Configuration Management

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Configuration Management

❖ Why use CM

- for integrity of a product developed for project develop life cycle
- management process of program or project developed by project team
- for high productivity

Software Configuration Management (1/4)

❖ Why use SCM

- Software Configuration Management(SCM) is included in Configuration Management(CM)
- SCM is polities to manage and control software develop project

Software Configuration Management (2/4)

When use SCM tool

- You want to save every version of your file you have ever created. SCM tools store all the version of the file in a single file in a clever way that only stores the differences between versions.

- You are a part of a group of people working on the same project, and you want to prevent overwrite each others' change. SCM tools solve this by insulating the different developers from each other.

- You want to record the history of your file, and you want to easily retrieve the old versions to see exactly the changes made to the file.

Software Configuration Management (3/4)

Goal of SCM

- Control
- Management
- Cost Savings
- Quality

Software Configuration Management (4/4)

❖ SCM tools

- Subversion (SVN) : CM Tools that is succeed to CVS
- Perforce : CM Tools that is emphasize “faster”
- Team Foundation Source Control : Compositon of MS Team System
- SourceSafe : Microsoft Visual Source Safe..
- CVS : Concurrent Versions System.

Version Control System(1/5)

❖ Merits of Version control system

- Easy Management not to mix Debug version and Release version
- Easy Rollback if source would be spoiled
- Easy Tracing modification, addition, deletion
- No need to Backup

Version Control System(2/5)

❖ Terms of Version control system (1/2)

- Repository: Storage of managed source
- Module : Directory in repository
- Checkout : Downloading source from repository
- add : command notifying that file is added
- remove : command notifying that file is removed
- Commit : Applying modified source to repository
- release : total project version
- revision : version name of one file in project. When the update, revision is increased

Version Control System(3/5)

Terms of Version control system (2/2)

- import : Uploading source to empty repository at first
- Export : Downloading pure source file from repository (except for version control files)
- update : Getting another modification from repository
- conflict : Race Condition. Should remove conflict and commit again
- tag : String represents a set of file group
- branch : it is used when there is a part that should be manged sperately (ex: 1.1 > 1.1.2.1)

Version Control System(4/5)

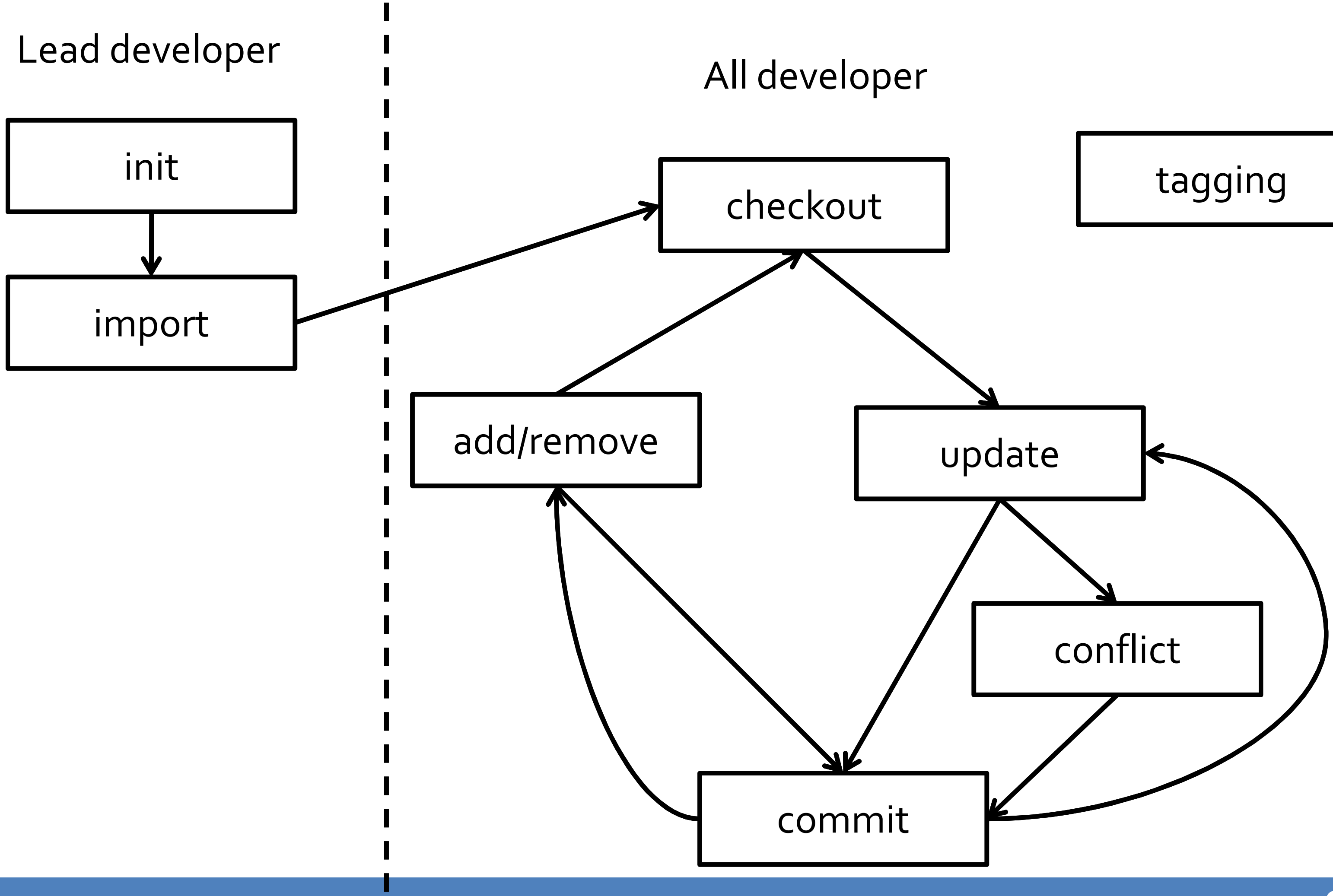
Version control systems

- Visual Source safe : Window-based SW VCS (Commercial)
- Clear Case : SW VCS made by Rational Company (Commercial)
- BitKeeper : SW VCS used in linux kernel development (Commercial)

Version Control System(5/5)

- Providing information about requirements of developers
  - Who modified the code?
  - When is the code modified?
  - What is changed at the same time?
  - Why is the code modified? (using comment)

Version control system work cycle



WinCVS

WinCVS

- WinCVS is a MS Windows GUI CVS(Concurrent Version system) client.

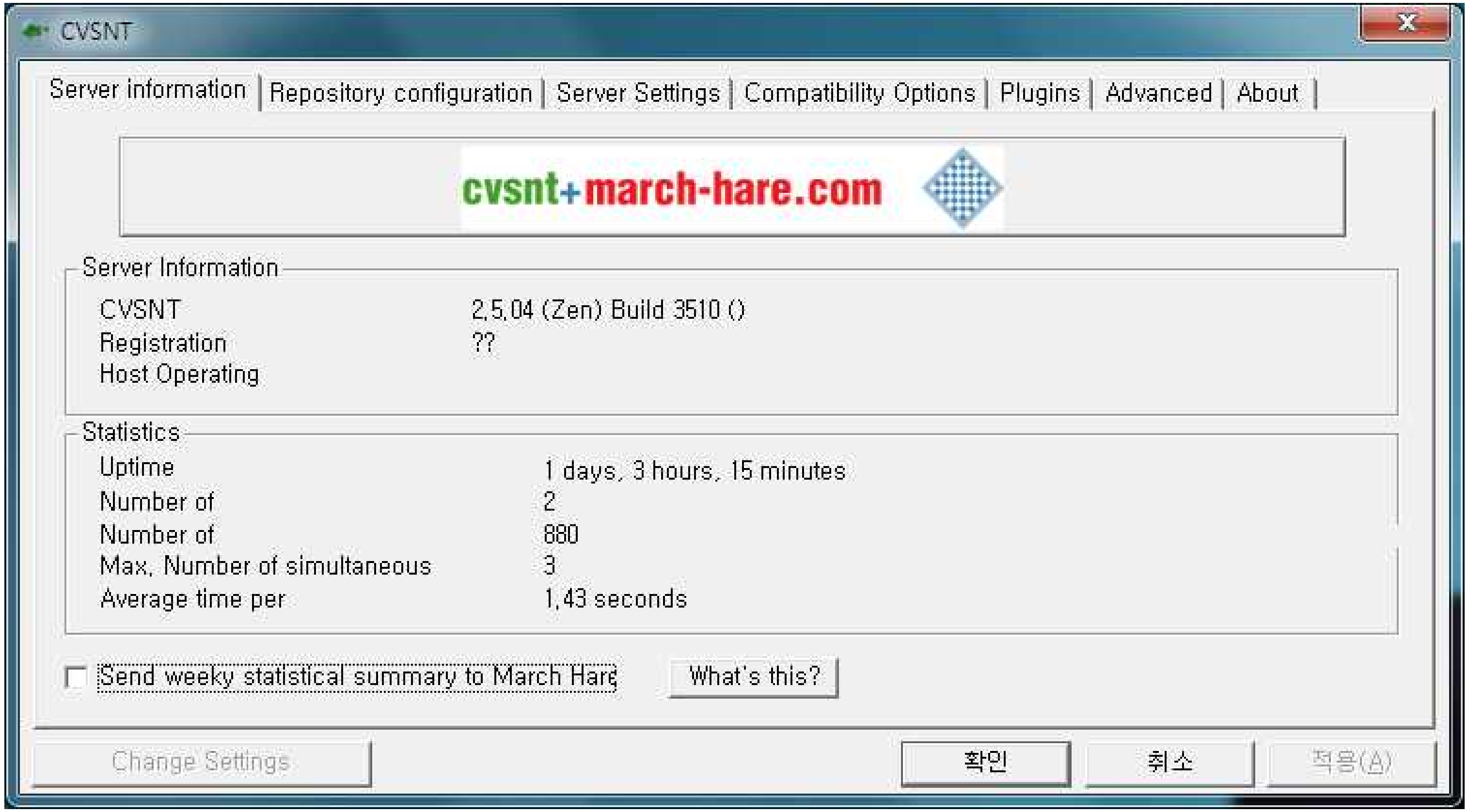
- WinCVS is an Open Source product, written in MS Visual C++. Architecture supports different front ends.

Necessary product

- WinCVS
- CVSNT - required by WinCVS for basic CVS functionality. It may be included in the WinCVS installer.
- Python - used by WinCVS for scripting support.
- Win32 extensions for Python - maybe required by python for some functionalities.
- WinMerge - Not required but recommended since it is a good tool for Diff.

CVSNT Setting

- ❖ PROGRAM>CVSNT>CVSNT Control panel



CVSNT
Server information | Repository configuration | Server Settings | Compatibility Options | Plugins | Advanced | About
cvsnt+march-hare.com

Server Information

CVSNT 2.5.04 (Zen) Build 3510 ()
Registration ??
Host Operating

Statistics

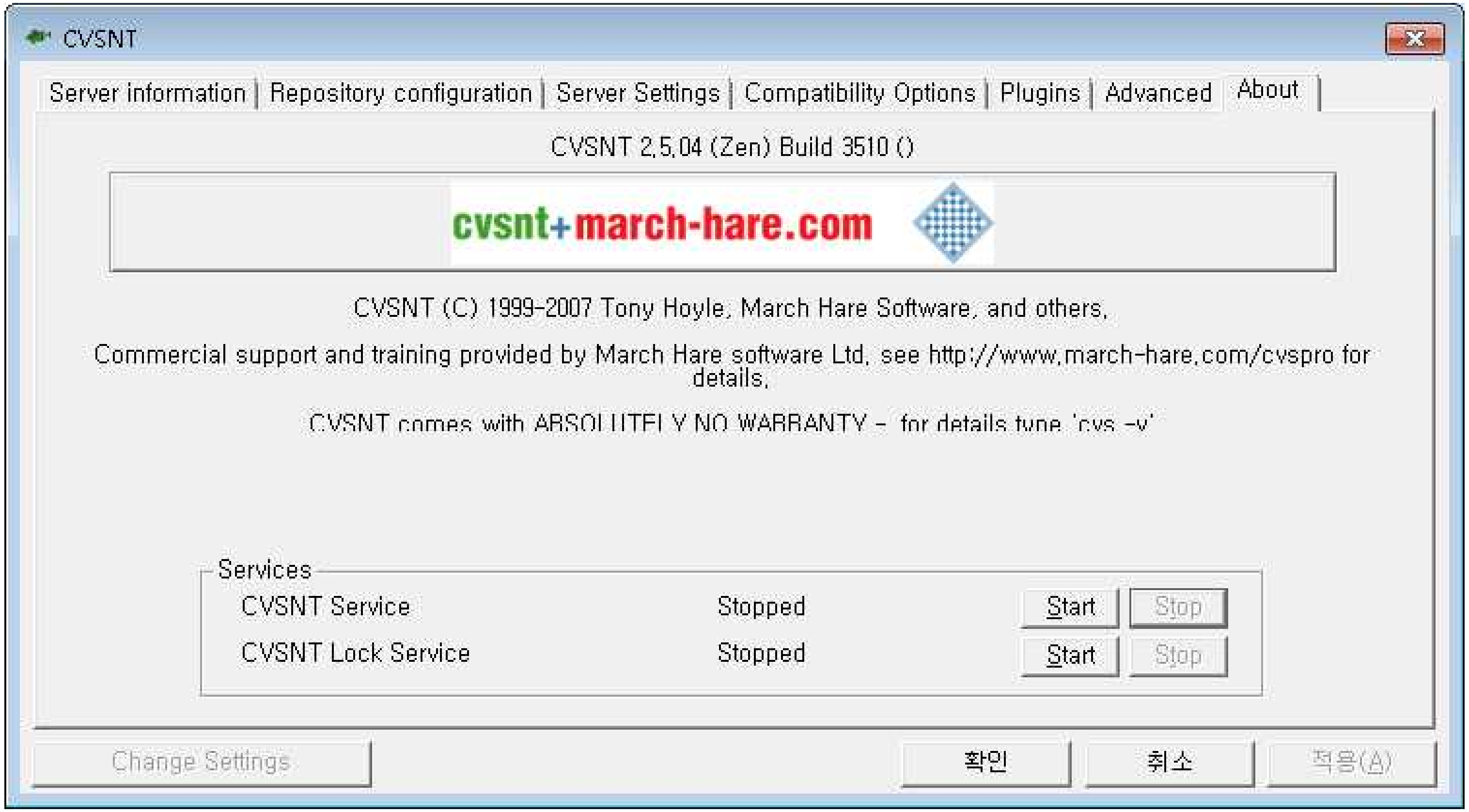
Uptime 1 days, 3 hours, 15 minutes
Number of 2
Number of 880
Max. Number of simultaneous 3
Average time per 1.43 seconds

☐ Send weeky statistical summary to March Hare

What's this?
Change Settings
확인
취소
적용(A)

CVSNT Setting

❖ Service Stop To Setting (About Tab)



CVSNT

Server information | Repository configuration | Server Settings | Compatibility Options | Plugins | Advanced | About

CVSNT 2.5.04 (Zen) Build 3510 ()

CVSNT (C) 1999-2007 Tony Hoyle, March Hare Software, and others.

Commercial support and training provided by March Hare software Ltd, see http://www.march-hare.com/cvspro for details.

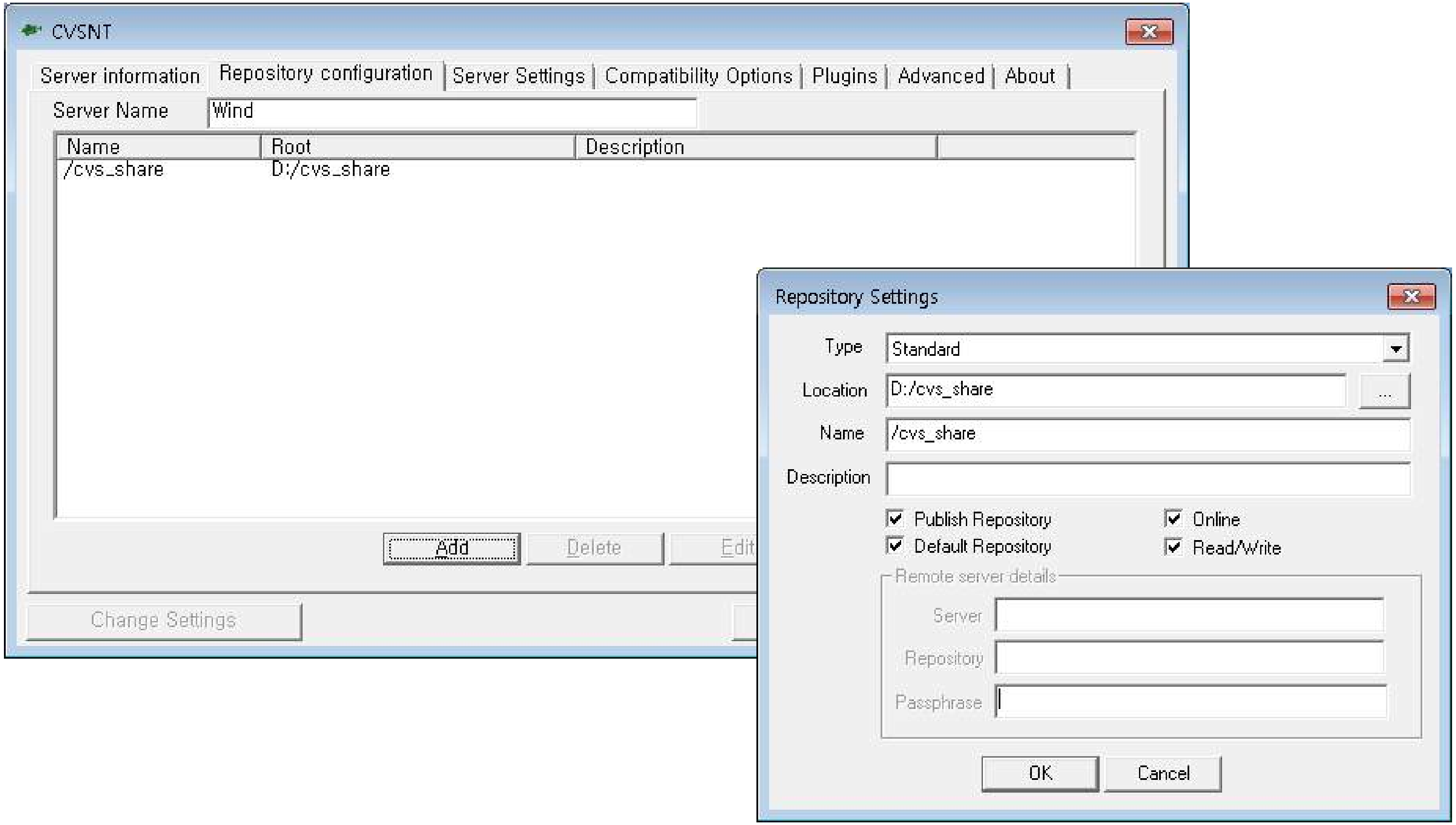
CVSNT comes with ABSOLUTELY NO WARRANTY - for details type 'cvs -v'

Services

CVSNT Service	Stopped	Start	Stop
CVSNT Lock Service	Stopped	Start	Stop

CVSNT Setting

❖ Repository Configuration



CVSNT

Server Name: Wind

Name	Root	Description
/cvs_share	D:/cvs_share	

Repository Settings

Type: Standard

Location: D:/cvs_share

Name: /cvs_share

Description:

☑ Publish Repository ☑ Online

☑ Default Repository ☑ Read/Write

Remote server details

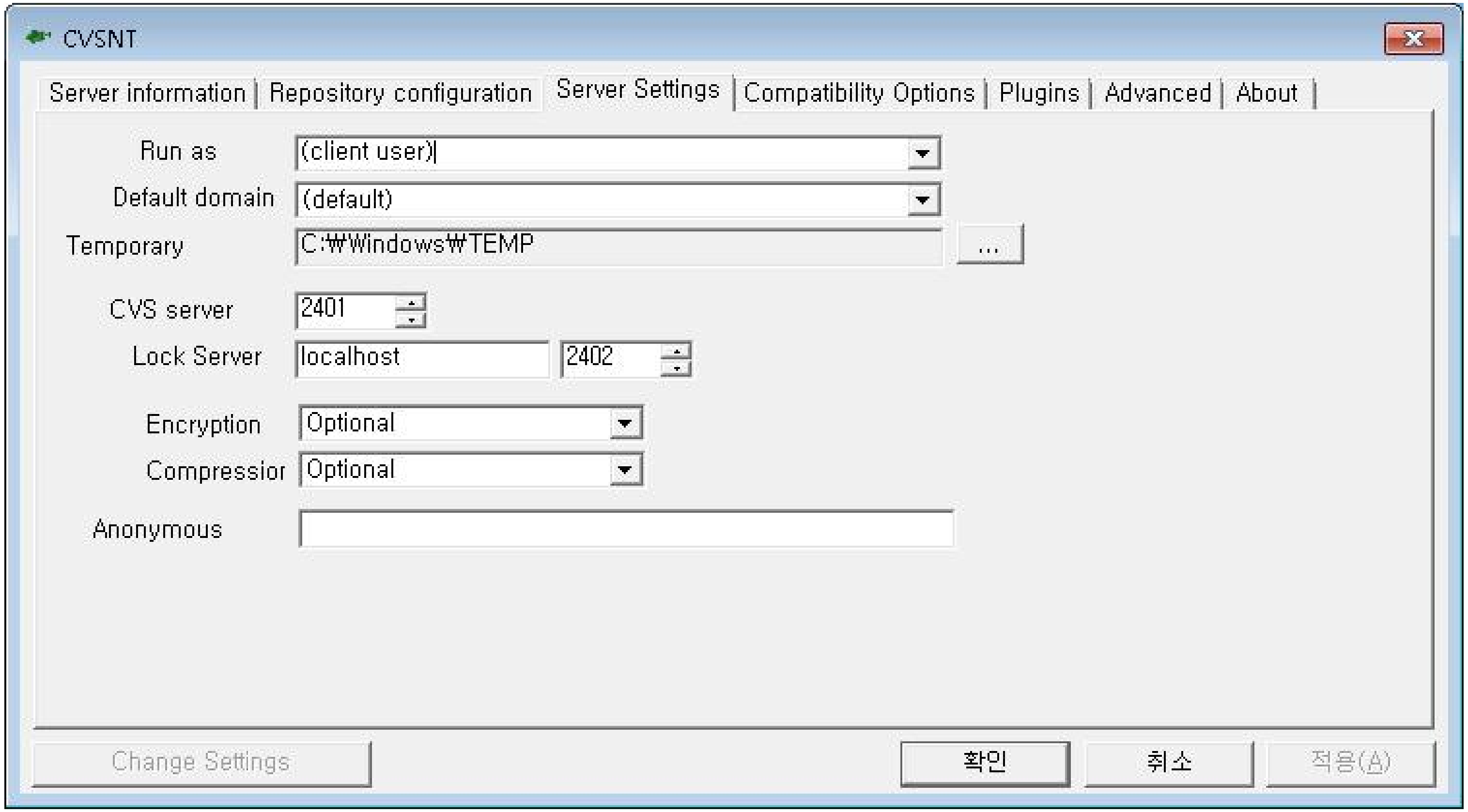
Server:

Repository:

Passphrase:

CVSNT Setting

❖ Server Settings



CVSNT
Server information | Repository configuration | Server Settings | Compatibility Options | Plugins | Advanced | About

Run as: (client user)

Default domain: (default)

Temporary: C:₩Windows₩TEMP ...

