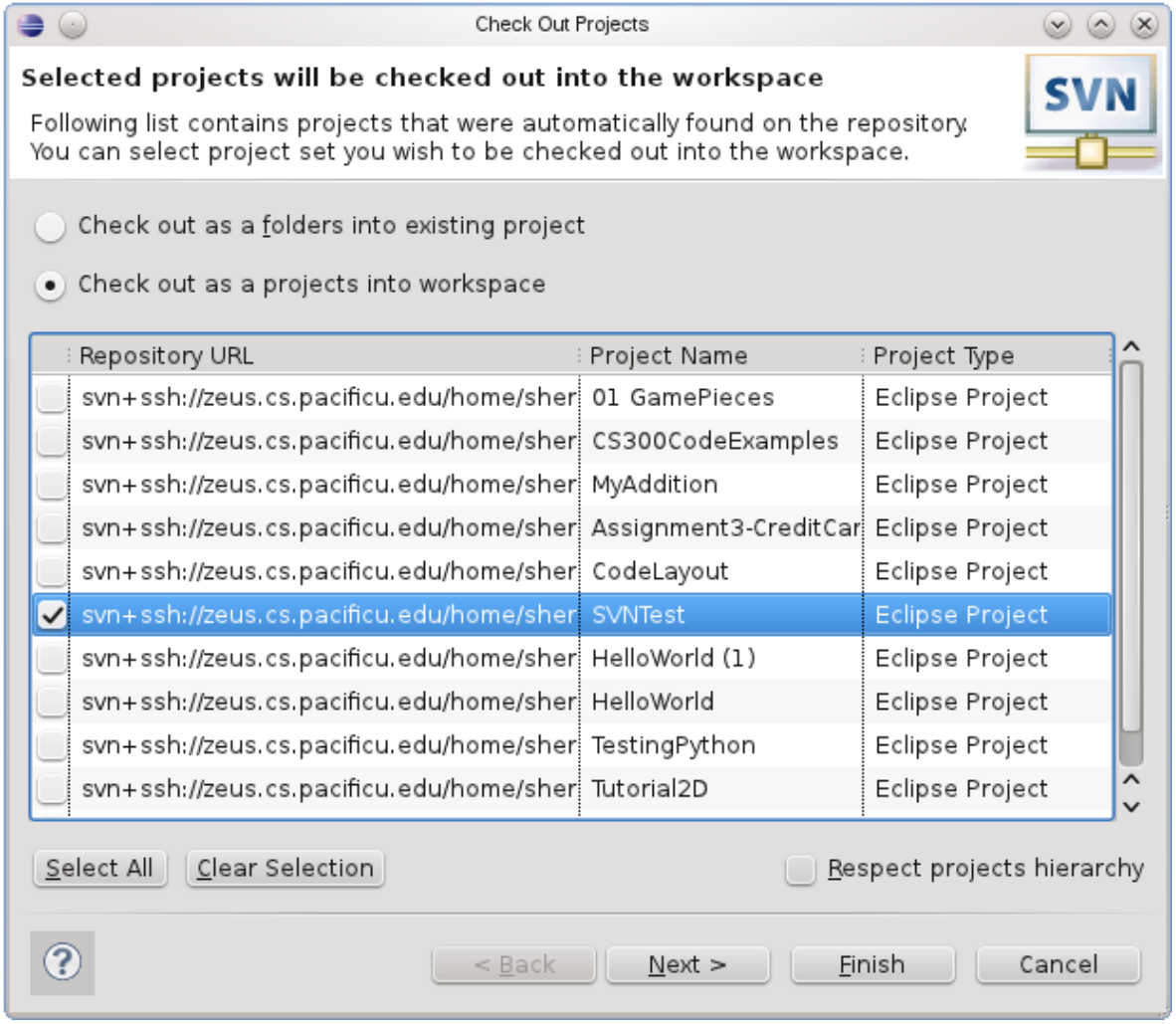
To checkout a project, File → Import, then