CVS server: 2401

Lock Server: localhost 2402

Encryption: Optional

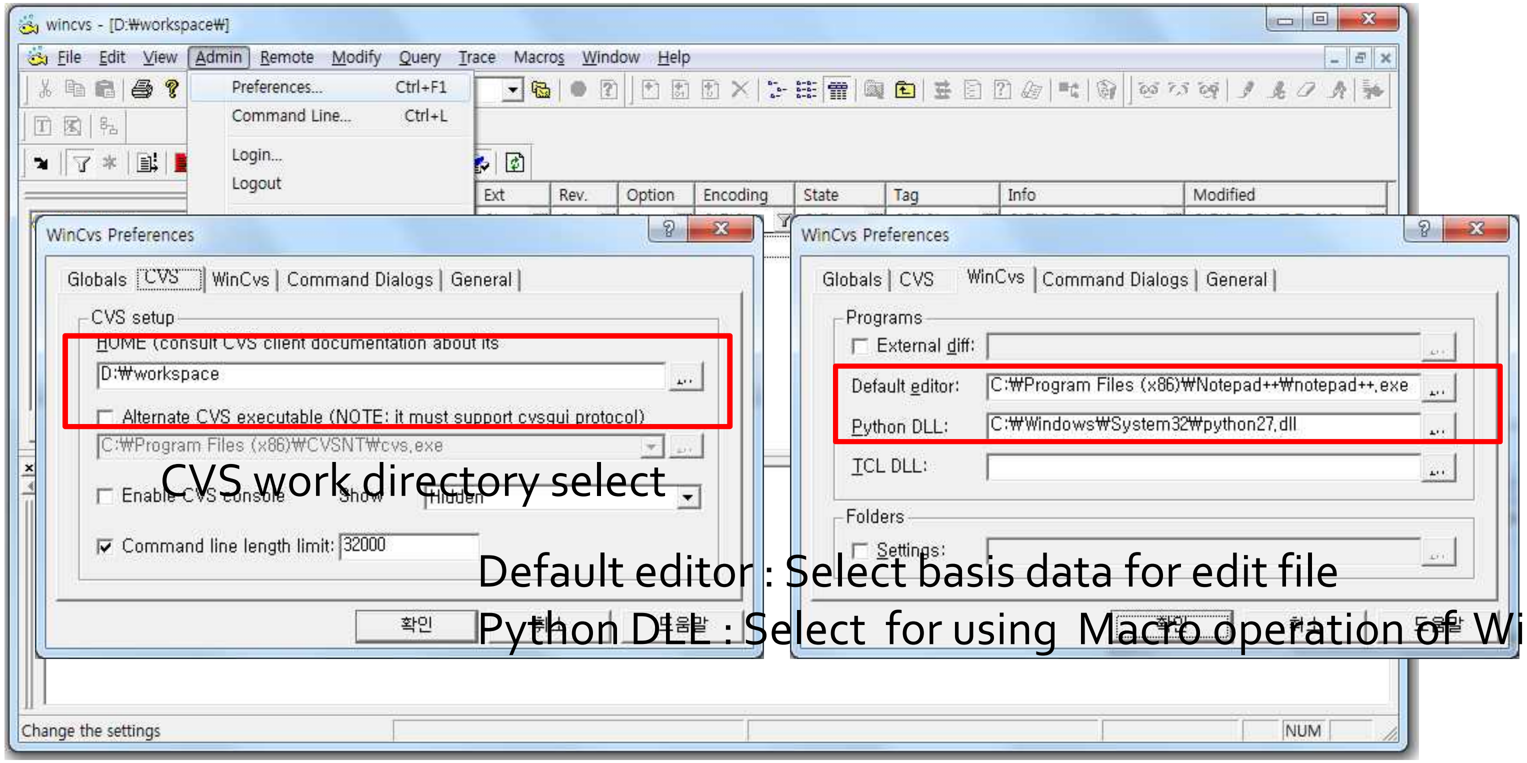
Compressior: Optional

Anonymous:

Change Settings
확인
취소
적용(A)

WinCVS Setting

❖ Admin>Preferences



wincvs - [D:₩workspace₩]
File Edit View Admin Remote Modify Query Trace Macros Window Help
Preferences... Ctrl+F1
Command Line... Ctrl+L
Login...
Logout
Ext Rev. Option Encoding State Tag Info Modified
WinCvs Preferences
Globals CVS WinCvs Command Dialogs General
확인 취소 도움말
Change the settings
NUM

WinCvs Preferences — CVS

CVS setup

HOME (consult CVS client documentation about its

D:₩workspace

□ Alternate CVS executable (NOTE: it must support cvsgui protocol)

C:₩Program Files (x86)₩CVSNT₩cvs.exe

□ Enable CVS console Show Hidden

☑ Command line length limit: 32000

CVS work directory select

WinCvs Preferences — WinCvs

Programs

□ External diff:

Default editor: C:₩Program Files (x86)₩Notepad++₩notepad++.exe

Python DLL: C:₩Windows₩System32₩python27.dll

TCL DLL:

Folders

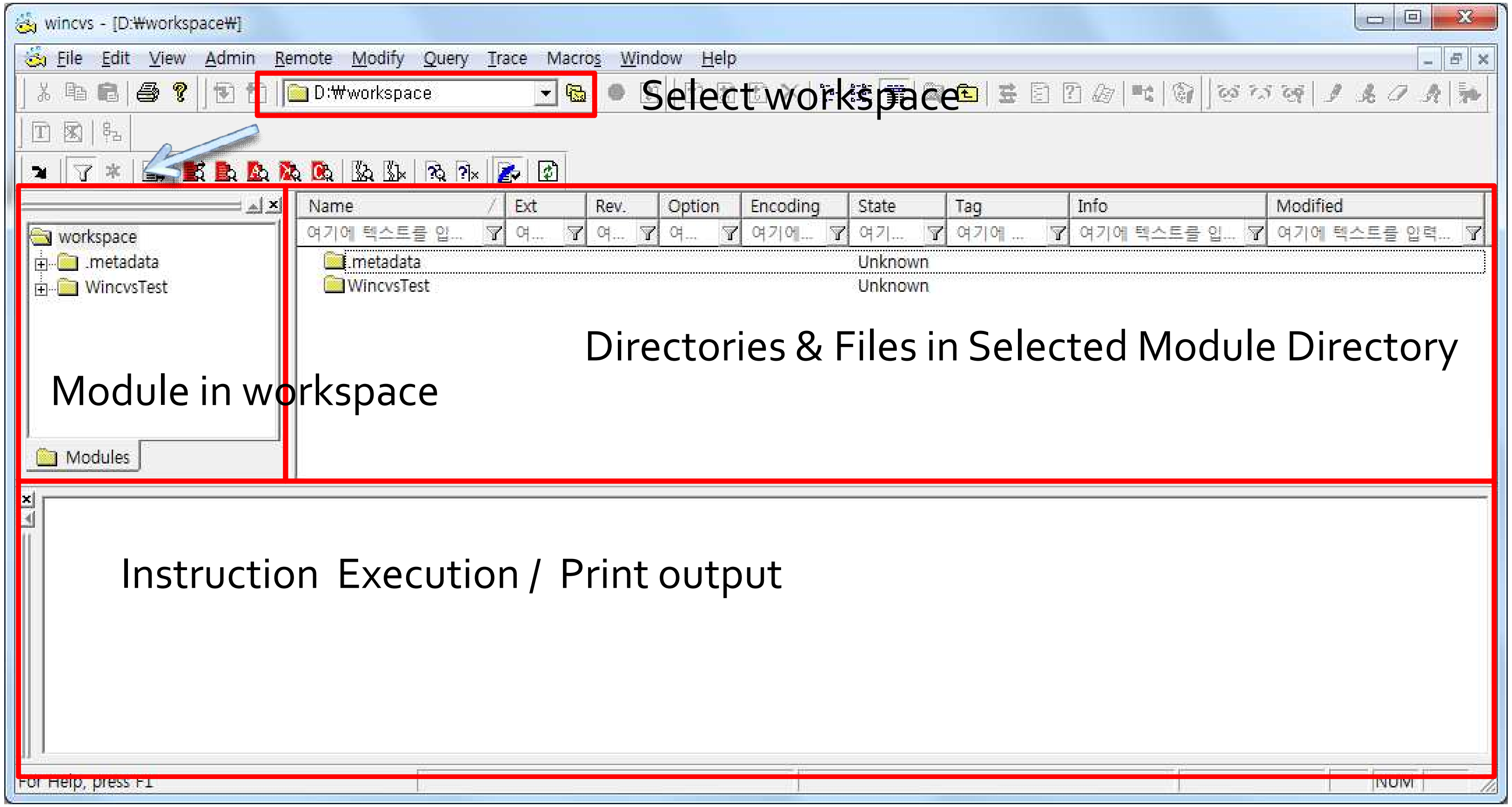
□ Settings:

Default editor : Select basis data for edit file

Python DLL : Select for using Macro operation of WinCVS

WinCVS UI

❖ UI



Select workspace

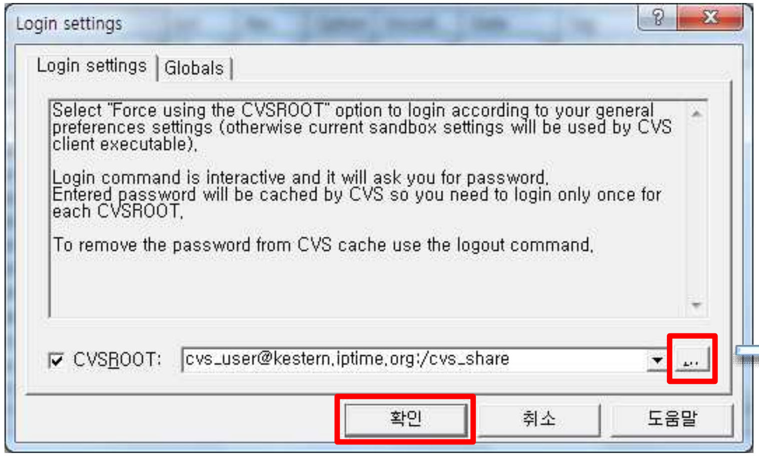
Module in workspace

Directories & Files in Selected Module Directory

Instruction Execution / Print output

Login

❖ Admin>Login



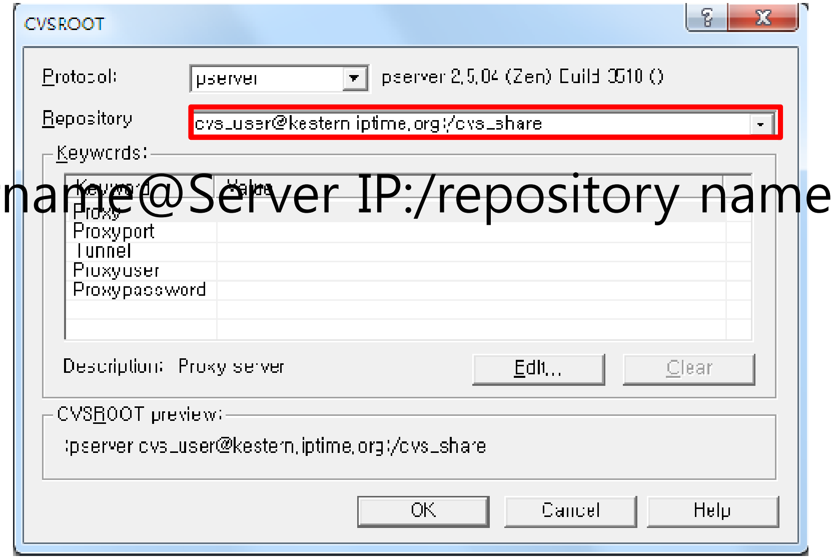
Login settings

Select "Force using the CVSROOT" option to login according to your general preferences settings (otherwise current sandbox settings will be used by CVS client executable).

Login command is interactive and it will ask you for password. Entered password will be cached by CVS so you need to login only once for each CVSROOT.

To remove the password from CVS cache use the logout command.

☑ CVSROOT: cvs_user@kestern.iptime.org:/cvs_share



CVSROOT

Protocol: pserver pserver 2.5.04 (Zen) Build 3510 ()

Repository cvs_user@kestern.iptime.org:/cvs_share

Keywords:

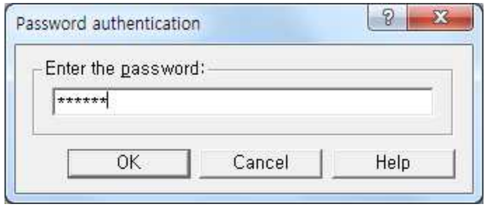
Keyword	Value
Proxy	
Proxyport	
Tunnel	
Proxyuser	
Proxypassword	

Description: Proxy server

CVSROOT preview:

:pserver:cvs_user@kestern.iptime.org:/cvs_share

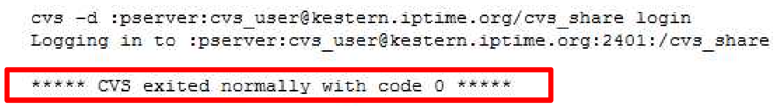
Username@Server IP:/repository name



Password authentication

Enter the password: ******

Message

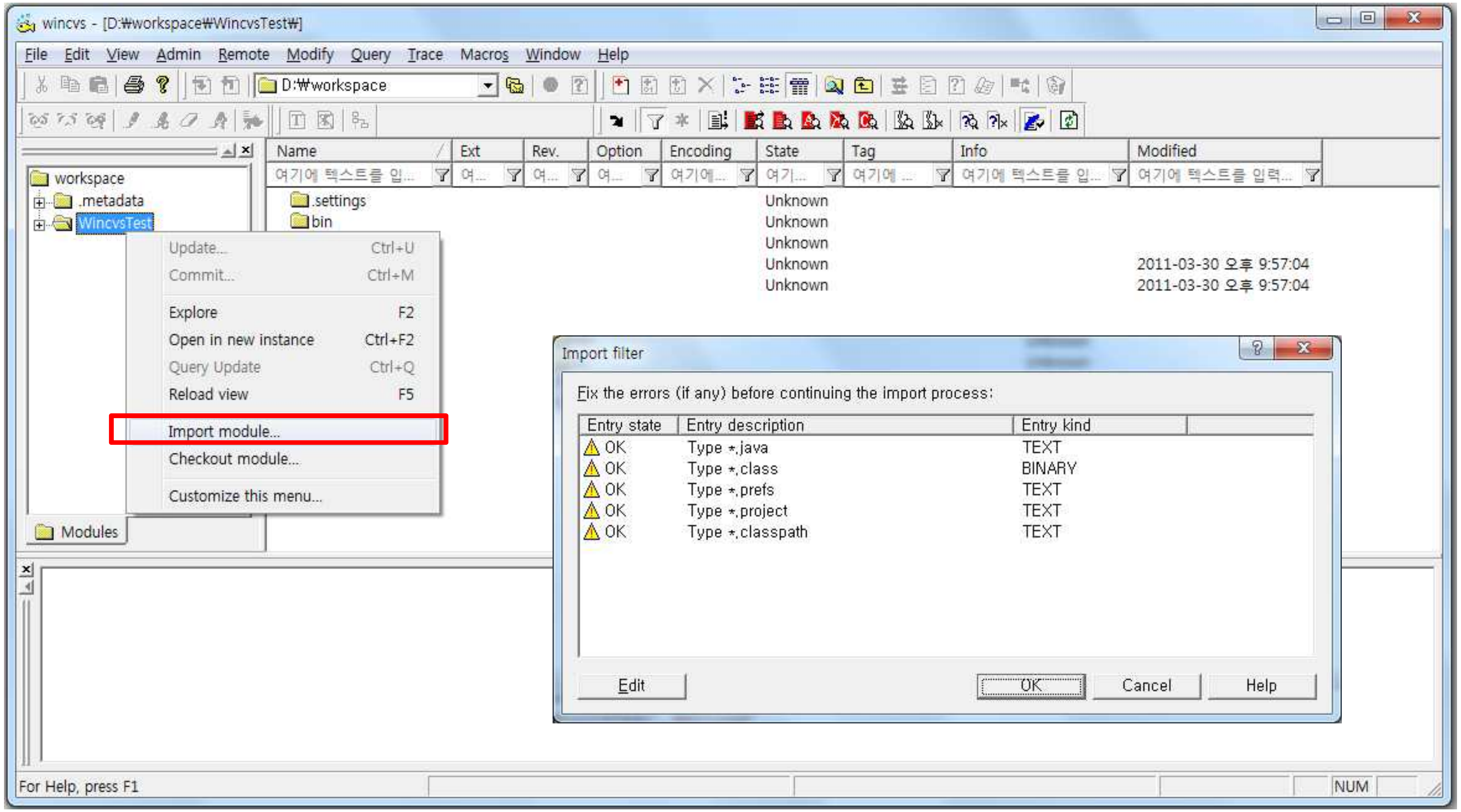


```
cvs -d :pserver:cvs_user@kestern.iptime.org/cvs_share login
Logging in to :pserver:cvs_user@kestern.iptime.org:2401:/cvs_share

***** CVS exited normally with code 0 *****
```

code 0 -> normal operation

Import

❖ Select project>import module



Name	State	Modified
.settings	Unknown	
bin	Unknown	
	Unknown	
	Unknown	2011-03-30 오후 9:57:04
	Unknown	2011-03-30 오후 9:57:04

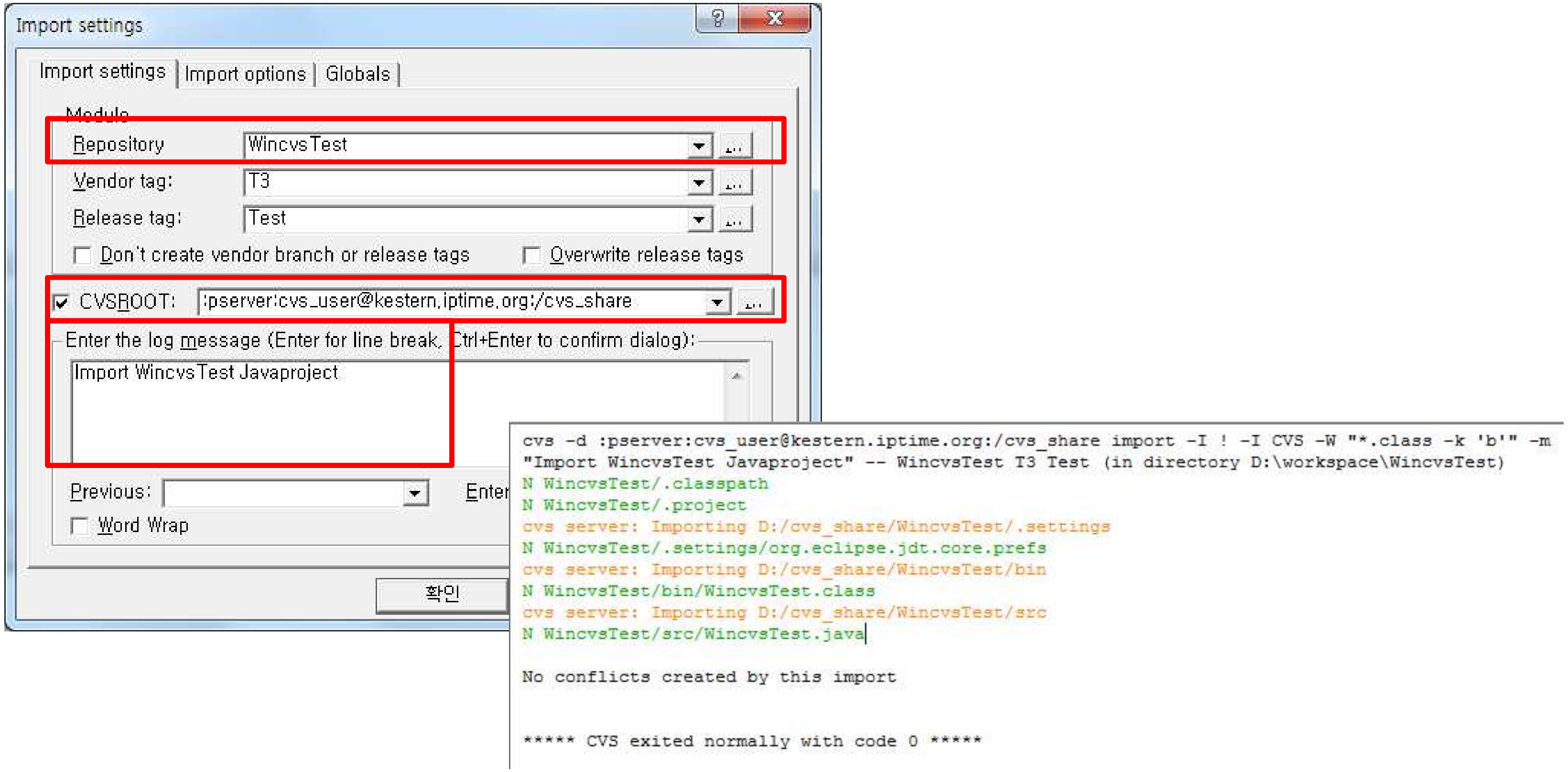
Import filter

Fix the errors (if any) before continuing the import process:

Entry state	Entry description	Entry kind
⚠ OK	Type *.java	TEXT
⚠ OK	Type *.class	BINARY
⚠ OK	Type *.prefs	TEXT
⚠ OK	Type *.project	TEXT
⚠ OK	Type *.classpath	TEXT

Import

❖ Import settings



Repository: WincvsTest

Vendor tag: T3

Release tag: Test

□ Don't create vendor branch or release tags □ Overwrite release tags

☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org:/cvs_share

Enter the log message (Enter for line break, Ctrl+Enter to confirm dialog):

Import WincvsTest Javaproject

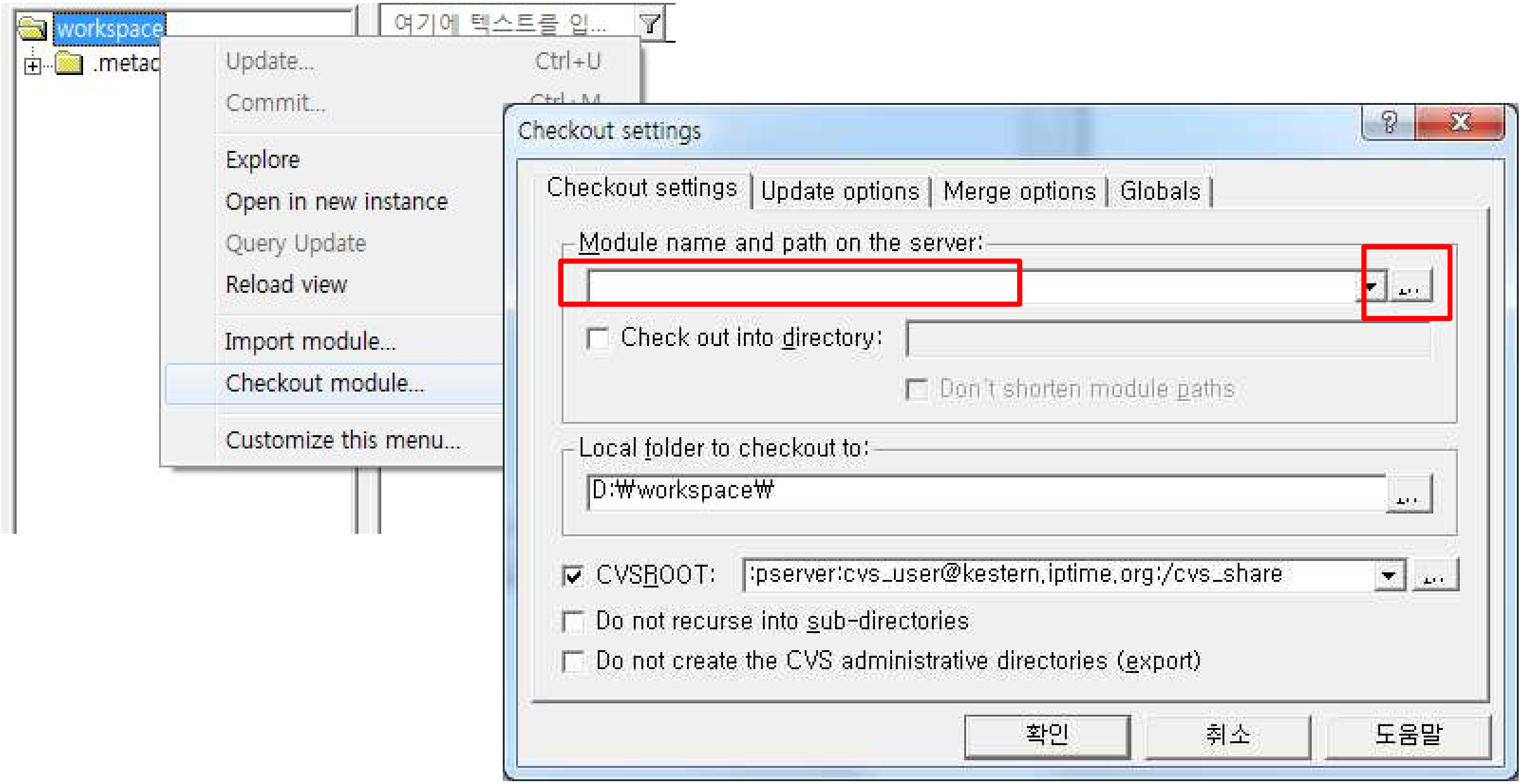
Previous:

□ Word Wrap

```
cvs -d :pserver:cvs_user@kestern.iptime.org:/cvs_share import -I ! -I CVS -W "*.class -k 'b'" -m
"Import WincvsTest Javaproject" -- WincvsTest T3 Test (in directory D:\workspace\WincvsTest)
N WincvsTest/.classpath
N WincvsTest/.project
cvs server: Importing D:/cvs_share/WincvsTest/.settings
N WincvsTest/.settings/org.eclipse.jdt.core.prefs
cvs server: Importing D:/cvs_share/WincvsTest/bin
N WincvsTest/bin/WincvsTest.class
cvs server: Importing D:/cvs_share/WincvsTest/src
N WincvsTest/src/WincvsTest.java

No conflicts created by this import


***** CVS exited normally with code 0 *****
```

Checkout

- Select directory> Checkout module



Module name and path on the server:

□ Check out into directory:

□ Don't shorten module paths

Local folder to checkout to: D:₩workspace₩

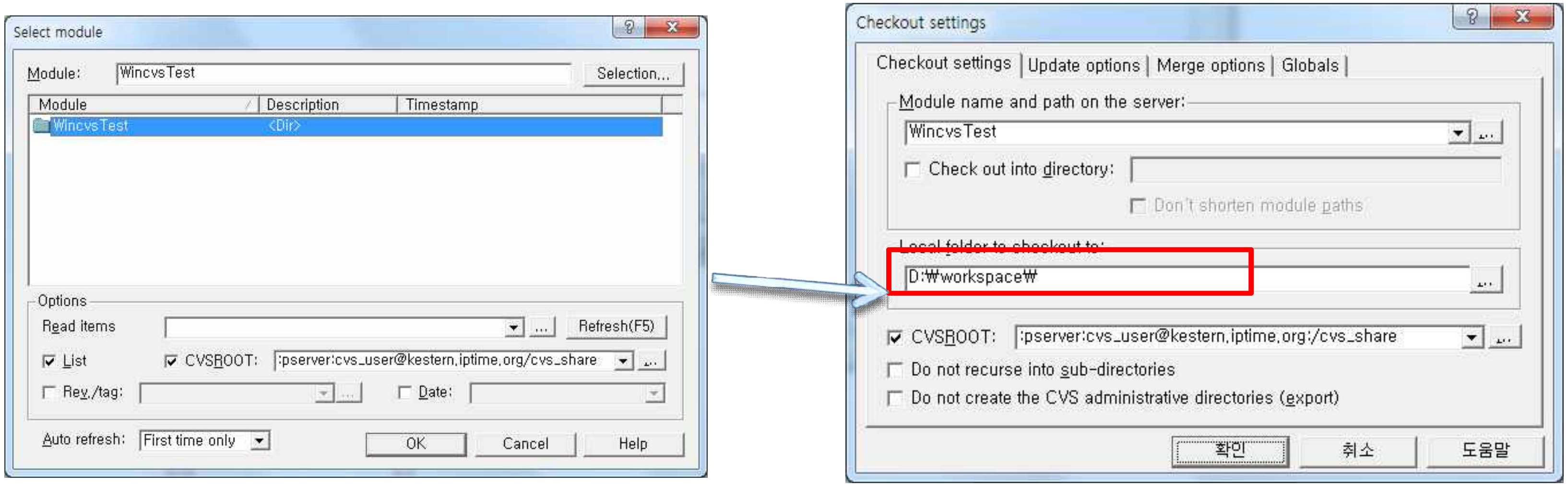
☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org:/cvs_share

□ Do not recurse into sub-directories

□ Do not create the CVS administrative directories (export)

Checkout

❖ Select module



Select module

Module: WincvsTest

Module	Description	Timestamp
WincvsTest	<Dir>	

Options

Read items:

☑ List ☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org/cvs_share

□ Rev./tag: □ Date:

Auto refresh: First time only

Checkout settings

Checkout settings | Update options | Merge options | Globals

Module name and path on the server: WincvsTest

□ Check out into directory:

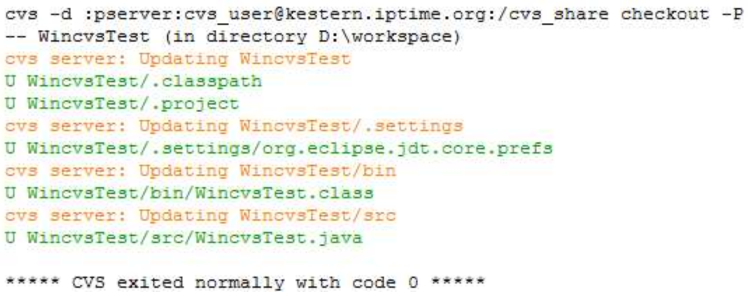
□ Don't shorten module paths

Local folder to checkout to: D:₩workspace₩

☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org:/cvs_share

□ Do not recurse into sub-directories

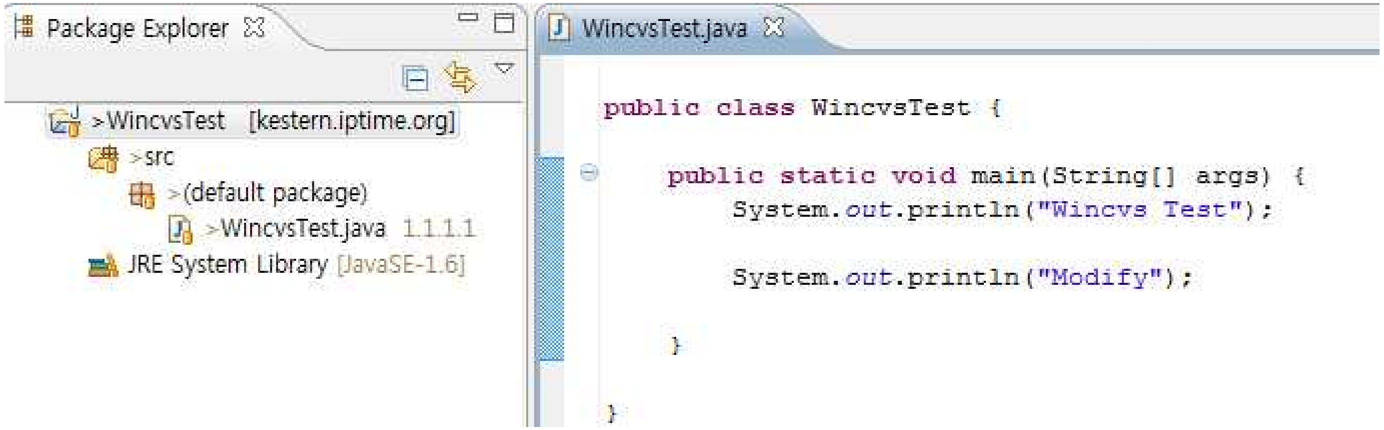
□ Do not create the CVS administrative directories (export)



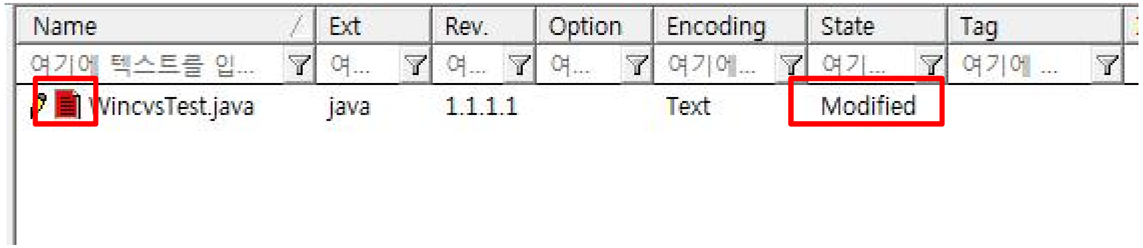
```
cvs -d :pserver:cvs_user@kestern.iptime.org:/cvs_share checkout -P
-- WincvsTest (in directory D:\workspace)
cvs server: Updating WincvsTest
U WincvsTest/.classpath
U WincvsTest/.project
cvs server: Updating WincvsTest/.settings
U WincvsTest/.settings/org.eclipse.jdt.core.prefs
cvs server: Updating WincvsTest/bin
U WincvsTest/bin/WincvsTest.class
cvs server: Updating WincvsTest/src
U WincvsTest/src/WincvsTest.java

***** CVS exited normally with code 0 *****
```

Modify

❖ Modify file



```
public class WincvsTest {

    public static void main(String[] args) {
        System.out.println("Wincvs Test");

        System.out.println("Modify");

    }

}
```

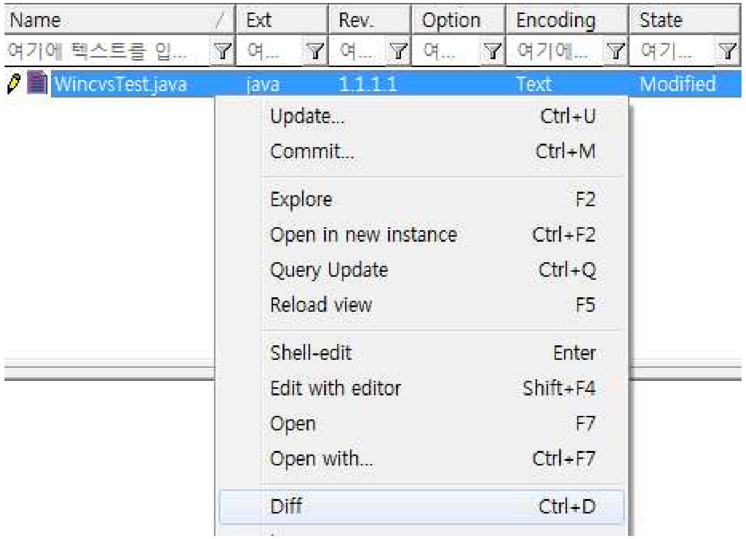


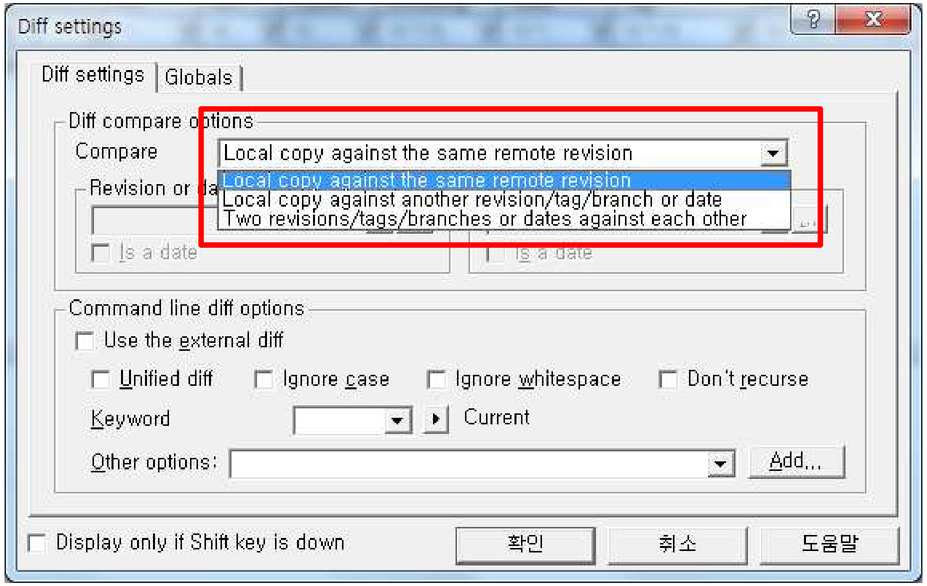
Name	Ext	Rev.	Option	Encoding	State	Tag
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...
WincvsTest.java	java	1.1.1.1		Text	Modified	

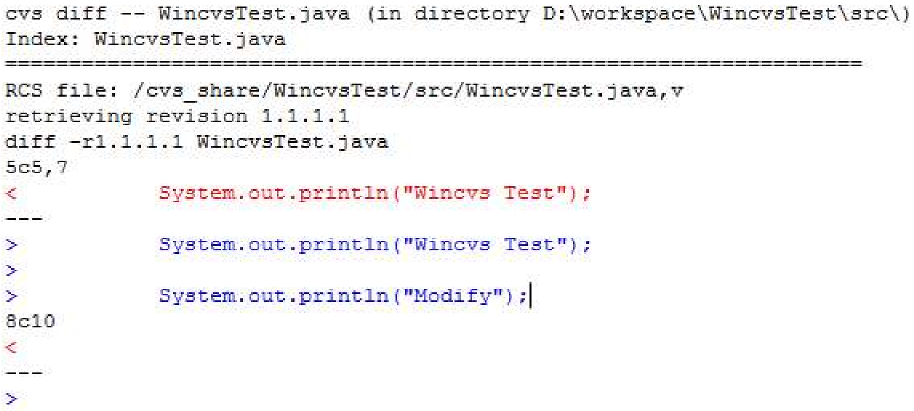
Automatically sensing file modification
Icon is red, state is modified

Diff

❖ Diff



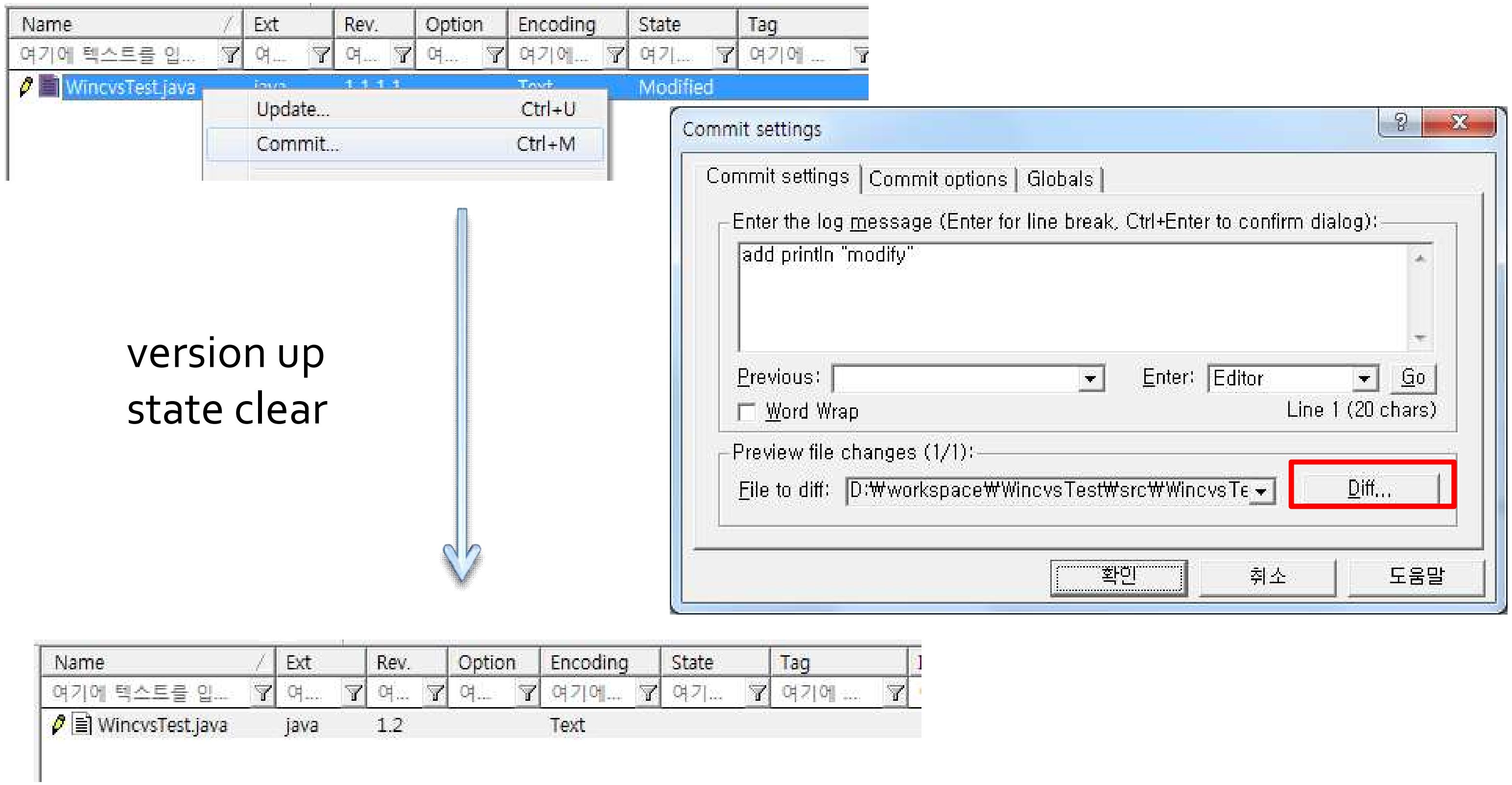

Diff settings
Diff settings
Globals
Diff compare options
Compare
Local copy against the same remote revision
Local copy against the same remote revision
Local copy against another revision/tag/branch or date
Two revisions/tags/branches or dates against each other
Revision or da
Is a date
Is a date
Command line diff options
□ Use the external diff
□ Unified diff
□ Ignore case
□ Ignore whitespace
□ Don't recurse
Keyword
Current
Other options:
Add...
□ Display only if Shift key is down
확인
취소
도움말



```
cvs diff -- WincvsTest.java (in directory D:\workspace\WincvsTest\src\)
Index: WincvsTest.java
===================================================================
RCS file: /cvs_share/WincvsTest/src/WincvsTest.java,v
retrieving revision 1.1.1.1
diff -r1.1.1.1 WincvsTest.java
5c5,7
<           System.out.println("Wincvs Test");
---
>           System.out.println("Wincvs Test");
>
>           System.out.println("Modify");
8c10
<
---
>
```

Commit

❖ Commit



Name	Ext	Rev.	Option	Encoding	State	Tag
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...
WincvsTest.java	java	1.1.1.1		Text	Modified	

Commit settings

Enter the log message (Enter for line break, Ctrl+Enter to confirm dialog):

add println "modify"

Previous:

Enter: Editor

□ Word Wrap

Line 1 (20 chars)

Preview file changes (1/1):

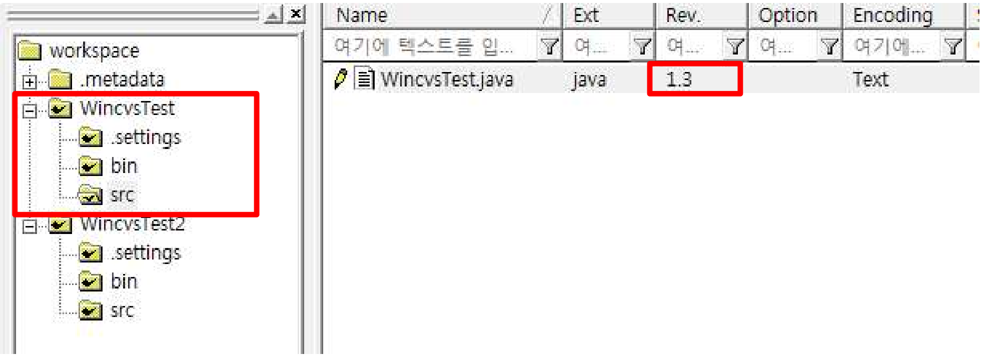
File to diff: D:₩workspace₩WincvsTest₩src₩WincvsTe

version up
state clear

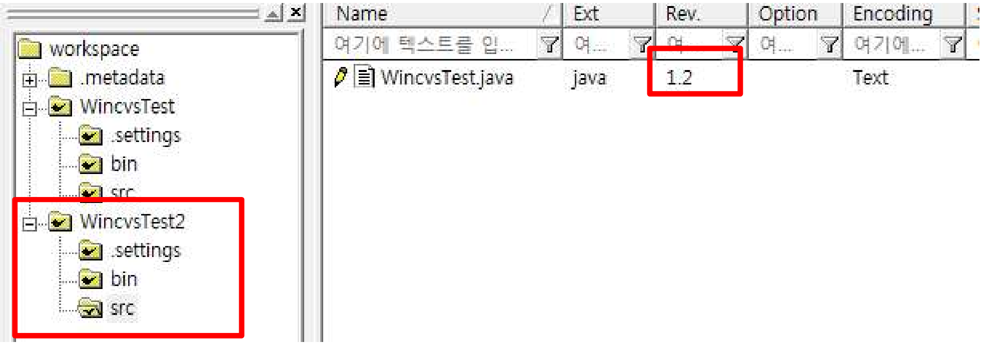
Name	Ext	Rev.	Option	Encoding	State	Tag
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...
WincvsTest.java	java	1.2		Text		

Update

❖ Same Module & Different revision



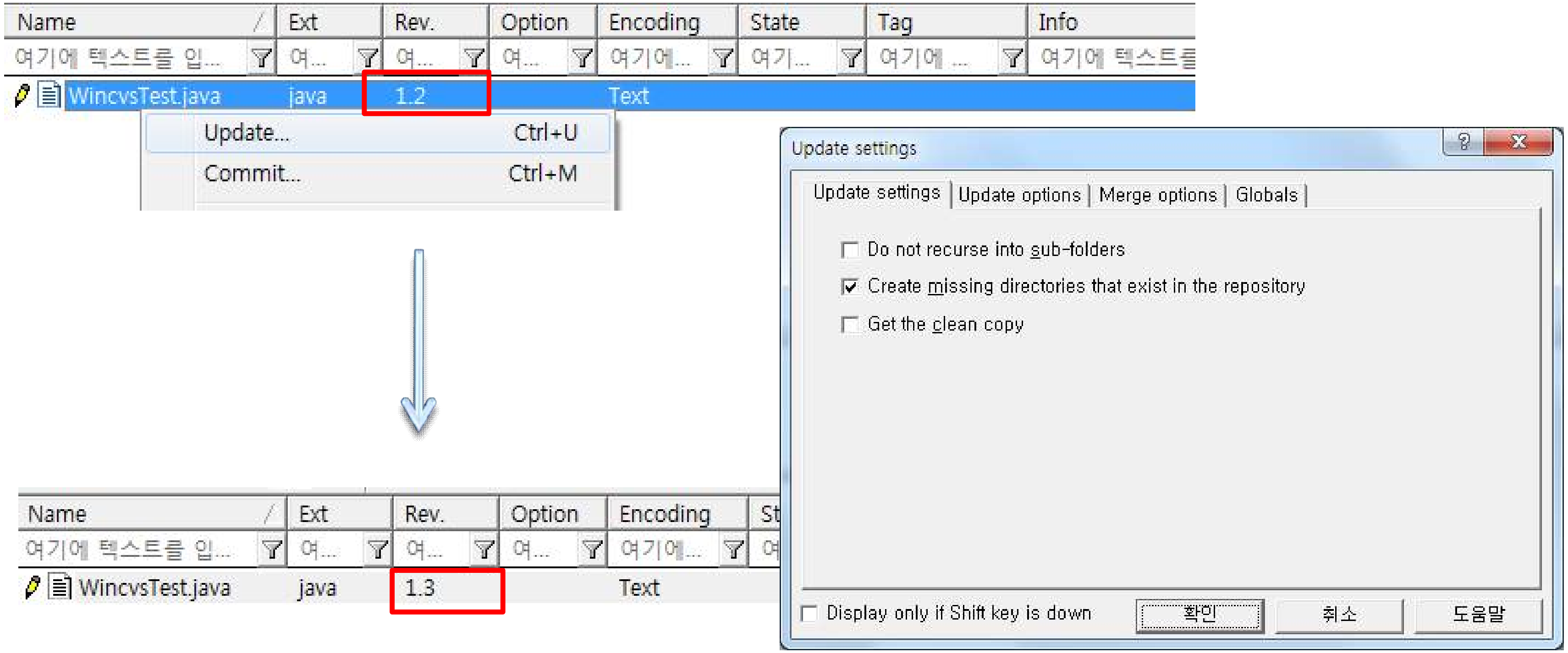
Name	Ext	Rev.	Option	Encoding
여기에 텍스트를 입...	여...	여...	여...	여기에...
WincvsTest.java	java	1.3		Text



Name	Ext	Rev.	Option	Encoding
여기에 텍스트를 입...	여...	여	여...	여기에...
WincvsTest.java	java	1.2		Text

Update

❖ Update without conflict



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를
WincvsTest.java	java	1.2		Text			

Name	Ext	Rev.	Option	Encoding	St
여기에 텍스트를 입...	여...	여...	여...	여기에...	여
WincvsTest.java	java	1.3		Text	

Update settings

□ Do not recurse into sub-folders

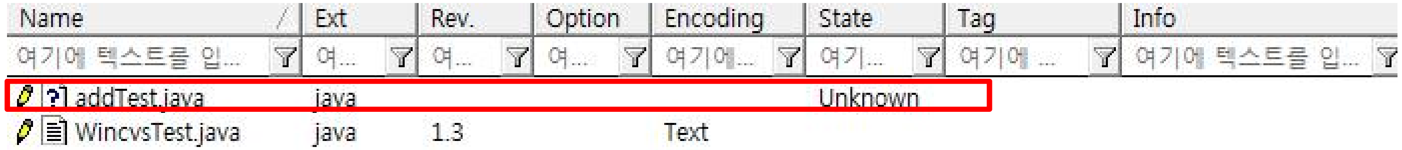
☑ Create missing directories that exist in the repository