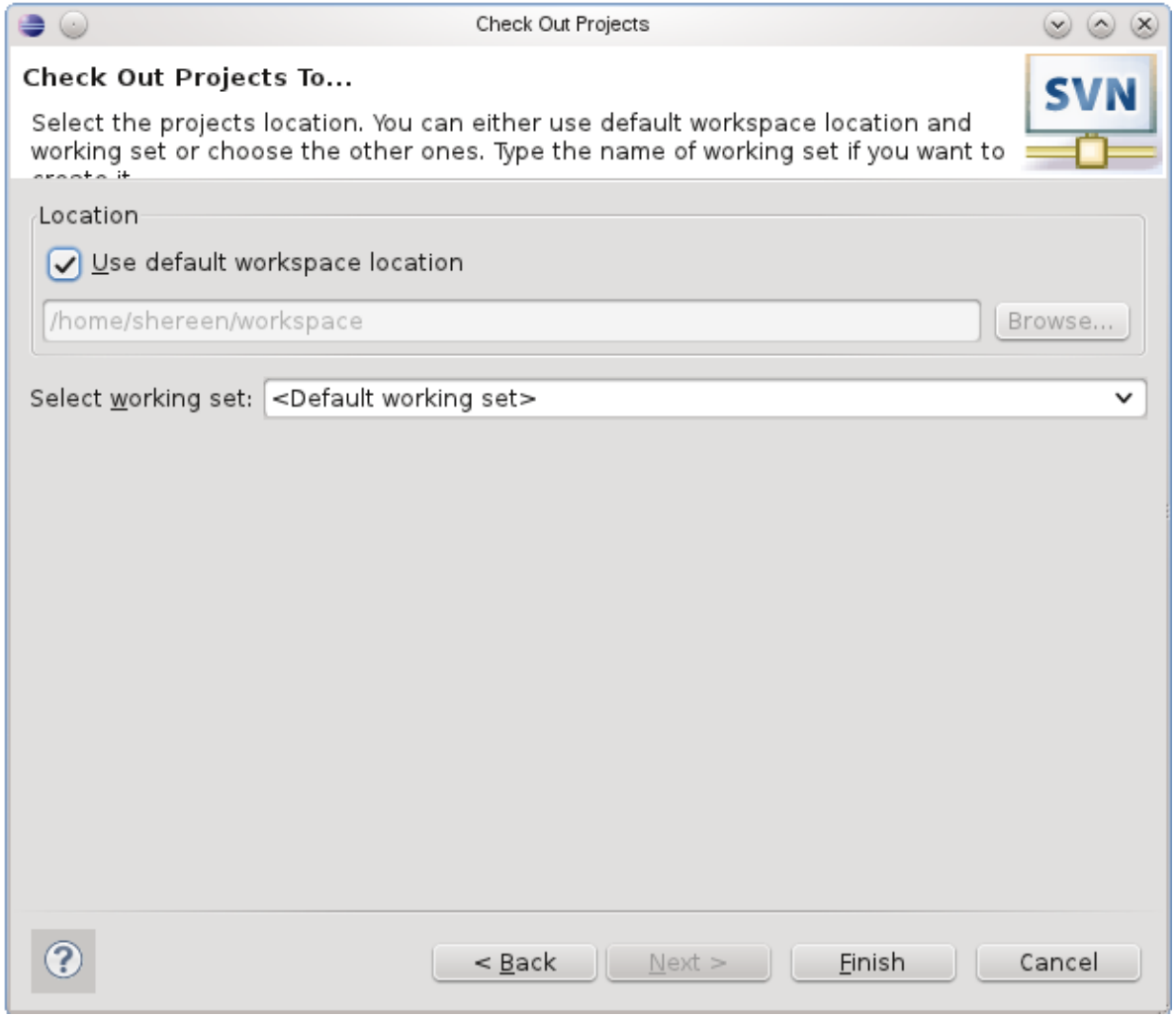



Checkout from SVN
Select/Create Location
Select an existing repository location or create a new location.
SVN
Create a new repository location
Use existing repository location:
svn+ssh://zeus/home/ryand/SVNCS300REPOS
Free Subversion Repository Hosting from CloudForge
Sign-up for CloudForge and get free Subversion repository hosting
with unlimited users and repositories, plus free agile tracker tools.
< Back
Next >
Cancel
Finish