□ Get the clean copy

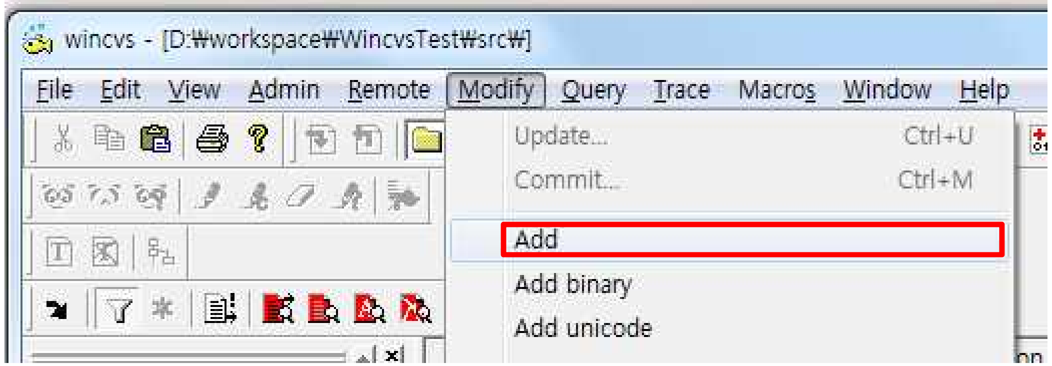
□ Display only if Shift key is down

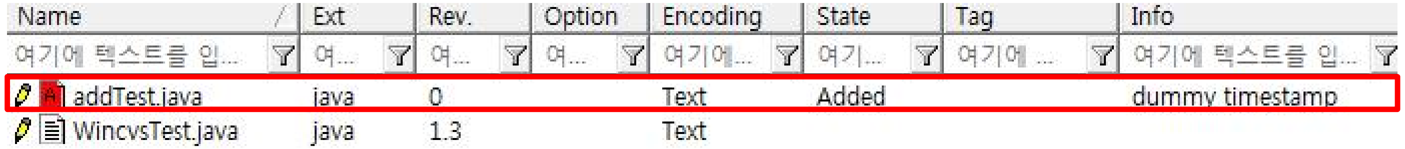
Add

❖ Modify>Add



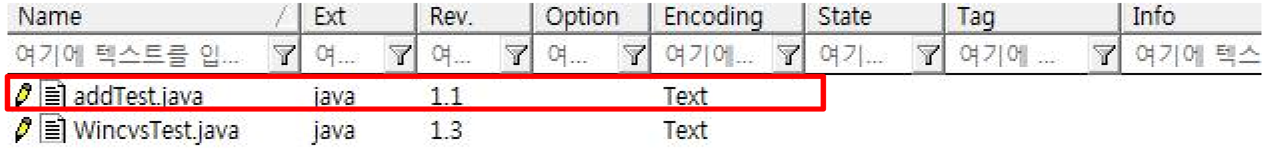
Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
? addTest.java	java				Unknown		
WincvsTest.java	java	1.3		Text			


wincvs - [D:₩workspace₩WincvsTest₩src₩]
File Edit View Admin Remote Modify Query Trace Macros Window Help
Update... Ctrl+U
Commit... Ctrl+M
Add
Add binary
Add unicode



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
A addTest.java	java	0		Text	Added		dummy timestamp
WincvsTest.java	java	1.3		Text			

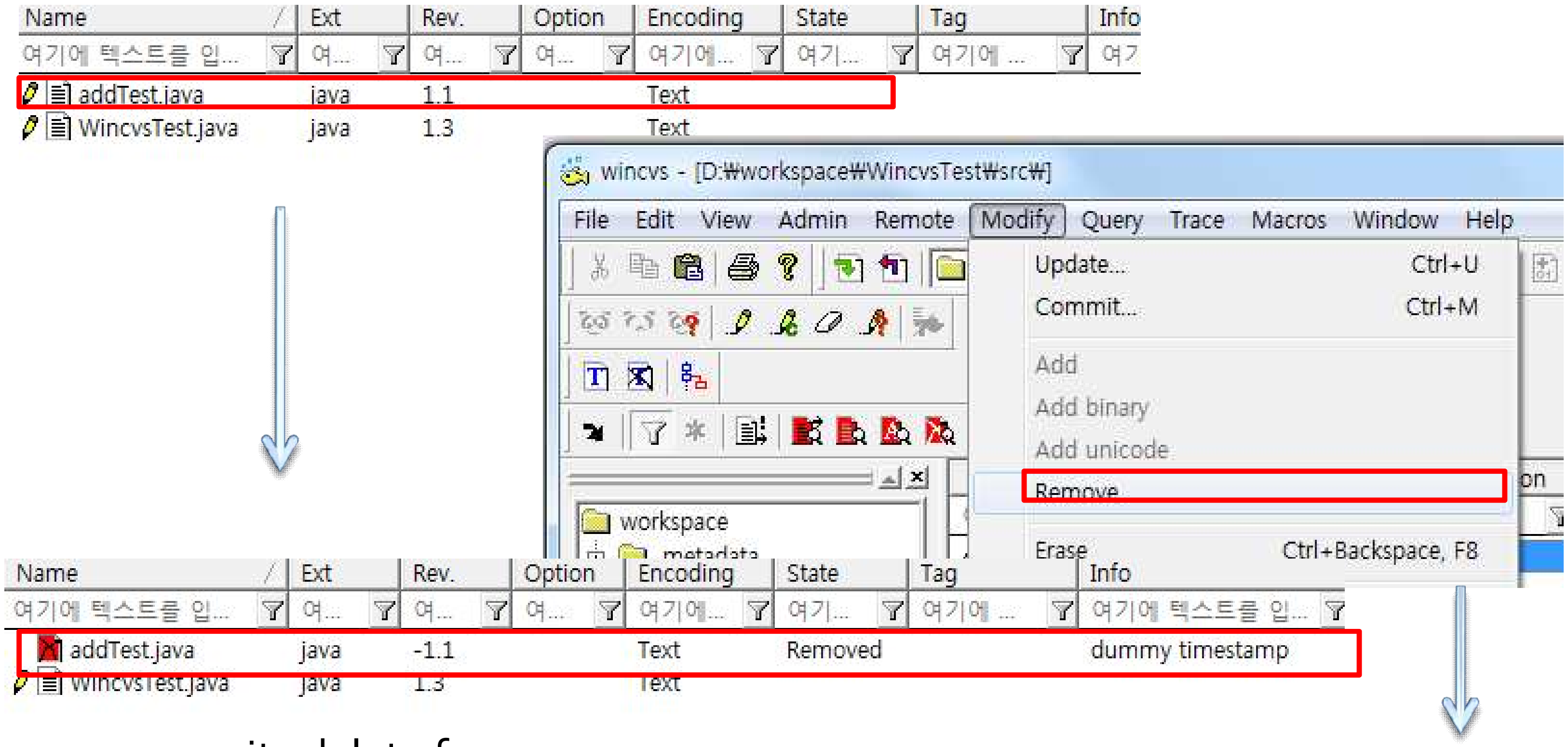
commit



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스
addTest.java	java	1.1		Text			
WincvsTest.java	java	1.3		Text			

Remove

- Modify>Remove



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기
addTest.java	java	1.1		Text			
WincvsTest.java	java	1.3		Text			

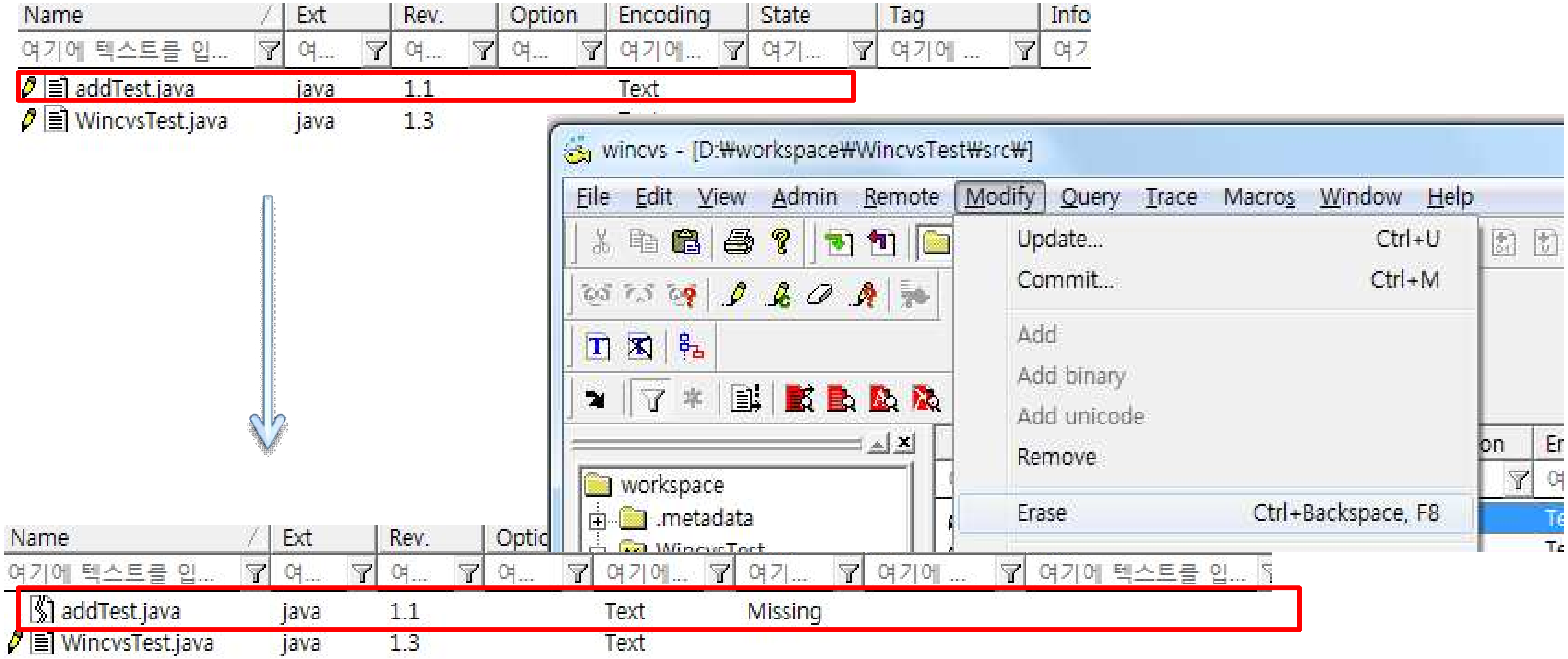
Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
addTest.java	java	-1.1		Text	Removed		dummy timestamp
WincvsTest.java	java	1.3		Text			

commit : delete from server

Modify>add : recovery

Erase

- Modify>Erase



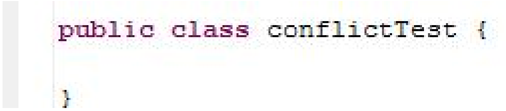
Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기
addTest.java	java	1.1		Text			
WincvsTest.java	java	1.3					

Name	Ext	Rev.	Optio				
여기에 텍스트를 입...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
addTest.java	java	1.1		Text	Missing		
WincvsTest.java	java	1.3		Text			

not delete from server
update : recovery

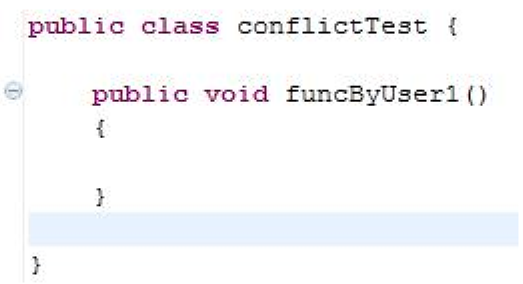
Conflict

- ❖ Conflict in same space
  - conifilictTest.java (Rev 1.1)



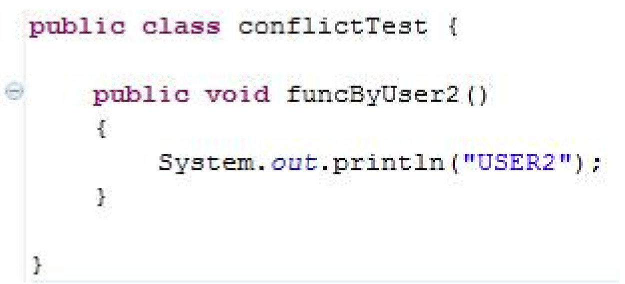
```
public class conflictTest {

}
```

User1
Rev 1.1 modify & commit
=> conflictTest.java (Rev 1.2)

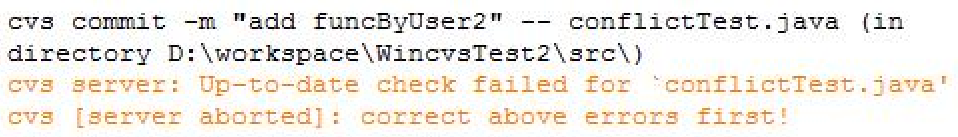


```
public class conflictTest {

    public void funcByUser1()
    {

    }

}
```

User2
Rev 1.1 modify & commit
=> fail



```
public class conflictTest {

    public void funcByUser2()
    {
        System.out.println("USER2");
    }

}
```



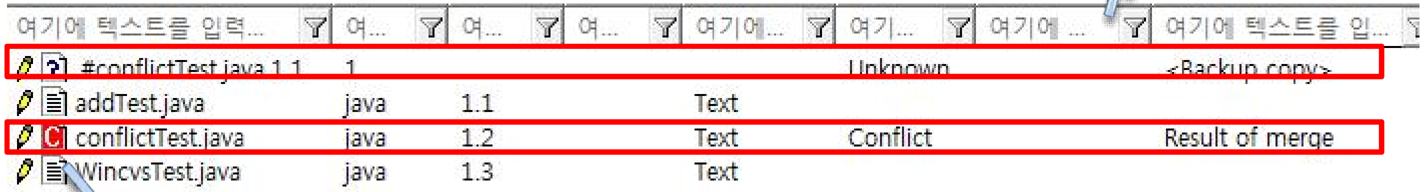
```
cvs commit -m "add funcByUser2" -- conflictTest.java (in
directory D:\workspace\WincvsTest2\src\)
cvs server: Up-to-date check failed for `conflictTest.java'
cvs [server aborted]: correct above errors first!
```

Conflict

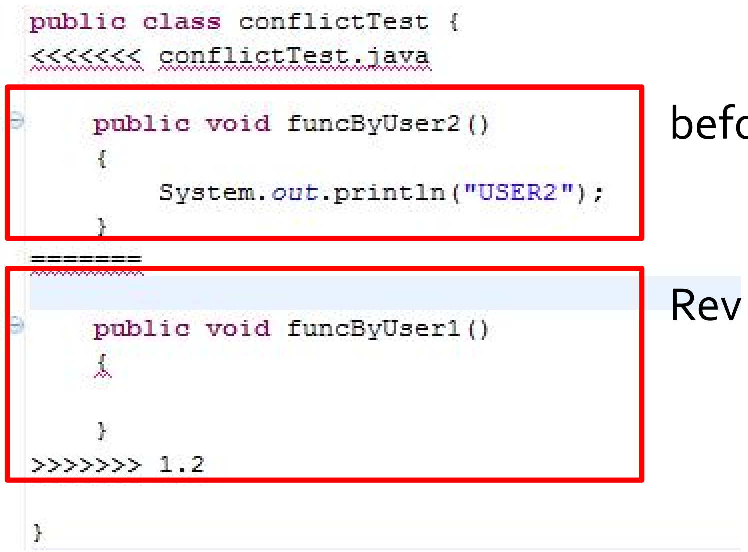
- Conflict in same space

User2
Rev 1.1 modify (commit failed) & update
=> conflict(merge) & backup

modified 1.1 (before merge)



여기에 텍스트를 입력...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
#conflictTest.java.1.1	1				Unknown		<Backup copy>
addTest.java	java	1.1		Text			
conflictTest.java	java	1.2		Text	Conflict		Result of merge
WincvsTest.java	java	1.3		Text			



```
public class conflictTest {
<<<<<<< conflictTest.java

    public void funcByUser2()
    {
        System.out.println("USER2");
    }
=======

    public void funcByUser1()
    {

    }
>>>>>>> 1.2

}
```

before merge

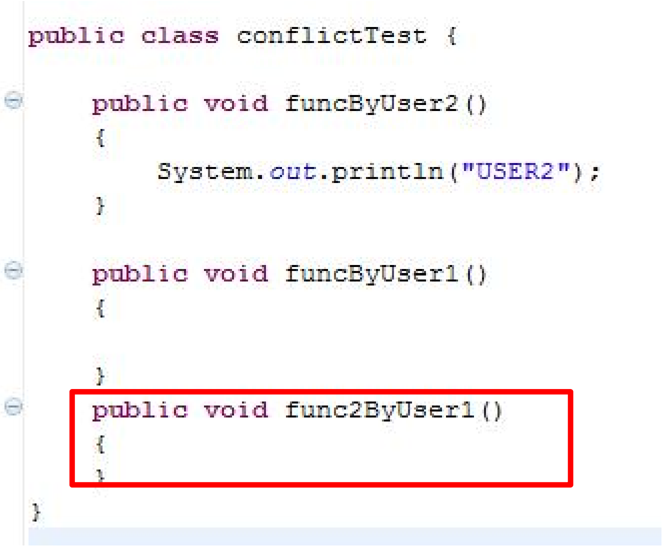
Rev 1.2 from Server

User2 merge and commit

Conflict

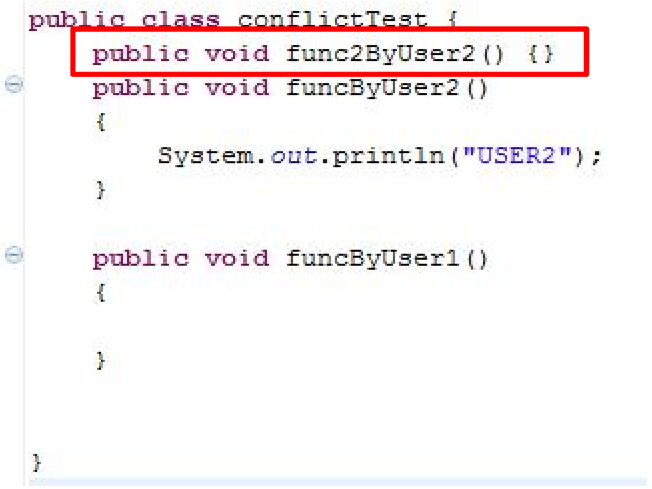
- ❖ Conflict in different space

User1
Rev 1.3 modify & commit
=>1.4 conflictTest.java



```
public class conflictTest {

    public void funcByUser2()
    {
        System.out.println("USER2");
    }

    public void funcByUser1()
    {

    }
    public void func2ByUser1()
    {
    }
}
```

User2
Rev 1.3 modify & commit
=> fail



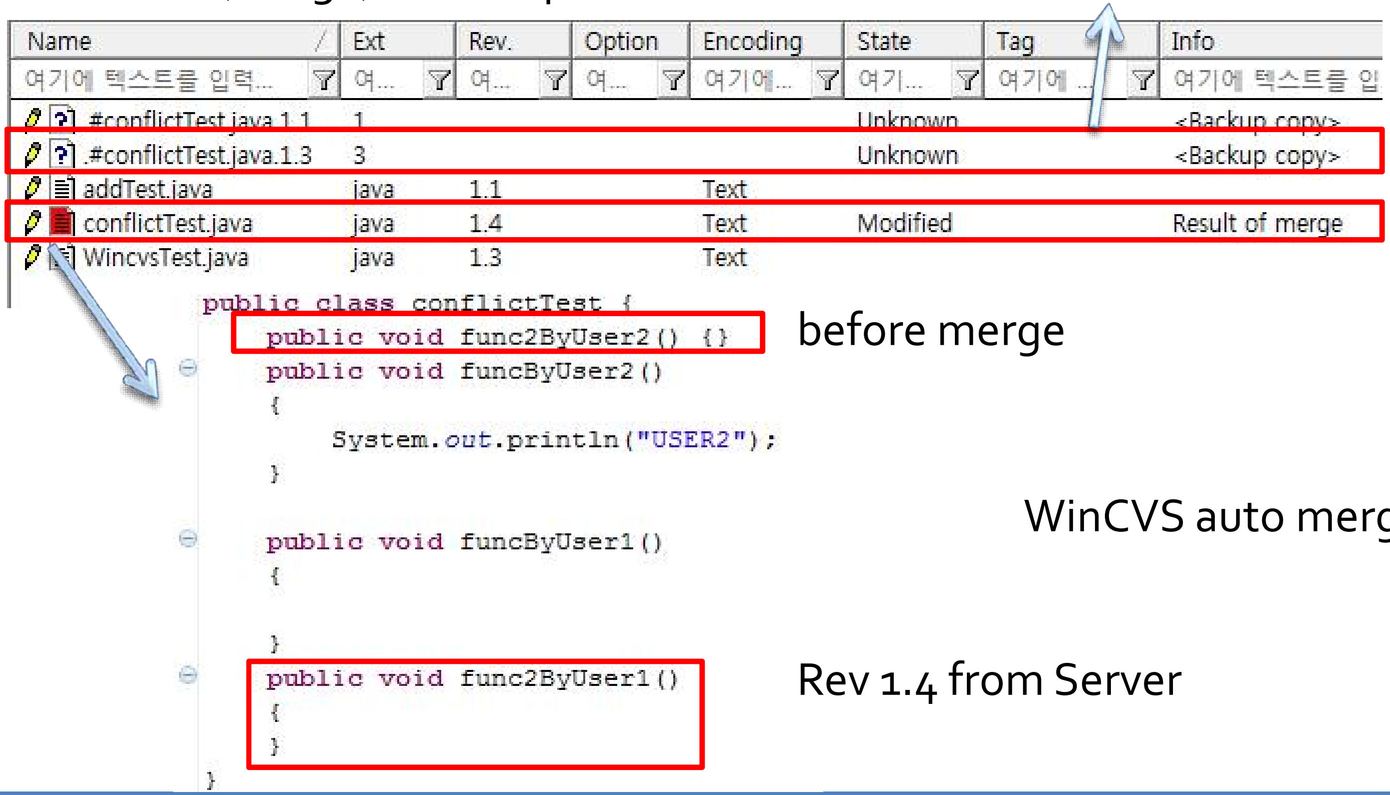
```
public class conflictTest {
    public void func2ByUser2() {}
    public void funcByUser2()
    {
        System.out.println("USER2");
    }

    public void funcByUser1()
    {

    }


}
```

Conflict

❖ Conflict in different space

User2
Rev 1.3 modify (commit failed) & update
=> modified(merge) & backup

modified 1.3 (before merge)



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입력...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입
.#conflictTest.java.1.1	1				Unknown		<Backup copy>
.#conflictTest.java.1.3	3				Unknown		<Backup copy>
addTest.java	java	1.1		Text			
conflictTest.java	java	1.4		Text	Modified		Result of merge
WincvsTest.java	java	1.3		Text			

```
public class conflictTest {
    public void func2ByUser2() {}
    public void funcByUser2()
    {
        System.out.println("USER2");
    }

    public void funcByUser1()
    {

    }
    public void func2ByUser1()
    {
    }
}
```

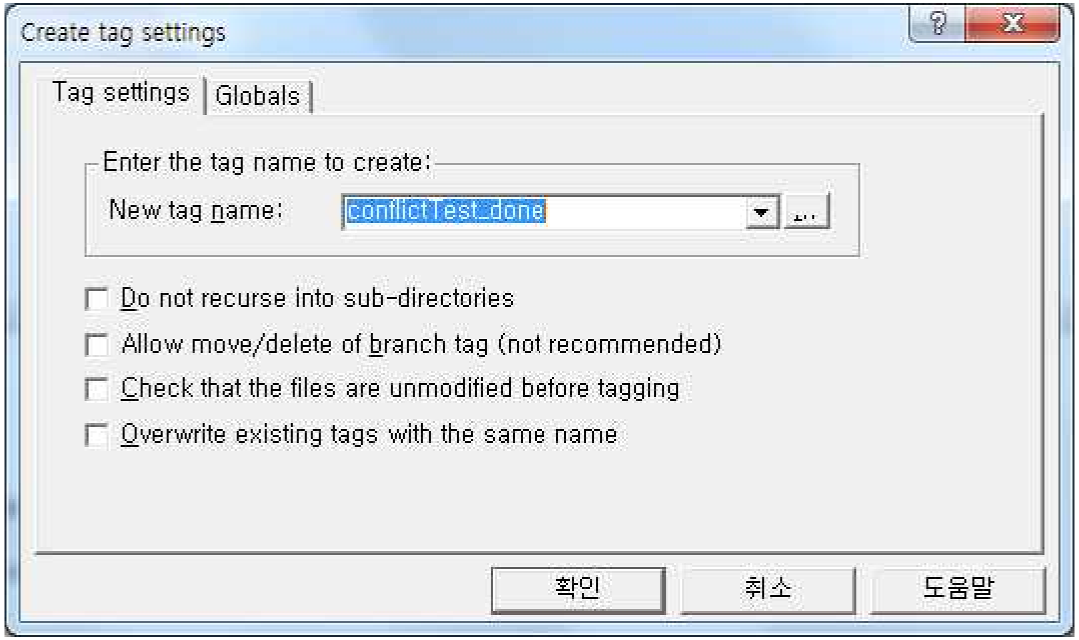
before merge

WinCVS auto merge

Rev 1.4 from Server

Tagging

- Tagging a file
  - Modify>Crate a tag



Create tag settings

Enter the tag name to create:

New tag name: conflictTest_done

□ Do not recurse into sub-directories

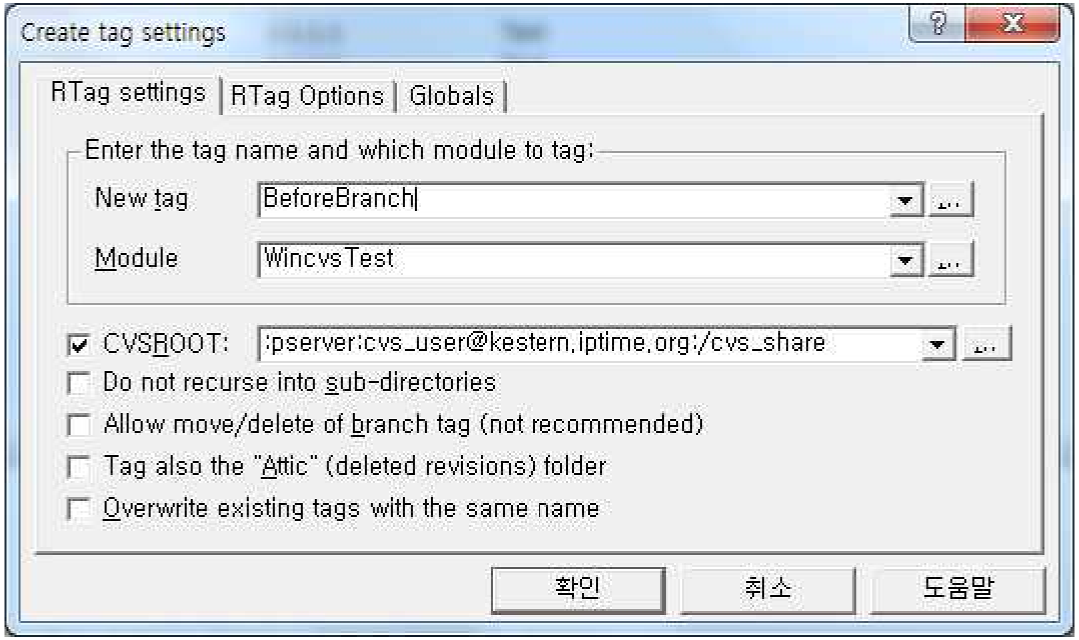
□ Allow move/delete of branch tag (not recommended)

□ Check that the files are unmodified before tagging

□ Overwrite existing tags with the same name

Tagging

- Tagging a module
  - Remote>Crate a tag by module



Create tag settings

Enter the tag name and which module to tag:

New tag: BeforeBranch

Module: WincvsTest

☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org:/cvs_share

□ Do not recurse into sub-directories

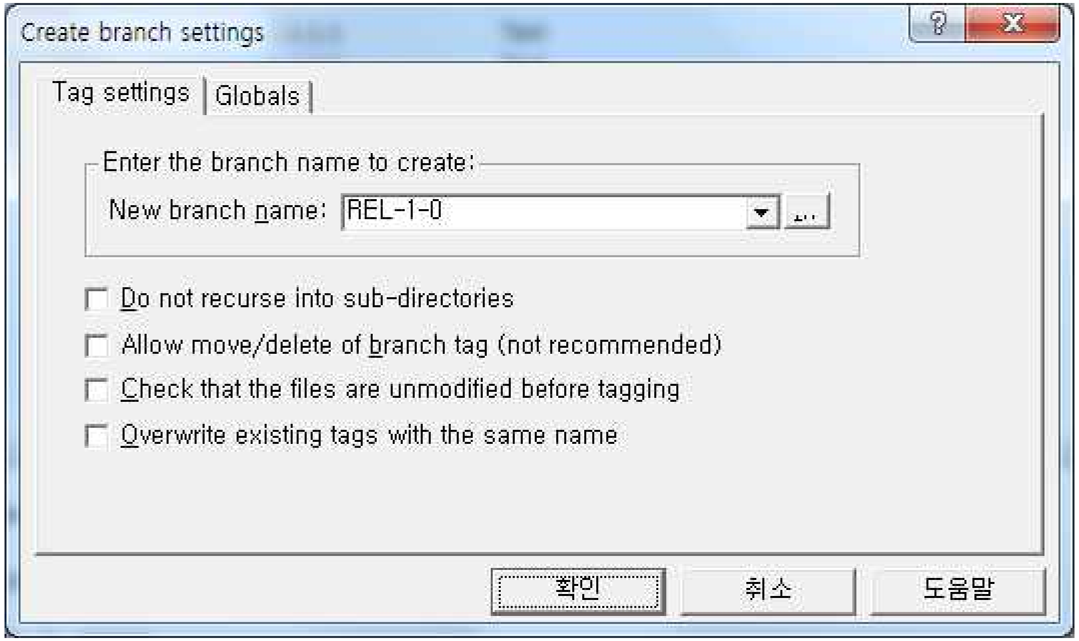
□ Allow move/delete of branch tag (not recommended)

□ Tag also the "Attic" (deleted revisions) folder

□ Overwrite existing tags with the same name

Branch

- Select project > Modify > Create a branch



Create branch settings

Enter the branch name to create:

New branch name: REL-1-0

□ Do not recurse into sub-directories

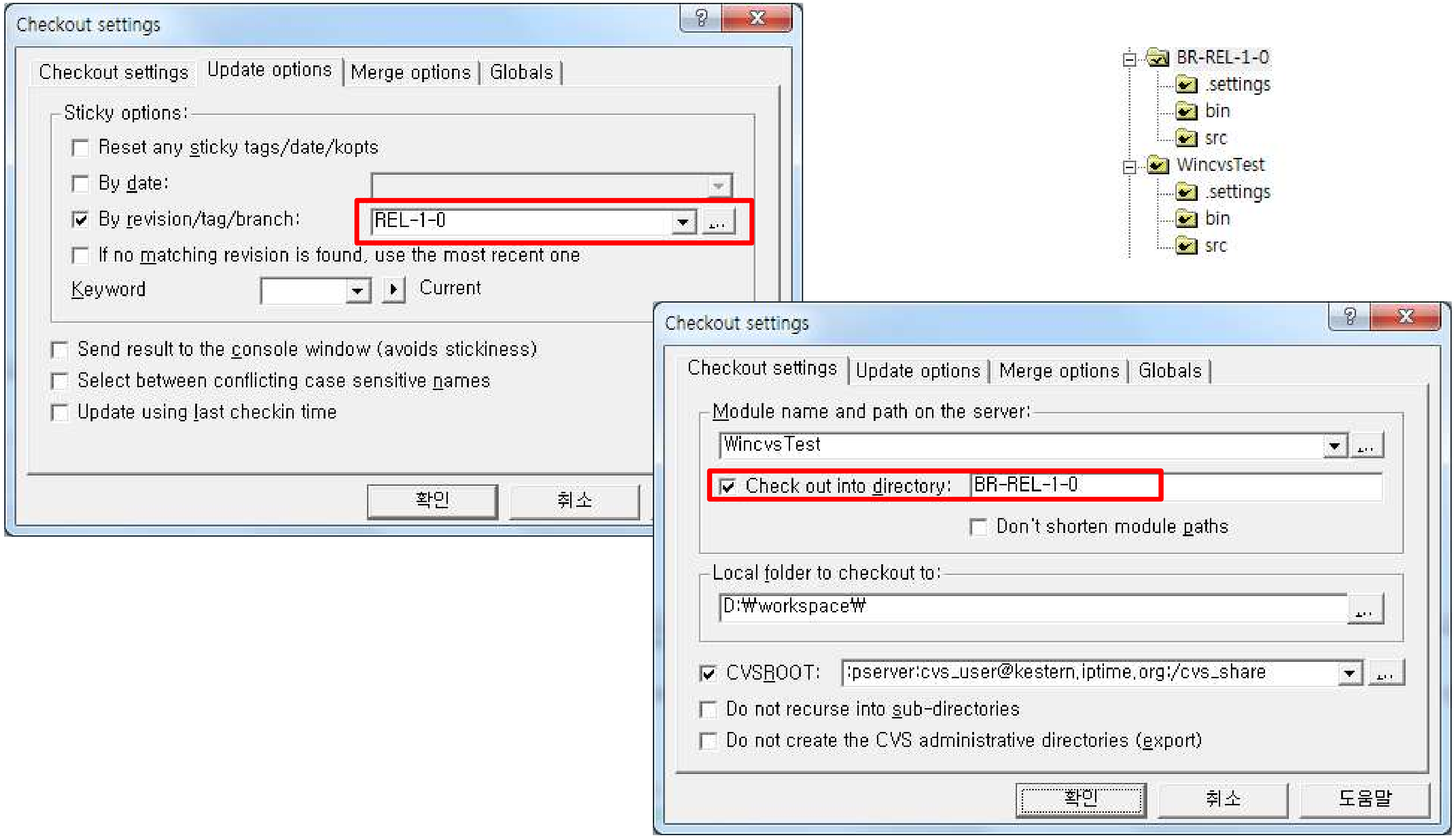
□ Allow move/delete of branch tag (not recommended)

□ Check that the files are unmodified before tagging

□ Overwrite existing tags with the same name

Branch

❖ Branch check out



Checkout settings

Checkout settings | Update options | Merge options | Globals

Sticky options:

□ Reset any sticky tags/date/kopts

□ By date:

☑ By revision/tag/branch: REL-1-0

□ If no matching revision is found, use the most recent one

Keyword Current

□ Send result to the console window (avoids stickiness)

□ Select between conflicting case sensitive names

□ Update using last checkin time

- BR-REL-1-0
  - .settings
  - bin
  - src
- WincvsTest
  - .settings
  - bin
  - src

Checkout settings

Checkout settings | Update options | Merge options | Globals

Module name and path on the server: WincvsTest

☑ Check out into directory: BR-REL-1-0

□ Don't shorten module paths

Local folder to checkout to: D:₩workspace₩

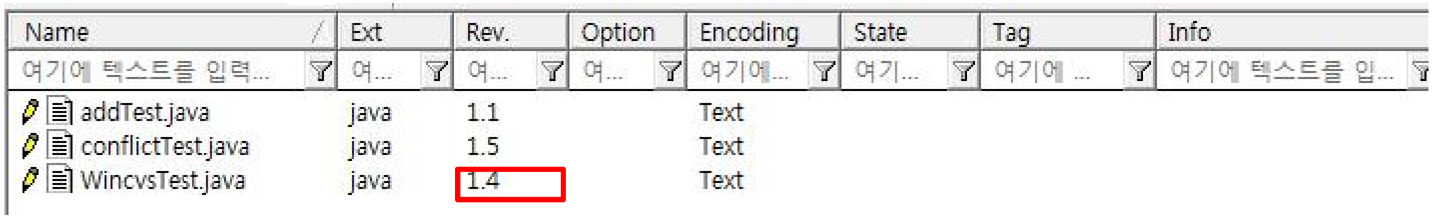
☑ CVSROOT: :pserver:cvs_user@kestern.iptime.org:/cvs_share

□ Do not recurse into sub-directories

□ Do not create the CVS administrative directories (export)

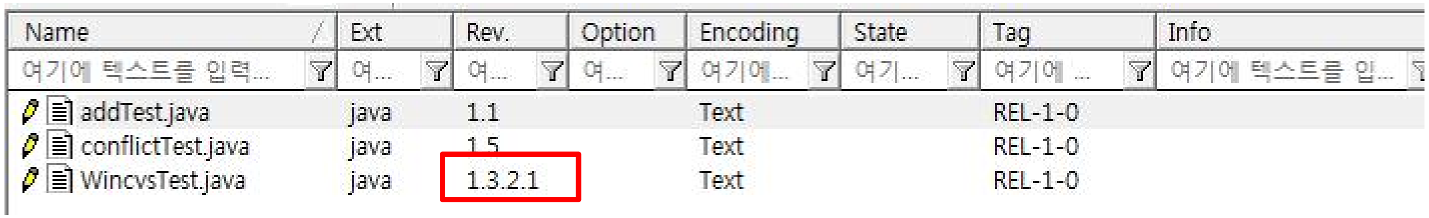
Branch

- Trunk WincvsTest.java commit



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입력...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
addTest.java	java	1.1		Text			
conflictTest.java	java	1.5		Text			
WincvsTest.java	java	1.4		Text			

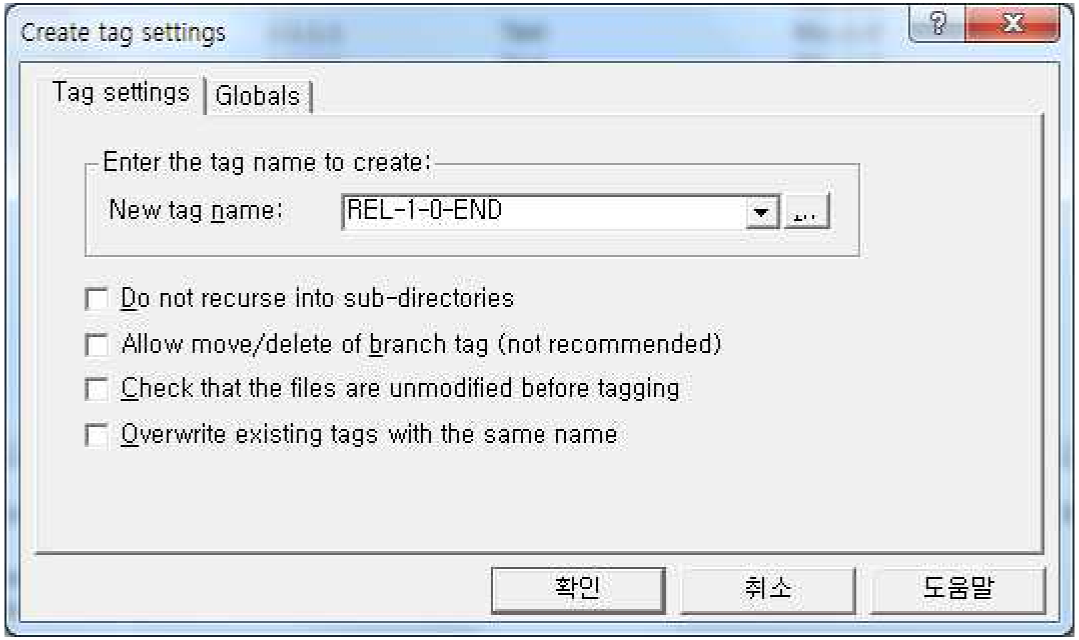
- Branch의 WincvsTest.java commit



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입력...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
addTest.java	java	1.1		Text		REL-1-0	
conflictTest.java	java	1.5		Text		REL-1-0	
WincvsTest.java	java	1.3.2.1		Text		REL-1-0	

Merge Branch

❖ Tagging Final Branch



Enter the tag name to create:

New tag name: REL-1-0-END

□ Do not recurse into sub-directories

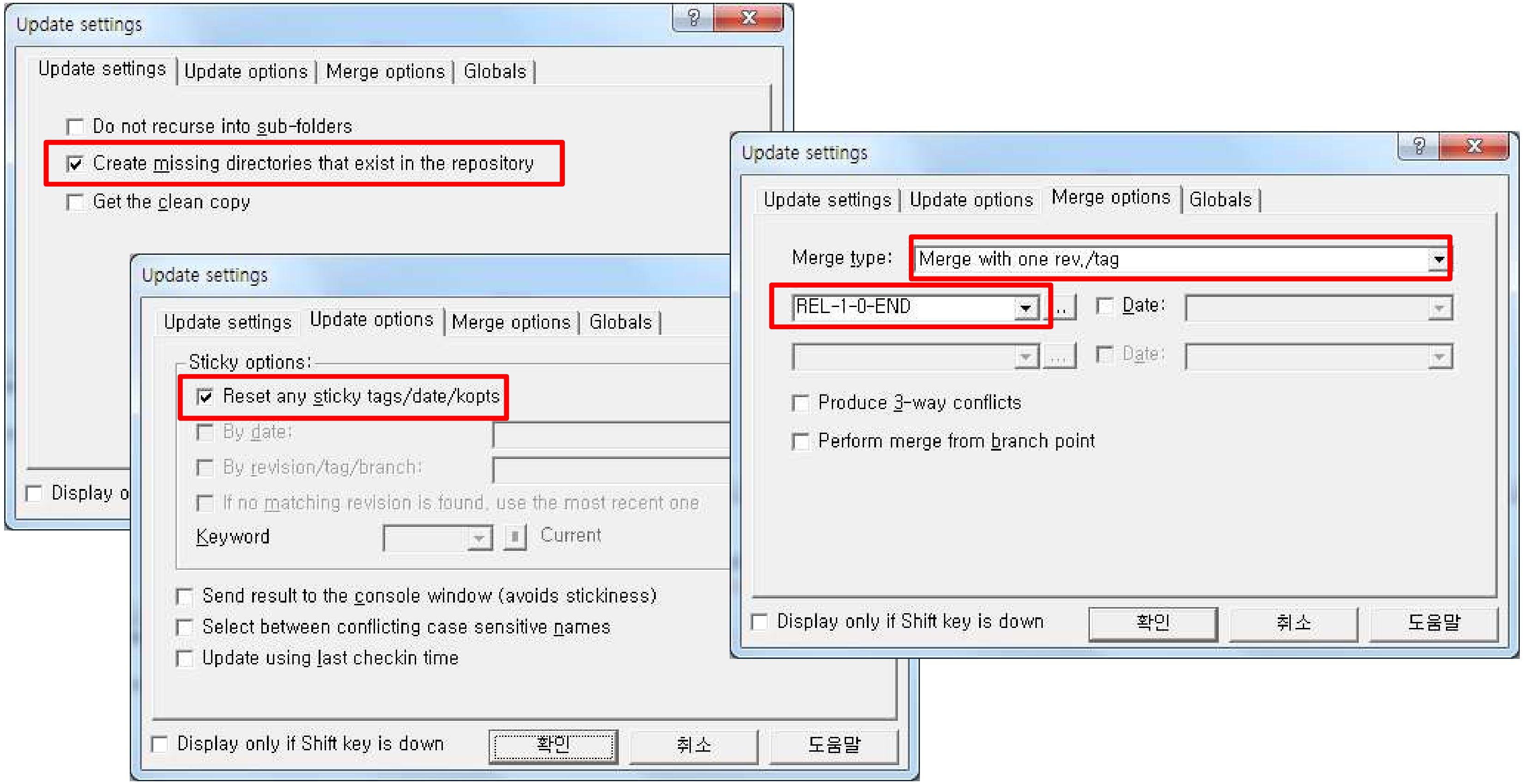
□ Allow move/delete of branch tag (not recommended)

□ Check that the files are unmodified before tagging

□ Overwrite existing tags with the same name

Merge Branch

❖ Trunk Update



Update settings

Update settings | Update options | Merge options | Globals

□ Do not recurse into sub-folders

☑ Create missing directories that exist in the repository

□ Get the clean copy

□ Display o

Update settings

Update settings | Update options | Merge options | Globals

Sticky options:

☑ Reset any sticky tags/date/kopts

□ By date:

□ By revision/tag/branch:

□ If no matching revision is found, use the most recent one

Keyword Current

□ Send result to the console window (avoids stickiness)

□ Select between conflicting case sensitive names

□ Update using last checkin time

□ Display only if Shift key is down

확인 | 취소 | 도움말

Update settings

Update settings | Update options | Merge options | Globals

Merge type: Merge with one rev./tag

REL-1-0-END ... □ Date:

... □ Date:

□ Produce 3-way conflicts

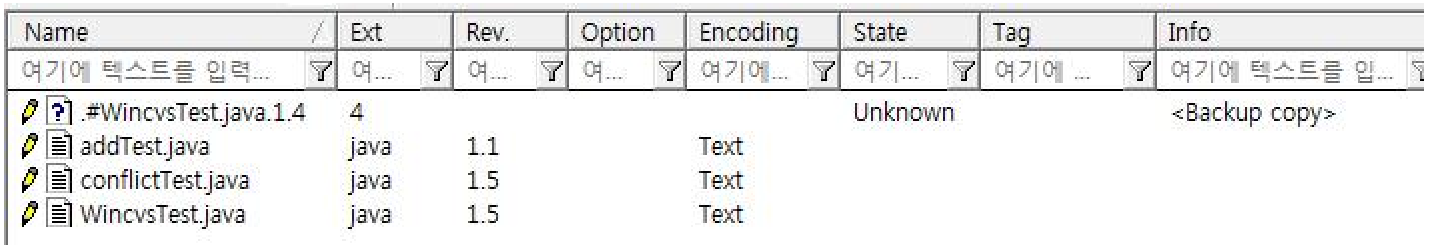
□ Perform merge from branch point

□ Display only if Shift key is down

확인 | 취소 | 도움말

Merge Branch

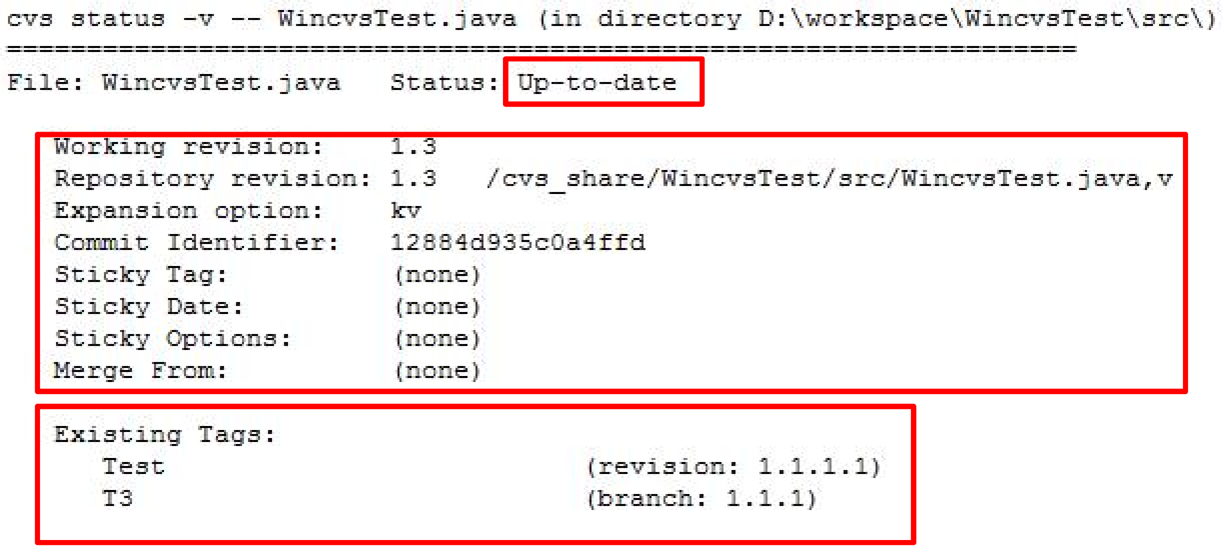
- ❖ Merge check and commit



Name	Ext	Rev.	Option	Encoding	State	Tag	Info
여기에 텍스트를 입력...	여...	여...	여...	여기에...	여기...	여기에 ...	여기에 텍스트를 입...
.#WincvsTest.java.1.4	4				Unknown		<Backup copy>
addTest.java	java	1.1		Text			
conflictTest.java	java	1.5		Text			
WincvsTest.java	java	1.5		Text			

Status

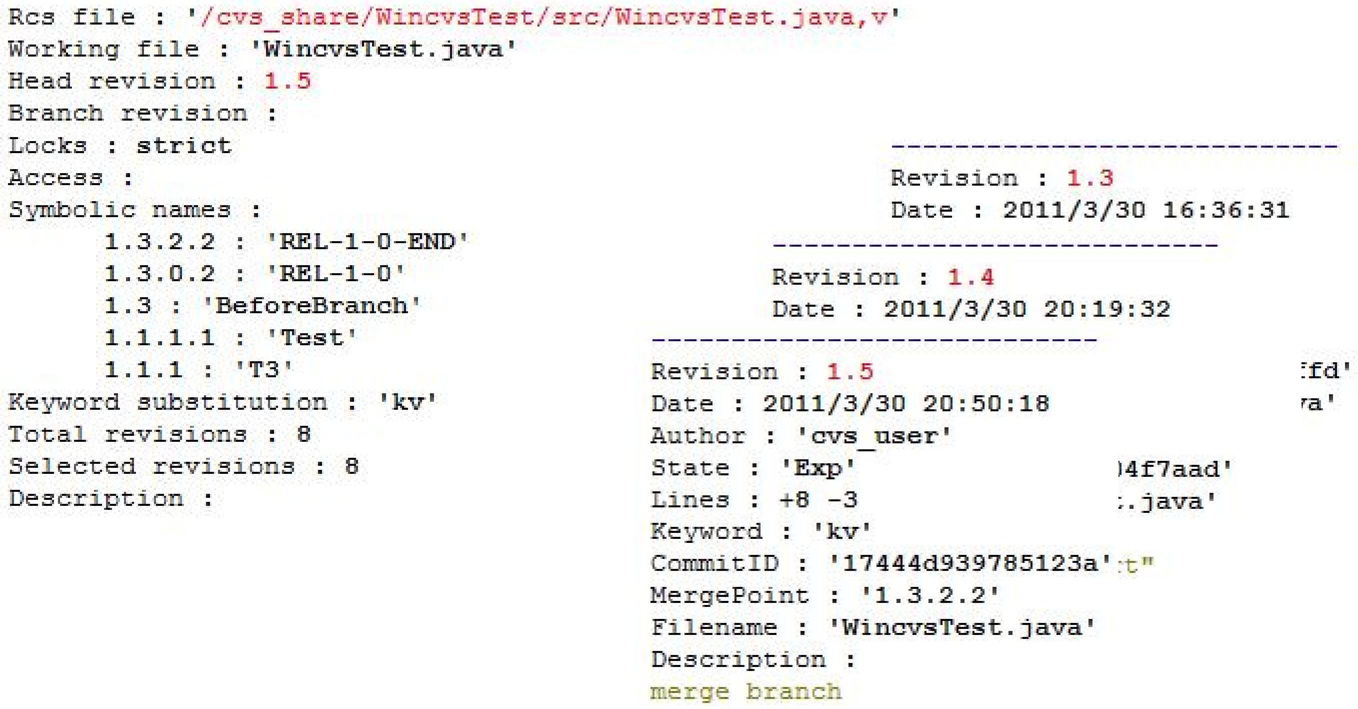
- Query>Status
  - File status, revision, tag



```
cvs status -v -- WincvsTest.java (in directory D:\workspace\WincvsTest\src\)
====================================================================
File: WincvsTest.java   Status: Up-to-date

   Working revision:    1.3
   Repository revision: 1.3   /cvs_share/WincvsTest/src/WincvsTest.java,v
   Expansion option:    kv
   Commit Identifier:   12884d935c0a4ffd
   Sticky Tag:          (none)
   Sticky Date:         (none)
   Sticky Options:      (none)
   Merge From:          (none)

   Existing Tags:
      Test                           (revision: 1.1.1.1)
      T3                             (branch: 1.1.1)
```