Checkout from SVN
Select Resource
Select a resource which will be checked out as project.
SVN
URL:
svn+ssh://zeus.cs.pacificu.edu/home/shereen/SVNROOT
Browse...
Revision
Head Revision
Date:
9/26/2012
1:55:02 AM
Revision:
Browse...
< Back
Next >
Finish
Cancel


Check Out As
Check Out As
You can checkout the selected repository resource by different ways. Select the method of checkout you prefer to use.
SVN
Choose how to check out folder 'SVNROOT'
Check out as a project configured using the New Project Wizard
Find projects in the children of the selected resource
Check out as a folder into existing project
Check out as a project with the name specified:
SVNROOT
Depth:
Recursively
Revision
Head Revision
Date:
9/26/2012
1:56:13 AM
Revision:
Browse...
< Back
Next >
Finish
Cancel


Check Out Projects
Selected projects will be checked out into the workspace
Following list contains projects that were automatically found on the repository.
You can select project set you wish to be checked out into the workspace.
SVN
Check out as a folders into existing project
Check out as a projects into workspace
Repository URL
Project Name
Project Type
svn+ssh://zeus.cs.pacificu.edu/home/sher 01 GamePieces Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher CS300CodeExamples Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher MyAddition Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher Assignment3-CreditCar Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher CodeLayout Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher SVNTest Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher HelloWorld (1) Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher HelloWorld Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher TestingPython Eclipse Project
svn+ssh://zeus.cs.pacificu.edu/home/sher Tutorial2D Eclipse Project
Select All
Clear Selection
Respect projects hierarchy
< Back
Next >
Finish
Cancel


Check Out Projects
Check Out Projects To...
Select the projects location. You can either use default workspace location and working set or choose the other ones. Type the name of working set if you want to
SVN
Location
Use default workspace location
/home/shereen/workspace
Browse...
Select working set:
<Default working set>
< Back
Next >
Finish
Cancel

Make a change in Eclipse

- Add printf(“I love CS 300!\n”); to main()
- Build and run (just to be sure)
- Commit to SVN:
  - Right Click SVNTest | Team | Commit
- Do NOT commit .o or executable files!

Show History

- In Eclipse
- Right Click a File
  - Team | Show History

When things go bad...

- Let's revert ONE FILE back to before the last change
- Right Click the project->Team->Revert
- Replace With | Revision
  - Revisions listed with comments
  - Double-click a revision

Using Subversion by hand

- Open a single shell prompt
- Create a folder called Junk and change into it
- Check out SVNTest project in Junk directory
- Type

```
$ svn checkout
  svn+ssh://zeus.cs.pacificu.edu/home/shereen
  /SVNROOT/CS300SVNTest
```

- Using a text editor (nano), add a new printf message to main()

Using Subversion by hand

- From a command line, find the Makefile and re-make the project and run it.
- Now commit the changes to the repository by hand.

```
$ svn commit -m "add second printf"
```

- Exit out of zeus

- In Eclipse, perform an update on SVNTest. Your changes should show up.
  - Right Click SVNTest | Team | Update

Check out on Zeus

```
ssh to zeus.
zeus~> mkdir cs300
zeus~> cd cs300
zeus~> svn checkout
svn+ssh://zeus/home/shereen/SVNROOT/SVNTest
zeus~> cd SVNTest
zeus~> make clean
zeus~> make
```

This is how you should test on zeus from now on.