Log

- Query>Log
  - entire revision and each revisions information



```
Rcs file : '/cvs_share/WincvsTest/src/WincvsTest.java,v'
Working file : 'WincvsTest.java'
Head revision : 1.5
Branch revision :
Locks : strict
Access :
Symbolic names :
      1.3.2.2 : 'REL-1-0-END'
      1.3.0.2 : 'REL-1-0'
      1.3 : 'BeforeBranch'
      1.1.1.1 : 'Test'
      1.1.1 : 'T3'
Keyword substitution : 'kv'
Total revisions : 8
Selected revisions : 8
Description :
```

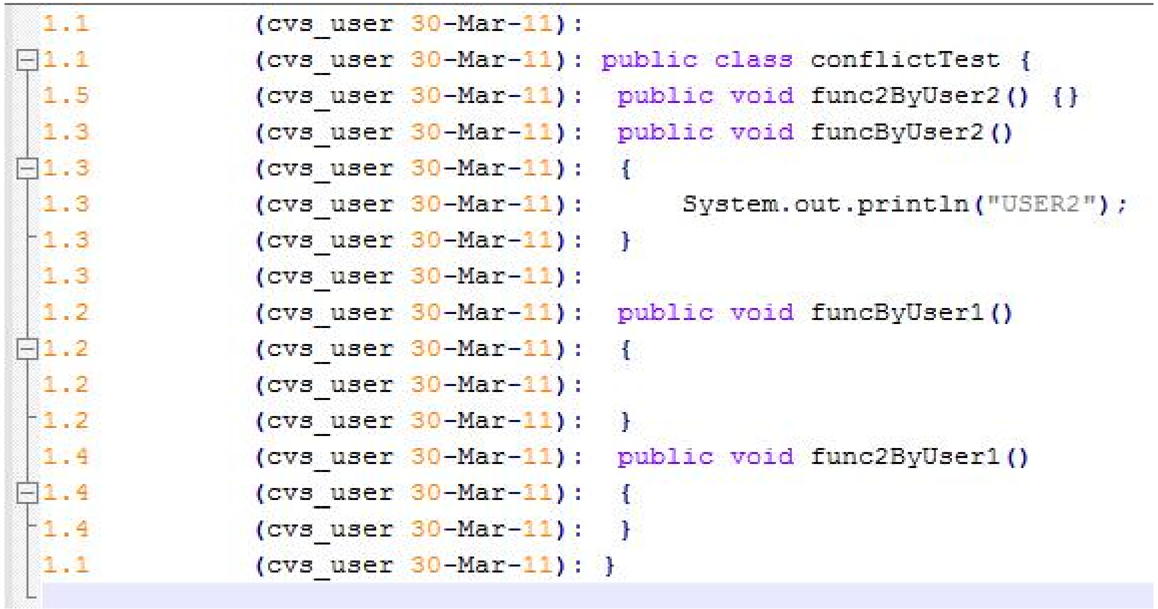
```
----------------------------
Revision : 1.3
Date : 2011/3/30 16:36:31
                                  :fd'
                                  ra'
```

```
----------------------------
Revision : 1.4
Date : 2011/3/30 20:19:32
                            )4f7aad'
                            :.java'
```

```
----------------------------
Revision : 1.5
Date : 2011/3/30 20:50:18
Author : 'cvs_user'
State : 'Exp'
Lines : +8 -3
Keyword : 'kv'
CommitID : '17444d939785123a':t"
MergePoint : '1.3.2.2'
Filename : 'WincvsTest.java'
Description :
merge branch
```

Annotate

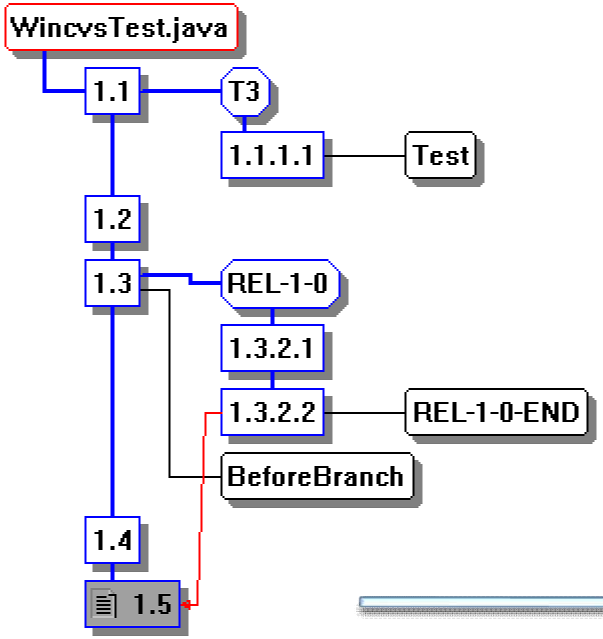
- Query>Annotate
  - Each lines revision & author & date



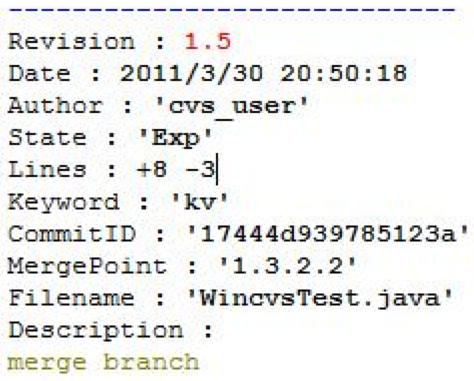
```
1.1          (cvs_user 30-Mar-11):
1.1          (cvs_user 30-Mar-11): public class conflictTest {
1.5          (cvs_user 30-Mar-11):  public void func2ByUser2() {}
1.3          (cvs_user 30-Mar-11):  public void funcByUser2()
1.3          (cvs_user 30-Mar-11):  {
1.3          (cvs_user 30-Mar-11):      System.out.println("USER2");
1.3          (cvs_user 30-Mar-11):  }
1.3          (cvs_user 30-Mar-11):
1.2          (cvs_user 30-Mar-11):  public void funcByUser1()
1.2          (cvs_user 30-Mar-11):  {
1.2          (cvs_user 30-Mar-11):
1.2          (cvs_user 30-Mar-11):  }
1.4          (cvs_user 30-Mar-11):  public void func2ByUser1()
1.4          (cvs_user 30-Mar-11):  {
1.4          (cvs_user 30-Mar-11):  }
1.1          (cvs_user 30-Mar-11): }
```

Graph

- Query> Graph
  - Tree structure of file revision, branch and tag



Print information in case of click



```
----------------------------
Revision : 1.5
Date : 2011/3/30 20:50:18
Author : 'cvs_user'
State : 'Exp'
Lines : +8 -3
Keyword : 'kv'
CommitID : '17444d939785123a'
MergePoint : '1.3.2.2'
Filename : 'WincvsTest.java'
Description :
merge branch
```

Subclipse

about Subclipse

- Subclipse?? Subversion + eclipse !!
  - Subversion plug-in for Eclipse IDE
  - Don’t need to download separately Subversion
  - Can use with test plug-in such as JUnit

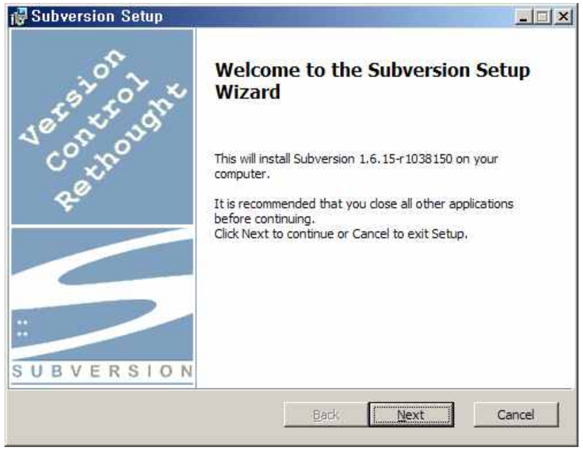
about Subclipse

❖ character of Subclipse

- Support separate organization without reducing efficiency and response time
- As well as whether or not to exist file and file contents , manage version about directory, a copy and modifying name
- Possible to Branch and make tag regardless of branch and tag size
- Exact atomic commit. Not reflected some of commit until completely success to commit

Examples of Operation

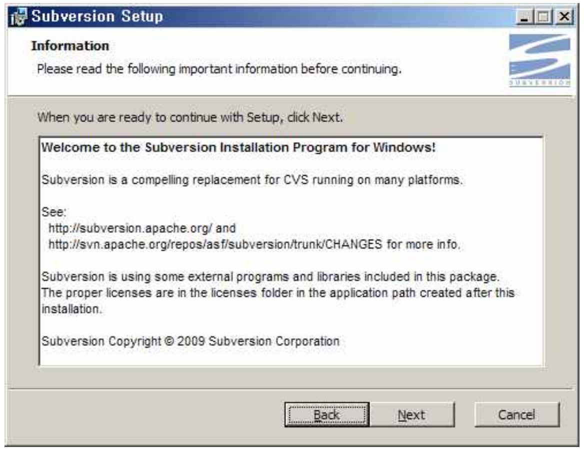
❖ install of subversion



Welcome to the Subversion Setup Wizard

This will install Subversion 1.6.15-r1038150 on your computer.

It is recommended that you close all other applications before continuing.
Click Next to continue or Cancel to exit Setup.



Information

Please read the following important information before continuing.

When you are ready to continue with Setup, click Next.

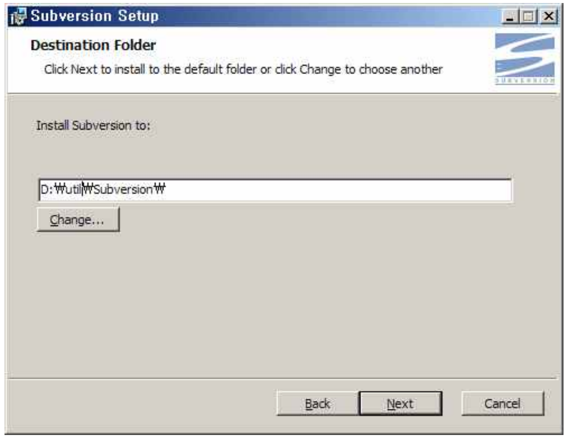
Welcome to the Subversion Installation Program for Windows!

Subversion is a compelling replacement for CVS running on many platforms.

See:
http://subversion.apache.org/ and
http://svn.apache.org/repos/asf/subversion/trunk/CHANGES for more info.

Subversion is using some external programs and libraries included in this package.
The proper licenses are in the licenses folder in the application path created after this installation.

Subversion Copyright © 2009 Subversion Corporation

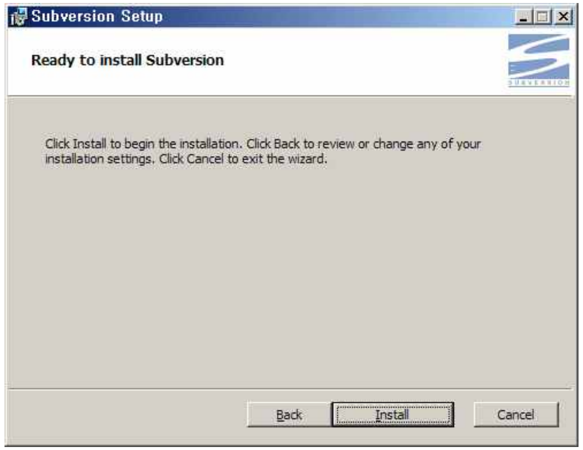


Destination Folder

Click Next to install to the default folder or click Change to choose another

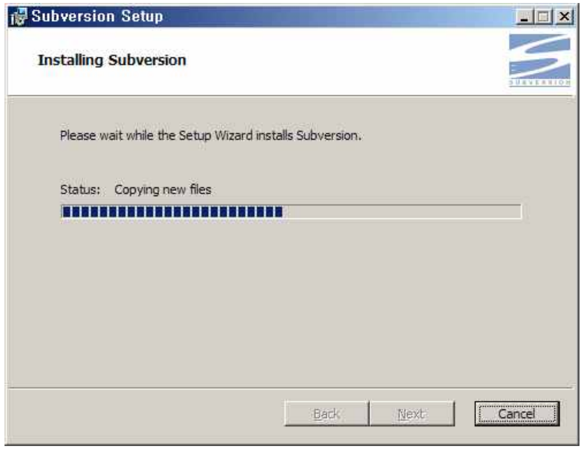
Install Subversion to:

D:₩util₩Subversion₩



Ready to install Subversion

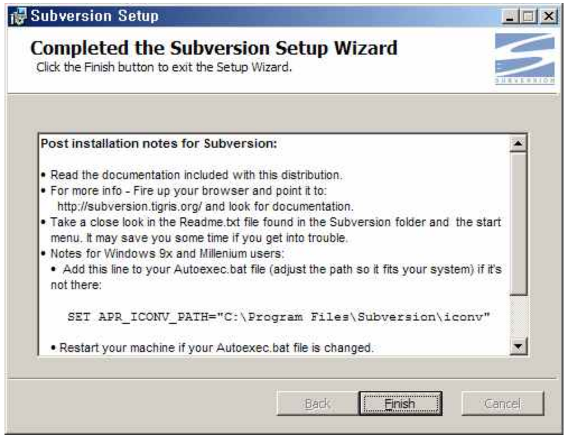
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.



Installing Subversion

Please wait while the Setup Wizard installs Subversion.

Status: Copying new files



Completed the Subversion Setup Wizard

Click the Finish button to exit the Setup Wizard.

Post installation notes for Subversion:

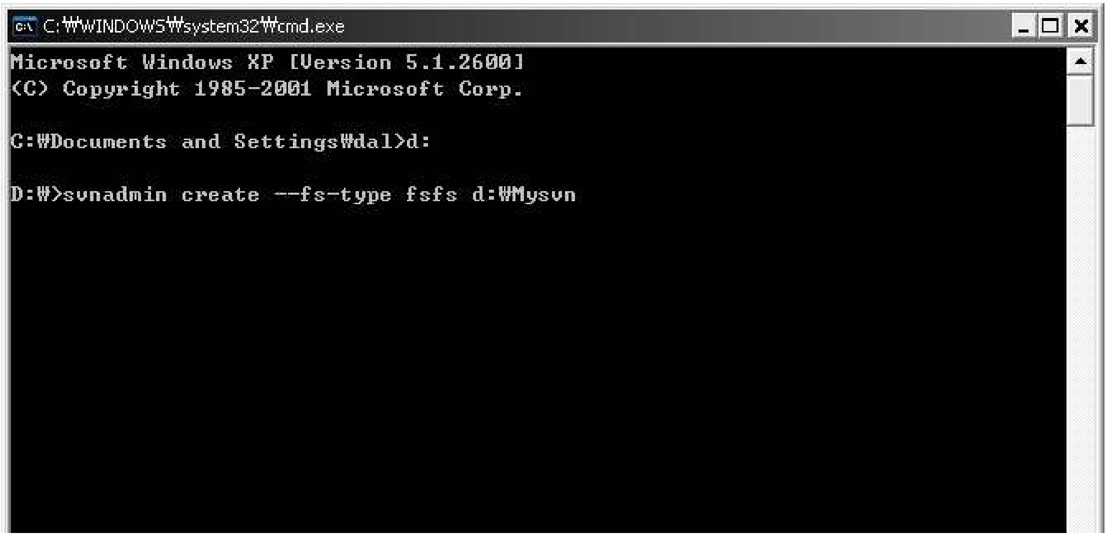
- Read the documentation included with this distribution.
- For more info - Fire up your browser and point it to:
  http://subversion.tigris.org/ and look for documentation.
- Take a close look in the Readme.txt file found in the Subversion folder and the start menu. It may save you some time if you get into trouble.
- Notes for Windows 9x and Millenium users:
  - Add this line to your Autoexec.bat file (adjust the path so it fits your system) if it's not there:

```
SET APR_ICONV_PATH="C:\Program Files\Subversion\iconv"
```

  - Restart your machine if your Autoexec.bat file is changed.

Examples of Operation

- setting of subversion



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:￦Documents and Settings￦dal>d:

D:￦>svnadmin create --fs-type fsfs d:￦Mysvn
```

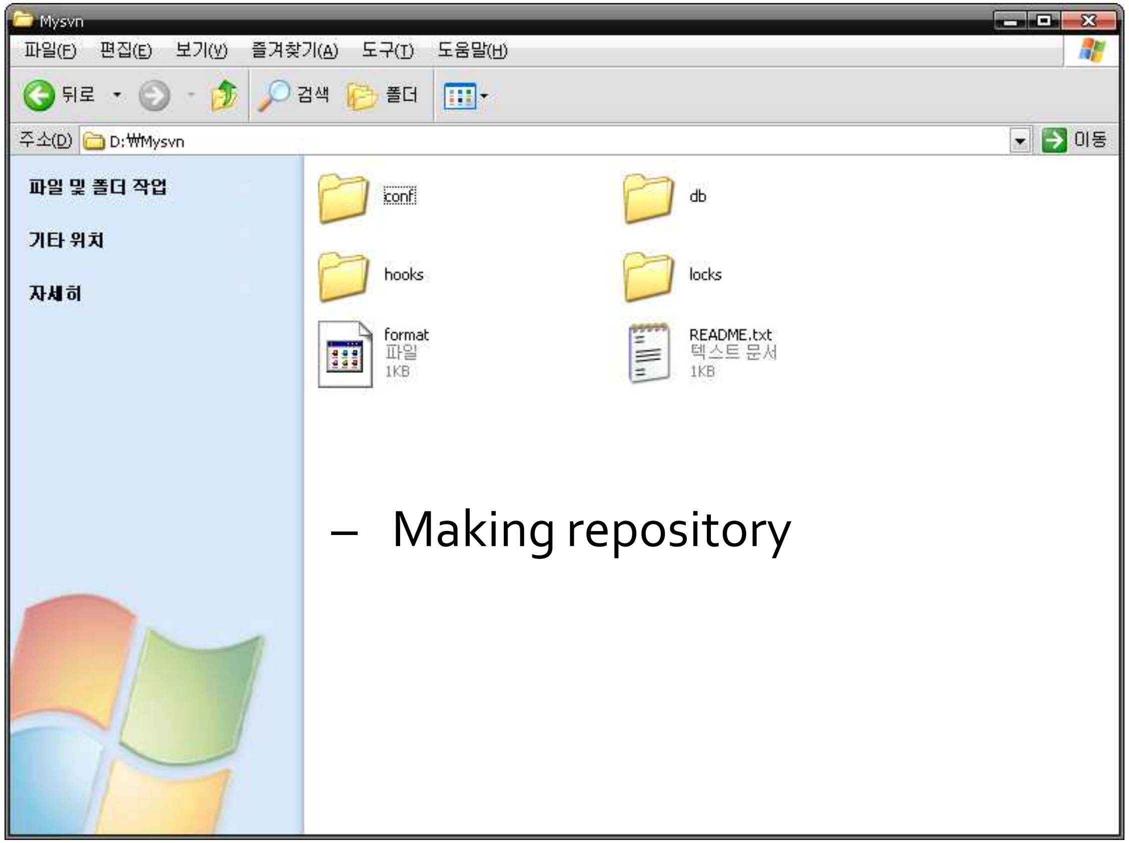
– Making repository

– fsfs : Method of saving a file in filesystem

(ex : FAT32, NTFS, etc.)

Examples of Operation

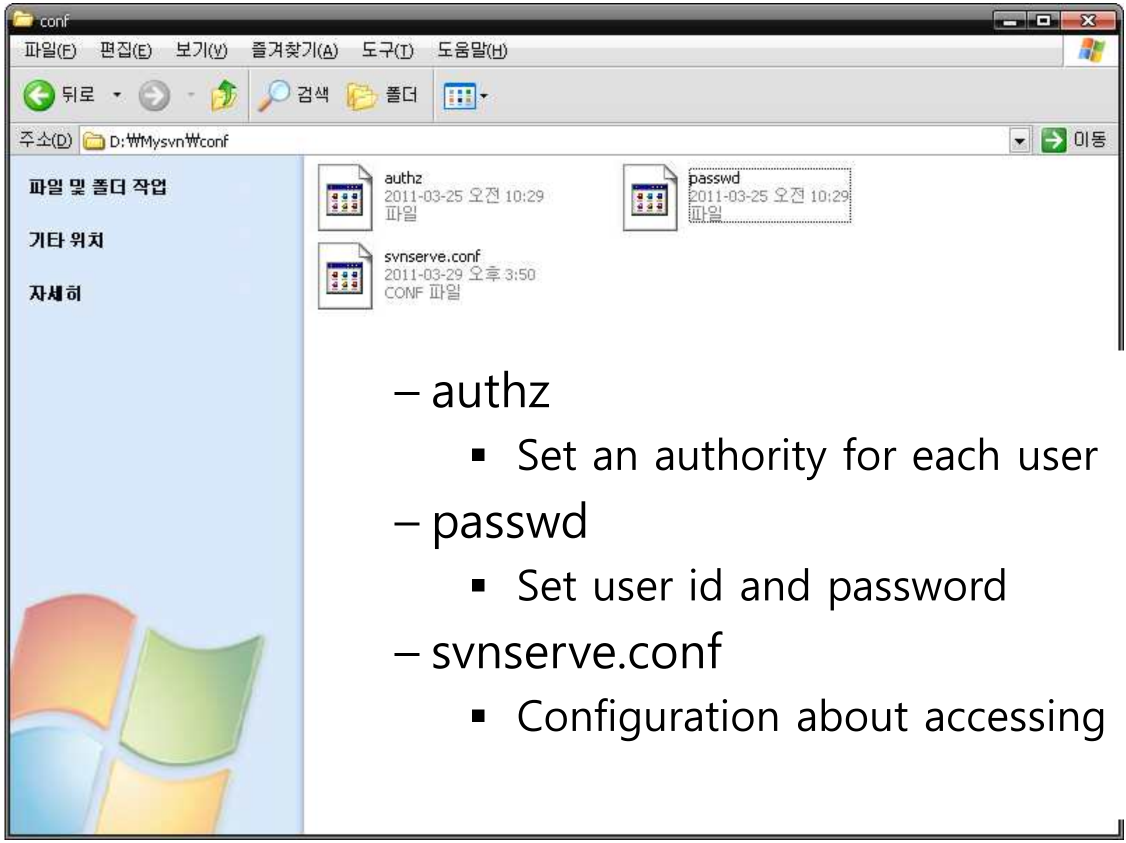
❖ setting of subversion



– Making repository

Examples of Operation

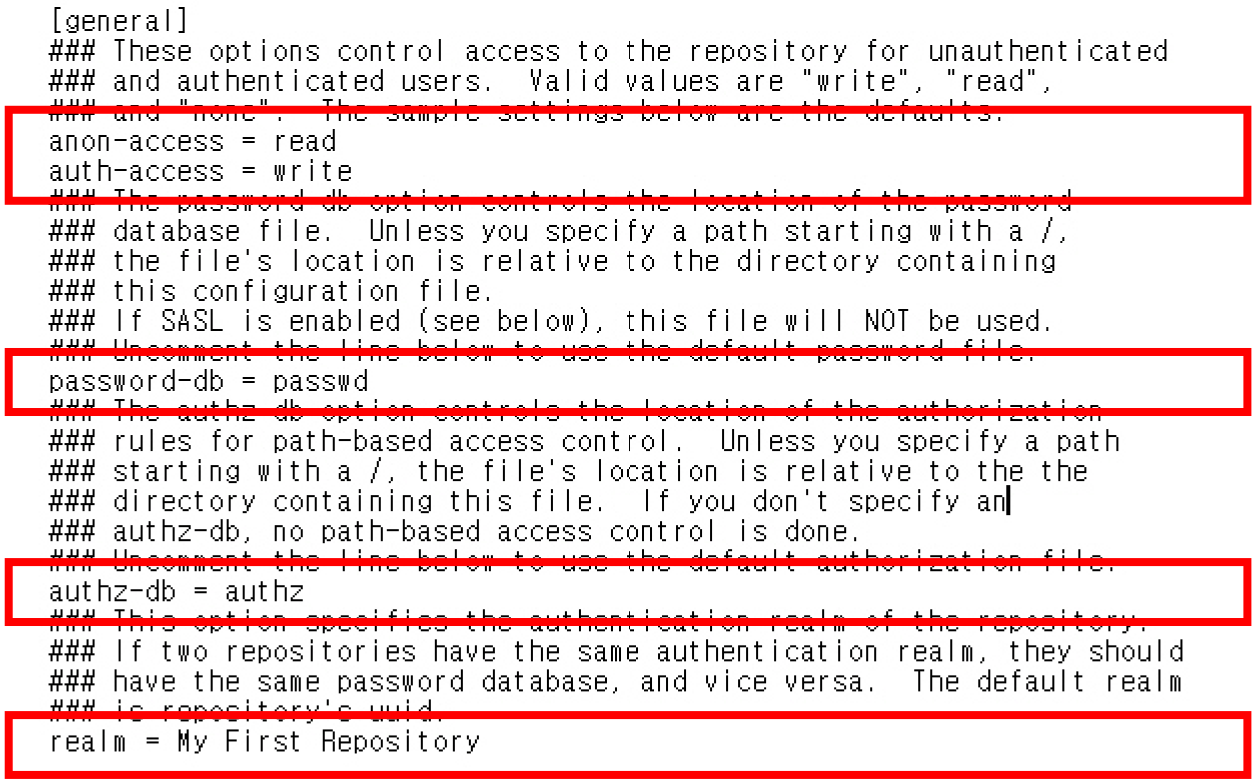
❖ setting of subversion



- authz
  - Set an authority for each user
- passwd
  - Set user id and password
- svnserve.conf
  - Configuration about accessing repository

Examples of Operation

- setting of subversion
  - svnserve.conf



```
[general]
### These options control access to the repository for unauthenticated
### and authenticated users.  Valid values are "write", "read",
### and "none".  The sample settings below are the defaults.
anon-access = read
auth-access = write
### The password-db option controls the location of the password
### database file.  Unless you specify a path starting with a /,
### the file's location is relative to the directory containing
### this configuration file.
### If SASL is enabled (see below), this file will NOT be used.
### Uncomment the line below to use the default password file.
password-db = passwd
### The authz-db option controls the location of the authorization
### rules for path-based access control.  Unless you specify a path
### starting with a /, the file's location is relative to the the
### directory containing this file.  If you don't specify an
### authz-db, no path-based access control is done.
### Uncomment the line below to use the default authorization file.
authz-db = authz
### This option specifies the authentication realm of the repository.
### If two repositories have the same authentication realm, they should
### have the same password database, and vice versa.  The default realm
### is repository's uuid.
realm = My First Repository
```

Examples of Operation

- setting of subversion
  - svnserve.conf
    - anon-access = read
      - Set a permission for non-authorized user
    - auth-access = write
      - Set a permission for authorized user
    - password-db = passwd
      - Set a password file
    - authz-db = authz
      - Set a configuration file for path-based access limit
    - realm = My First Repository
      - Set authorized region for repository

Examples of Operation

- setting of subversion
  - passwd

```
[users]
# harry = harryssecret
# sally = sallyssecret
dal = we1234
```

  - authz

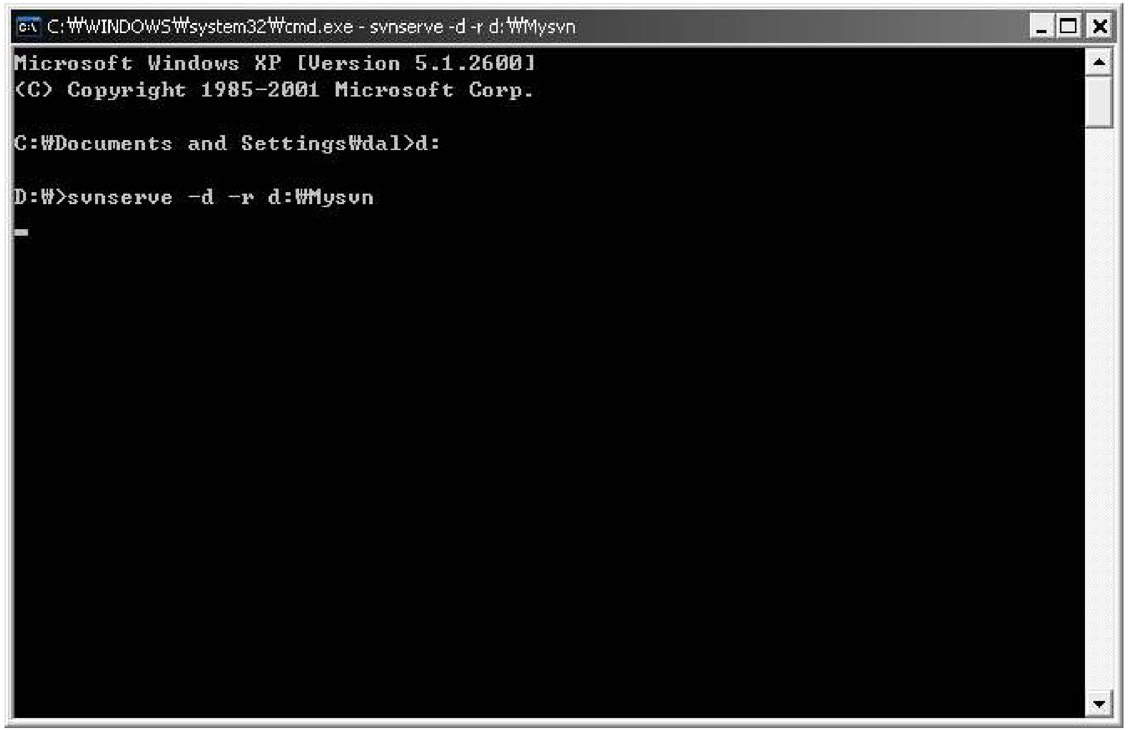
```
[/]
dal = rw
* = r
```

Examples of Operation

- setting of subversion
  - passwd
    - [users]
    - dal = we1234
    - User ID : dal, Password : we1234
  - authz
    - [/]
    - dal = rw
    - Specific user id = > Permission for specific user
    - * = r
    - * = > Permission for all users

Examples of Operation

❖ start svn server

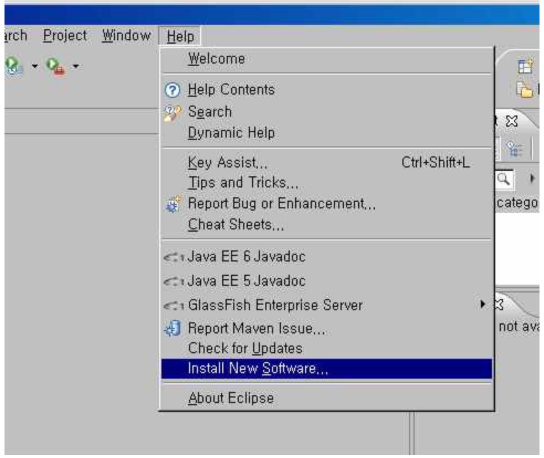


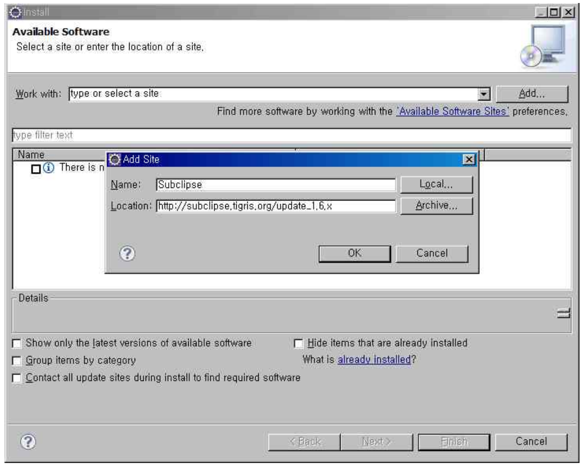
```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:₩Documents and Settings₩dal>d:

D:₩>svnserve -d -r d:₩Mysvn
_
```

– -d(--daemon): daemon mode / -r(--root) : set a repository

Examples of Operation

❖ install of subclipse





Install

Available Software

Select a site or enter the location of a site.

Work with: type or select a site

Find more software by working with the 'Available Software Sites' preferences.

type filter text

Name

□ There is n

Add Site

Name: Subclipse

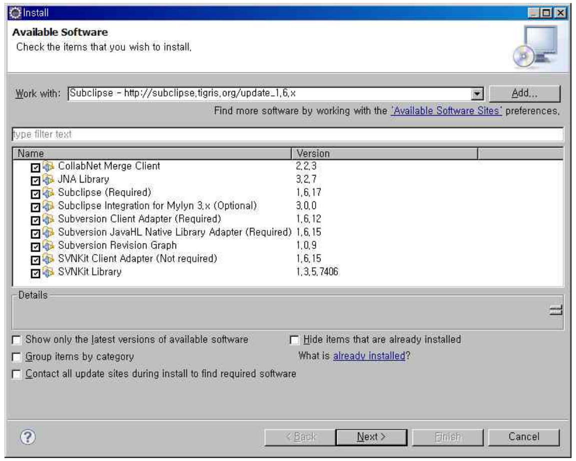
Location: http://subclipse.tigris.org/update_1.6.x

Details

□ Show only the latest versions of available software □ Hide items that are already installed

□ Group items by category What is already installed?

□ Contact all update sites during install to find required software



Install

Available Software

Check the items that you wish to install.

Work with: Subclipse - http://subclipse.tigris.org/update_1.6.x

Find more software by working with the 'Available Software Sites' preferences.

type filter text

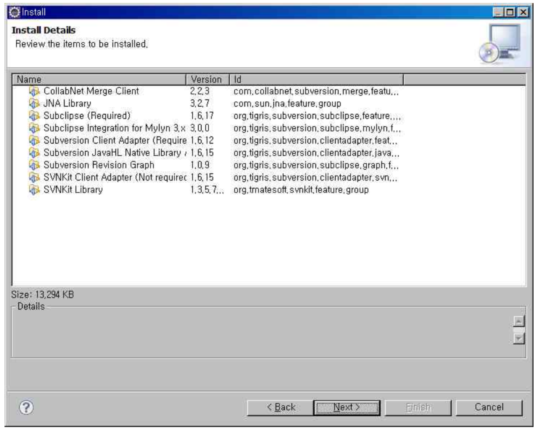
Name	Version
☑ CollabNet Merge Client	2.2.3
☑ JNA Library	3.2.7
☑ Subclipse (Required)	1.6.17
☑ Subclipse Integration for Mylyn 3.x (Optional)	3.0.0
☑ Subversion Client Adapter (Required)	1.6.12
☑ Subversion JavaHL Native Library Adapter (Required)	1.6.15
☑ Subversion Revision Graph	1.0.9
☑ SVNKit Client Adapter (Not required)	1.6.15
☑ SVNKit Library	1.3.5.7406

Details

□ Show only the latest versions of available software □ Hide items that are already installed

□ Group items by category What is already installed?

□ Contact all update sites during install to find required software



Install

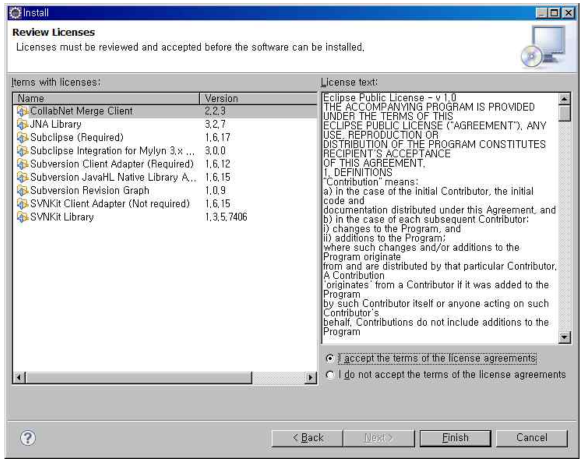
Install Details

Review the items to be installed.

Name	Version	Id
CollabNet Merge Client	2.2.3	com.collabnet.subversion.merge.featu...
JNA Library	3.2.7	com.sun.jna.feature.group
Subclipse (Required)	1.6.17	org.tigris.subversion.subclipse.feature....
Subclipse Integration for Mylyn 3.x	3.0.0	org.tigris.subversion.subclipse.mylyn.f...
Subversion Client Adapter (Require	1.6.12	org.tigris.subversion.clientadapter.feat...
Subversion JavaHL Native Library /	1.6.15	org.tigris.subversion.clientadapter.java...
Subversion Revision Graph	1.0.9	org.tigris.subversion.subclipse.graph.f...
SVNKit Client Adapter (Not requirec	1.6.15	org.tigris.subversion.clientadapter.svn...
SVNKit Library	1.3.5.7...	org.tmatesoft.svnkit.feature.group

Size: 13,294 KB

Details



Install

Review Licenses

Licenses must be reviewed and accepted before the software can be installed.

Items with licenses:

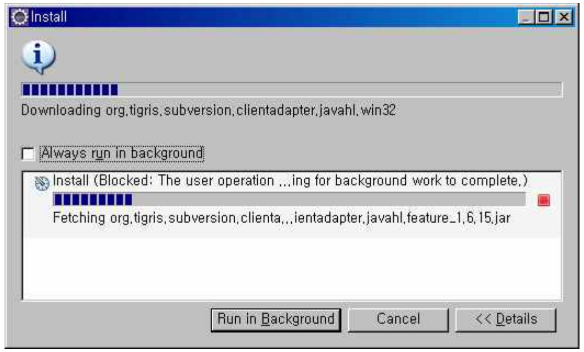
Name	Version
CollabNet Merge Client	2.2.3
JNA Library	3.2.7
Subclipse (Required)	1.6.17
Subclipse Integration for Mylyn 3.x ...	3.0.0
Subversion Client Adapter (Required)	1.6.12
Subversion JavaHL Native Library A...	1.6.15
Subversion Revision Graph	1.0.9
SVNKit Client Adapter (Not required)	1.6.15
SVNKit Library	1.3.5.7406

License text:

```
Eclipse Public License - v 1.0
THE ACCOMPANYING PROGRAM IS PROVIDED
UNDER THE TERMS OF THIS
ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY
USE, REPRODUCTION OR
DISTRIBUTION OF THE PROGRAM CONSTITUTES
RECIPIENT'S ACCEPTANCE
OF THIS AGREEMENT.
1. DEFINITIONS
"Contribution" means:
a) in the case of the initial Contributor, the initial
code and
documentation distributed under this Agreement, and
b) in the case of each subsequent Contributor:
i) changes to the Program, and
ii) additions to the Program;
where such changes and/or additions to the
Program originate
from and are distributed by that particular Contributor.
A Contribution
'originates' from a Contributor if it was added to the
Program
by such Contributor itself or anyone acting on such
Contributor's
behalf. Contributions do not include additions to the
Program
```

● I accept the terms of the license agreements

○ I do not accept the terms of the license agreements



Install

Downloading org.tigris.subversion.clientadapter.javahl.win32

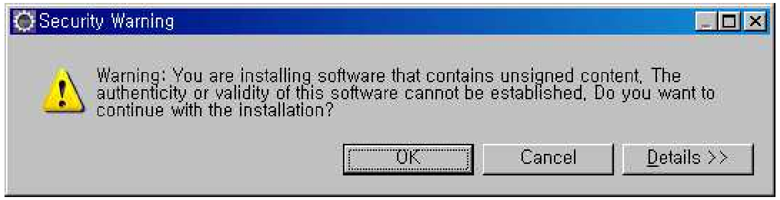
□ Always run in background

Install (Blocked: The user operation ...ing for background work to complete.)

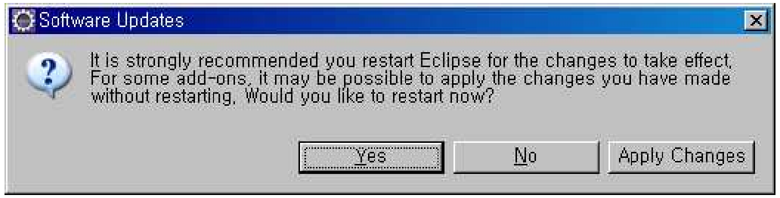
Fetching org.tigris.subversion.clienta...ientadapter.javahl.feature_1.6.15.jar

Examples of Operation

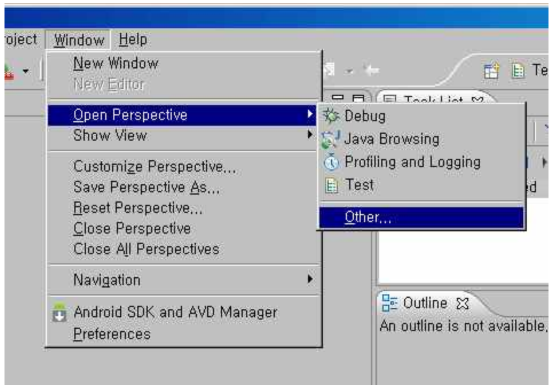
- install of subclipse



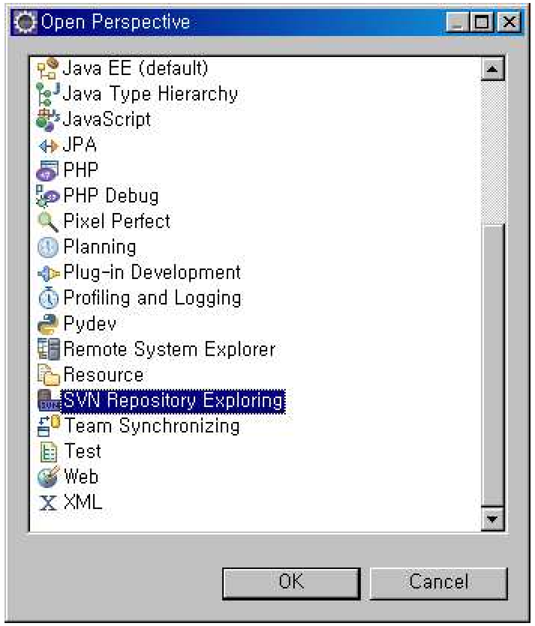
Warning: You are installing software that contains unsigned content. The authenticity or validity of this software cannot be established. Do you want to continue with the installation?

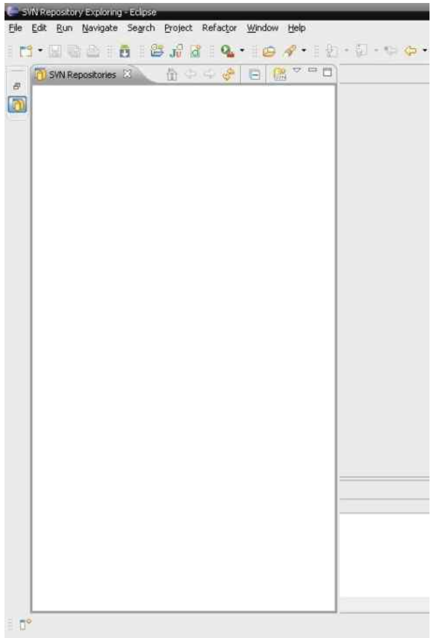


It is strongly recommended you restart Eclipse for the changes to take effect. For some add-ons, it may be possible to apply the changes you have made without restarting. Would you like to restart now?



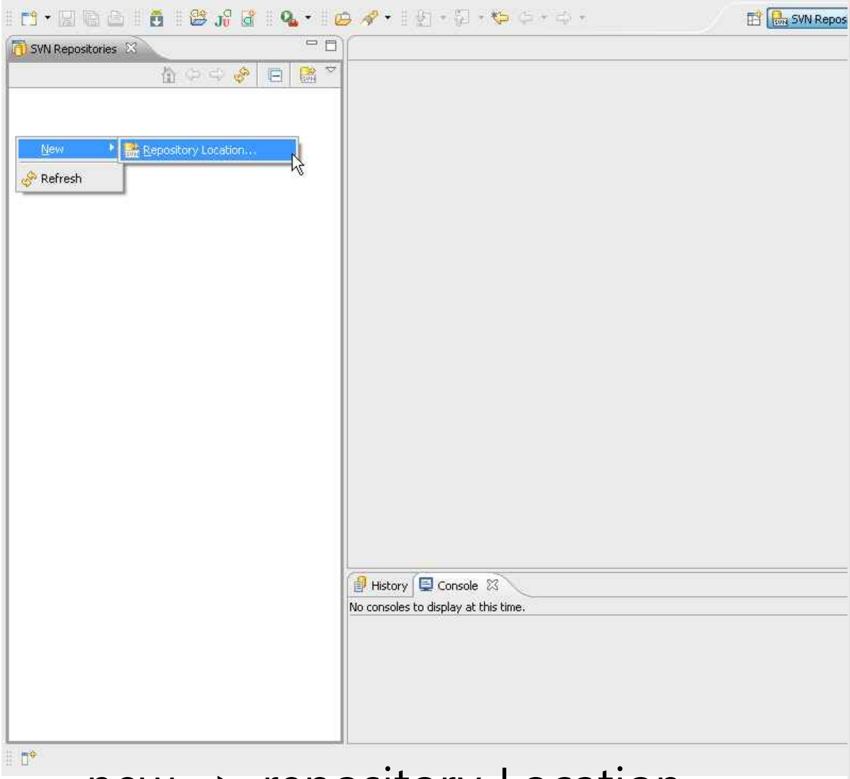
An outline is not available.



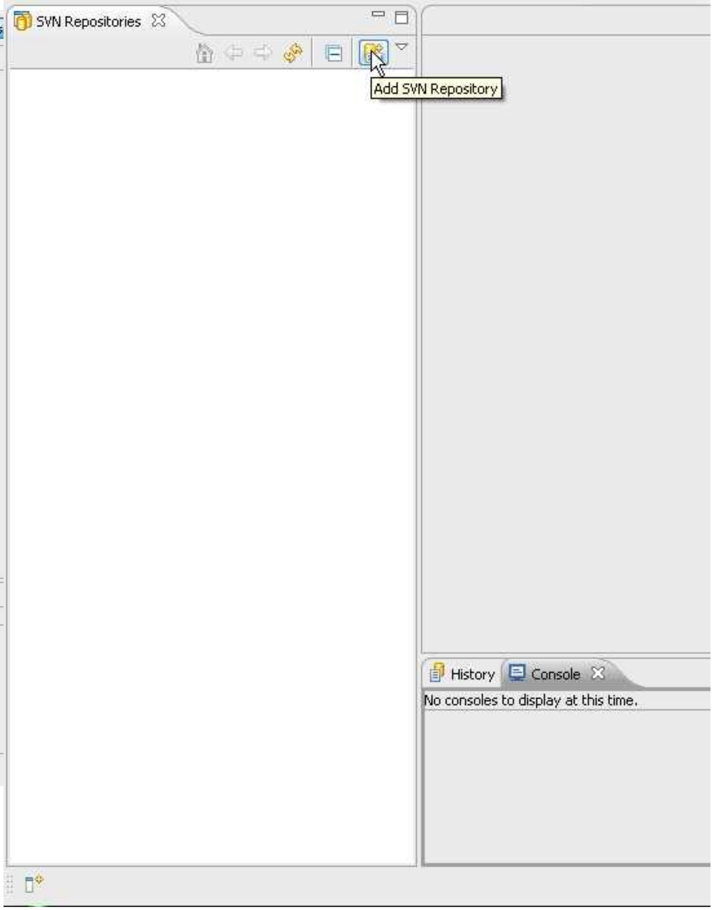


Examples of Operation

- setting of subclipse



No consoles to display at this time.

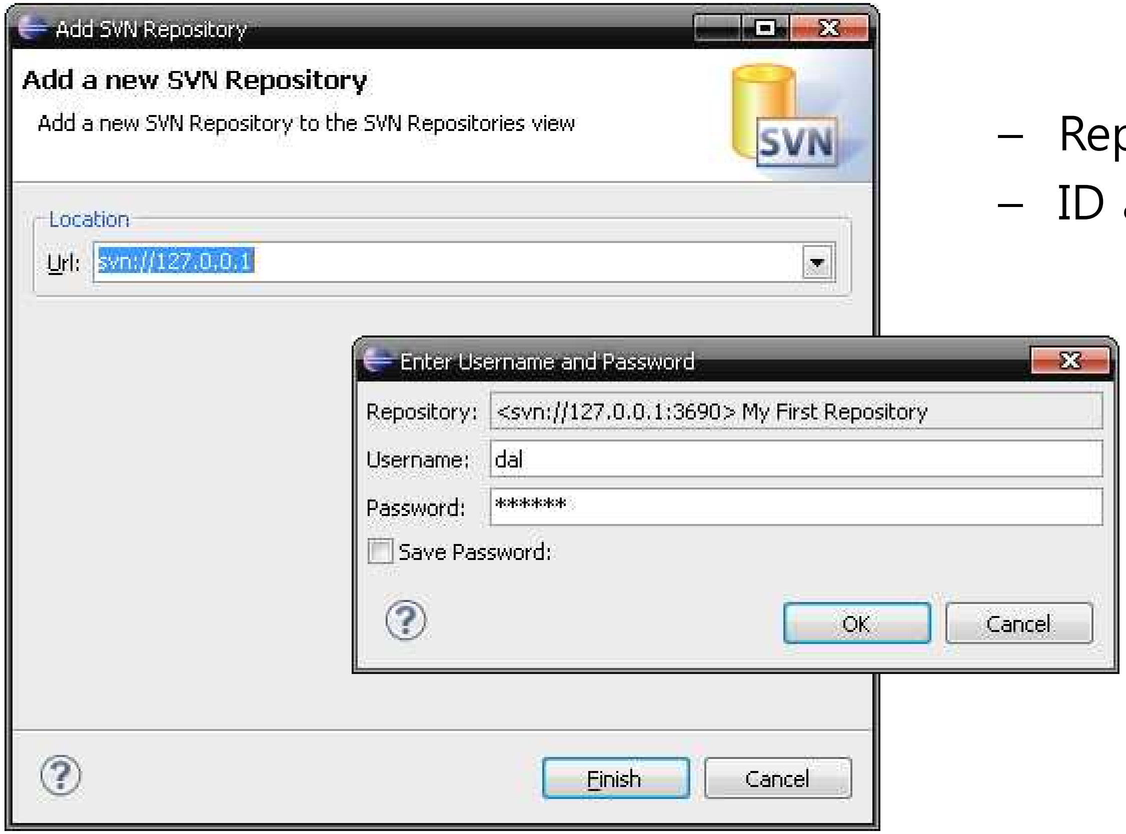


No consoles to display at this time.

  - new -> repository Location
  - "add SVN Repository"

Examples of Operation

❖ setting of subclipse



Add SVN Repository

Add a new SVN Repository

Add a new SVN Repository to the SVN Repositories view

Location

Url: svn://127.0.0.1

Enter Username and Password

Repository: <svn://127.0.0.1:3690> My First Repository

Username: dal

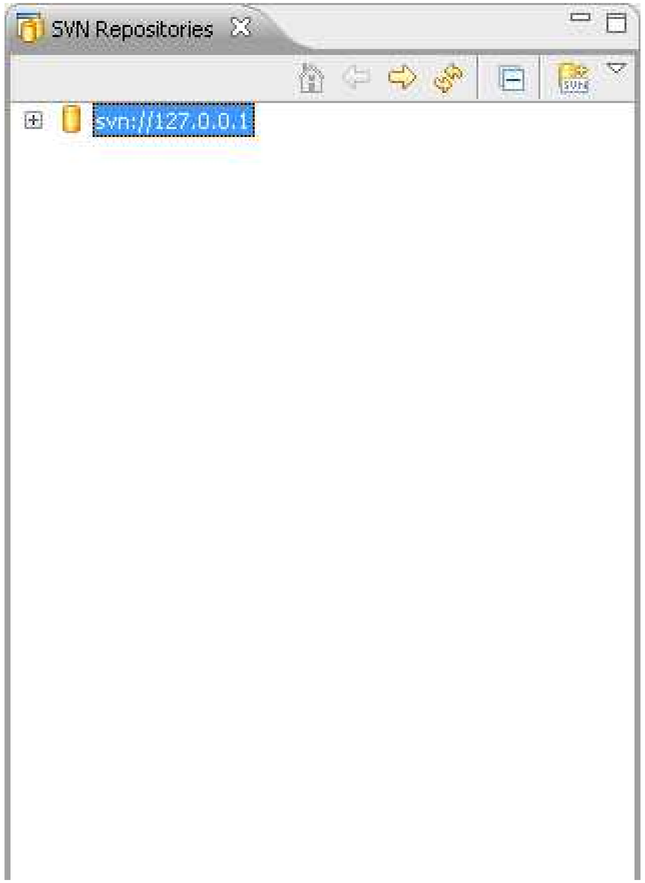
Password: *******

□ Save Password:

- Repository URL
- ID and password

Examples of Operation

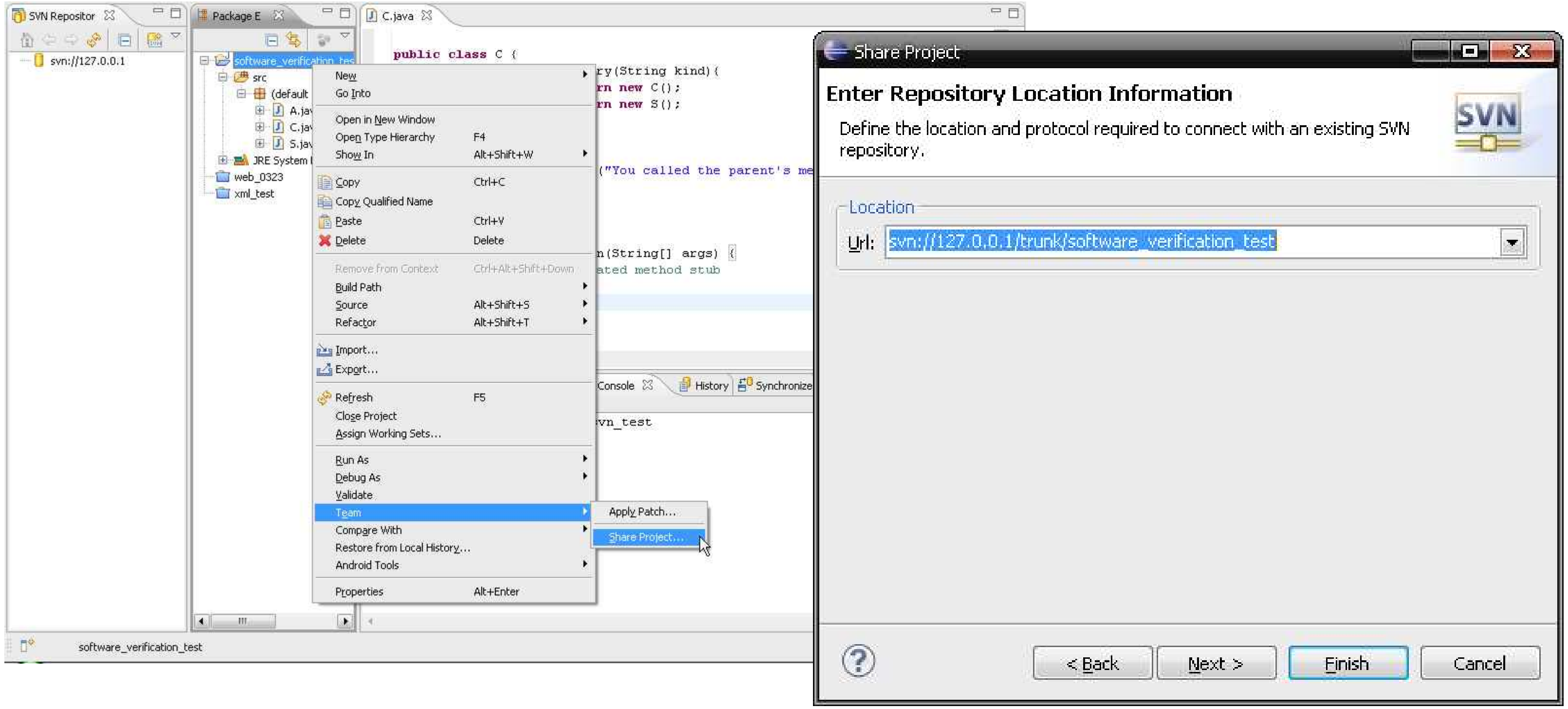
- setting of subclipse



- Repository registeration complete
- It is linked SVN, now

Examples of Operation

❖ share of project in svn



```
public class C {
ry(String kind){
rn new C();
rn new S();
("You called the parent's me
n(String[] args) {
ated method stub
vn_test
```

Enter Repository Location Information

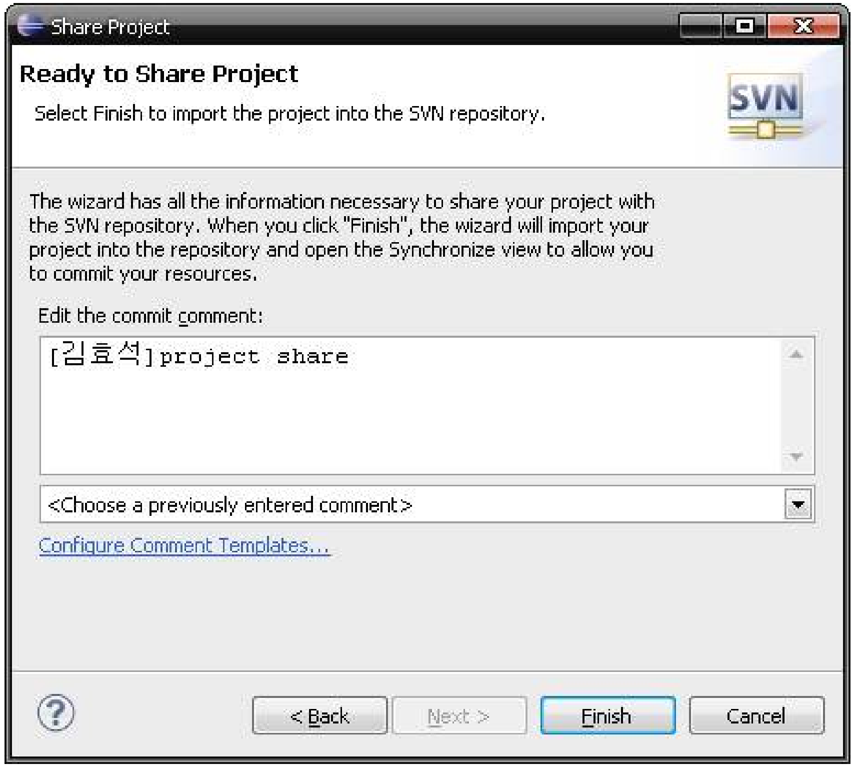
Define the location and protocol required to connect with an existing SVN repository.

Url: svn://127.0.0.1/trunk/software_verification_test

- local project > Team > Share project
- Set a Share path

Examples of Operation

❖ share of project in svn



Ready to Share Project

Select Finish to import the project into the SVN repository.

The wizard has all the information necessary to share your project with the SVN repository. When you click "Finish", the wizard will import your project into the repository and open the Synchronize view to allow you to commit your resources.

Edit the commit comment:

```
[김효석]project share
```

<Choose a previously entered comment>

Configure Comment Templates...

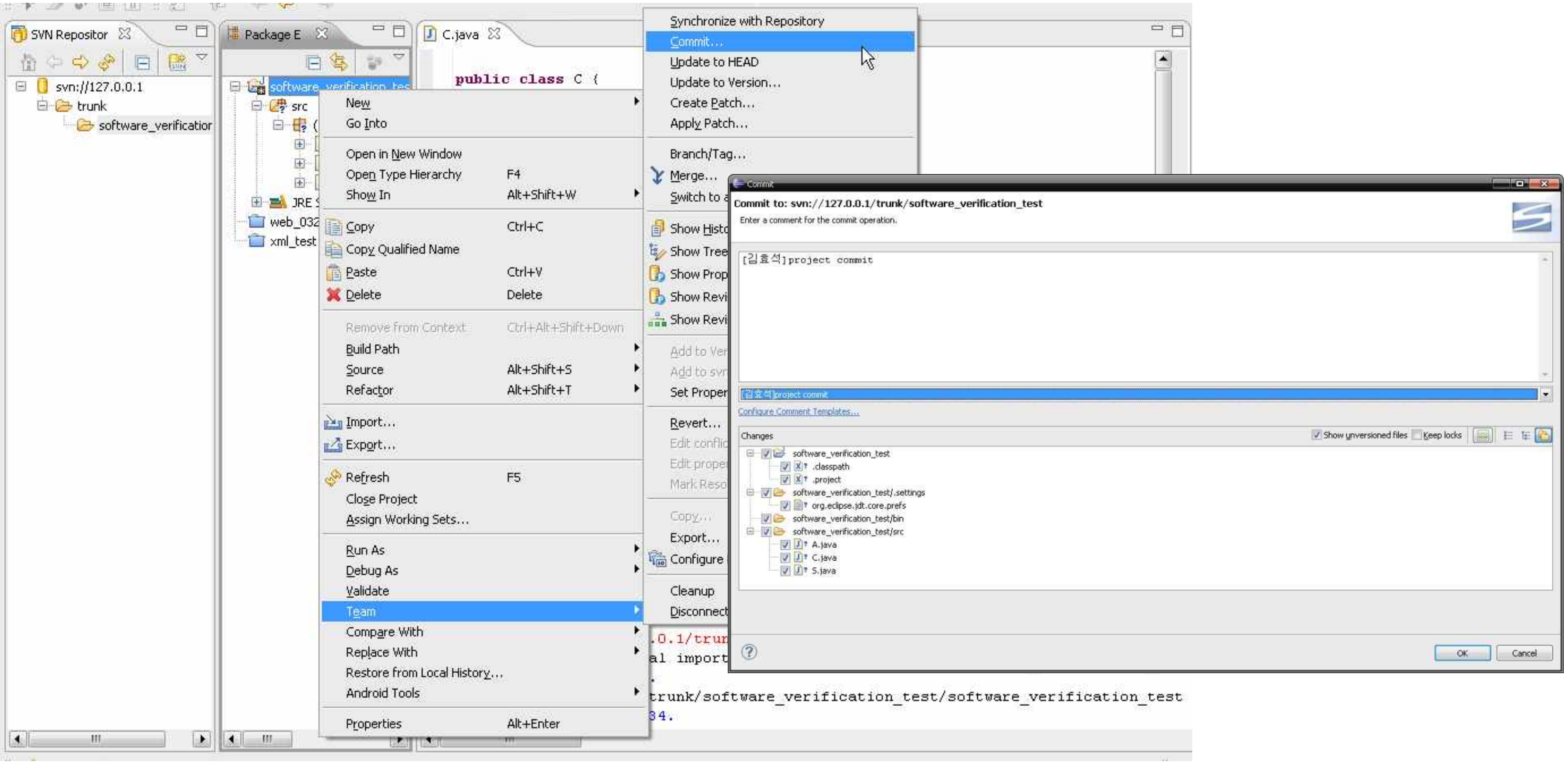
– Comment for project

– It is important.

Because you should know why this project is started.

Examples of Operation

❖ share of project in svn



Commit to: svn://127.0.0.1/trunk/software_verification_test

Enter a comment for the commit operation.

```
[김효석]project commit
```

[김효석]project commit

Configure Comment Templates...

Changes ☑ Show unversioned files □ Keep locks

- ☑ software_verification_test
  - ☑ .classpath
  - ☑ .project
- ☑ software_verification_test/.settings
  - ☑ org.eclipse.jdt.core.prefs
- ☑ software_verification_test/bin
- ☑ software_verification_test/src
  - ☑ A.java
  - ☑ C.java
  - ☑ S.java

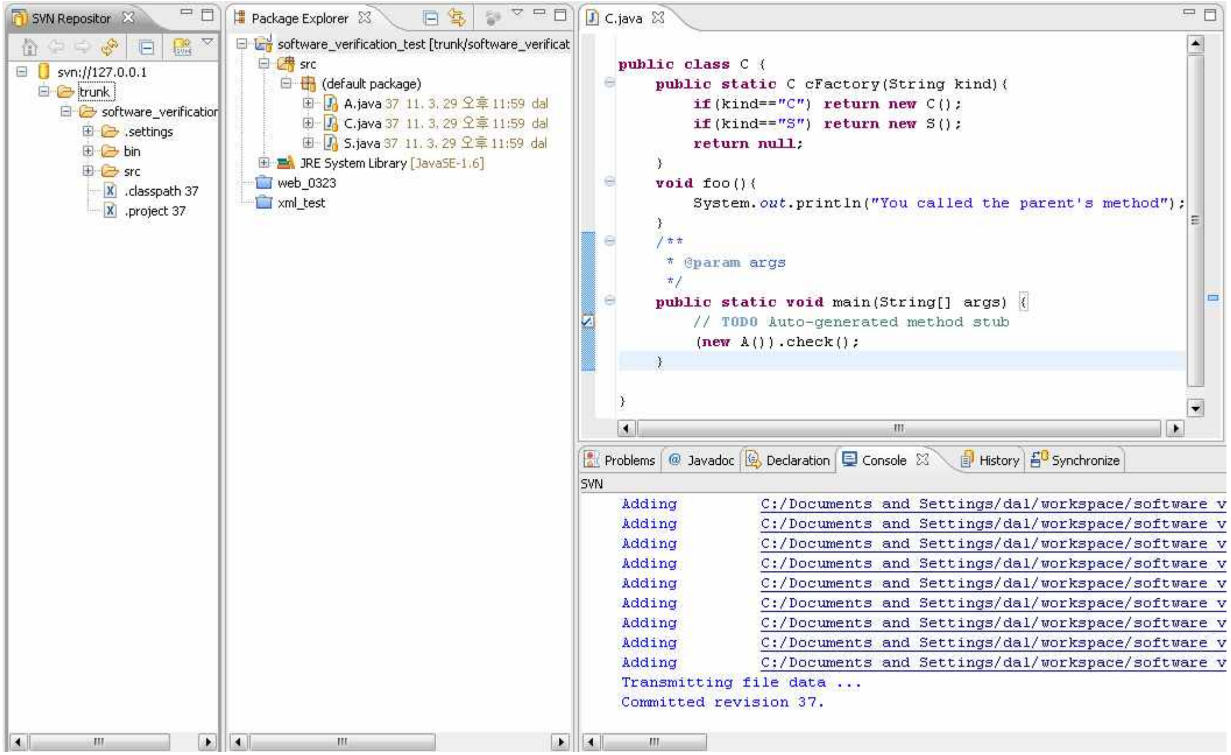
OK Cancel

– local project > Team > commit

– Comment for commit

Examples of Operation

❖ share of project in svn



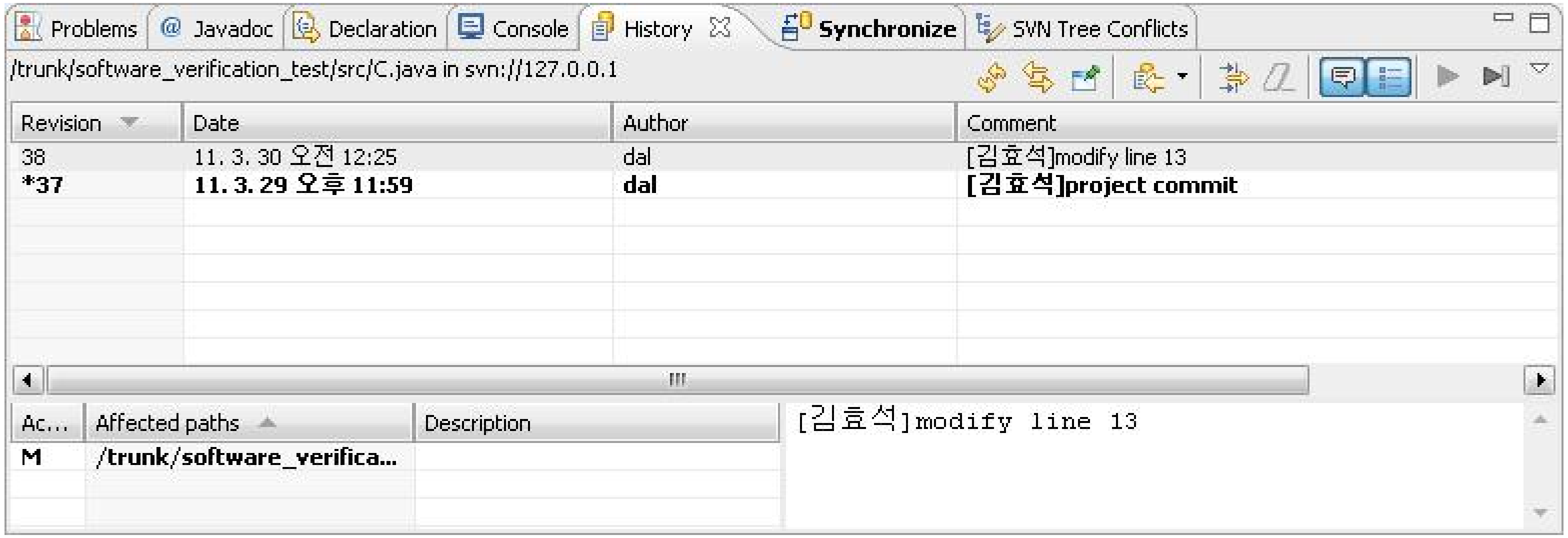
```java
public class C {
    public static C cFactory(String kind){
        if(kind=="C") return new C();
        if(kind=="S") return new S();
        return null;
    }
    void foo(){
        System.out.println("You called the parent's method");
    }
    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        (new A()).check();
    }

}
```

```
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Adding          C:/Documents and Settings/dal/workspace/software v
    Transmitting file data ...
    Committed revision 37.
```

- commit is completed
- You can use source registered SVN

Examples of Operation

❖ history of code



/trunk/software_verification_test/src/C.java in svn://127.0.0.1

Revision	Date	Author	Comment
38	11. 3. 30 오전 12:25	dal	[김효석]modify line 13
***37**	**11. 3. 29 오후 11:59**	**dal**	**[김효석]project commit**

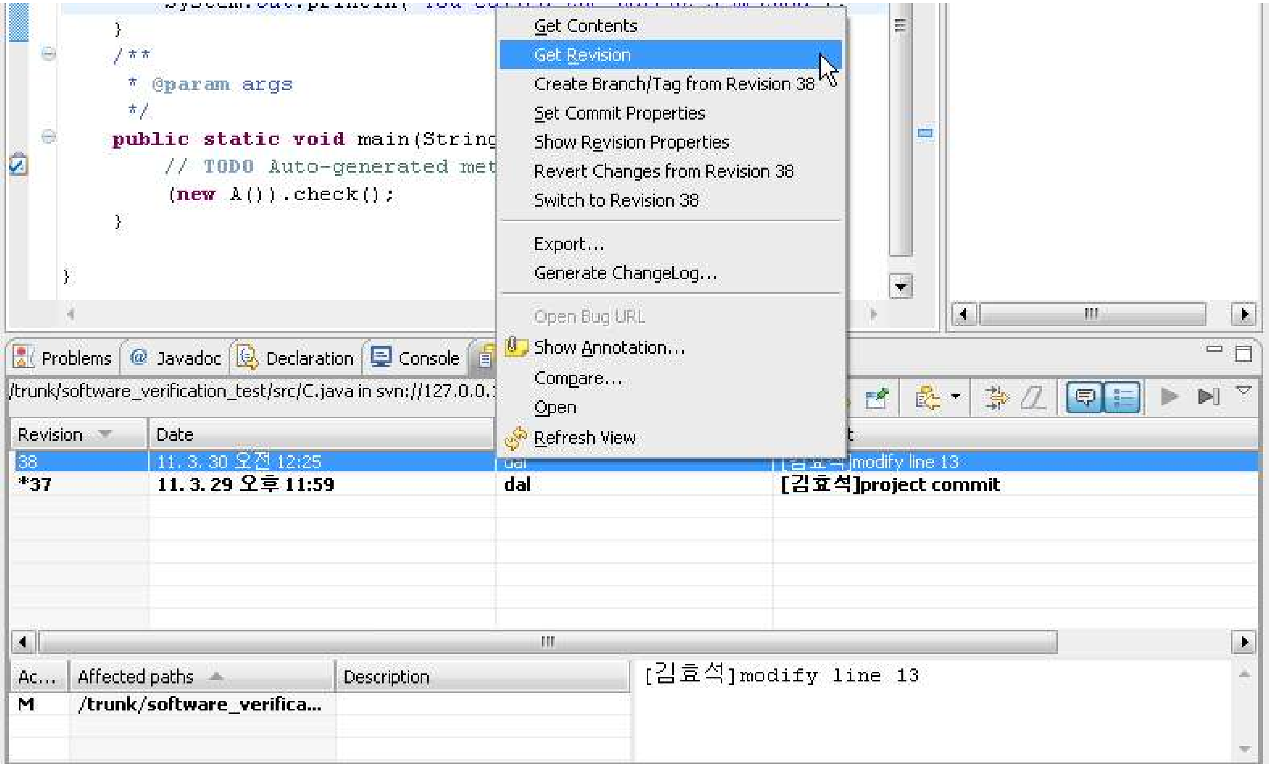
Ac...	Affected paths	Description
M	/trunk/software_verifica...	

```
[김효석]modify line 13
```

– You can see information for revision saved SVN

Examples of Operation

- history of code



```
    }
    /**
     * @param args
     */
    public static void main(String
        // TODO Auto-generated met
        (new A()).check();
    }

}
```

/trunk/software_verification_test/src/C.java in svn://127.0.0.1

Revision	Date		t
38	11. 3. 30 오전 12:25	dal	[김효석]modify line 13
*37	11. 3. 29 오후 11:59	dal	[김효석]project commit

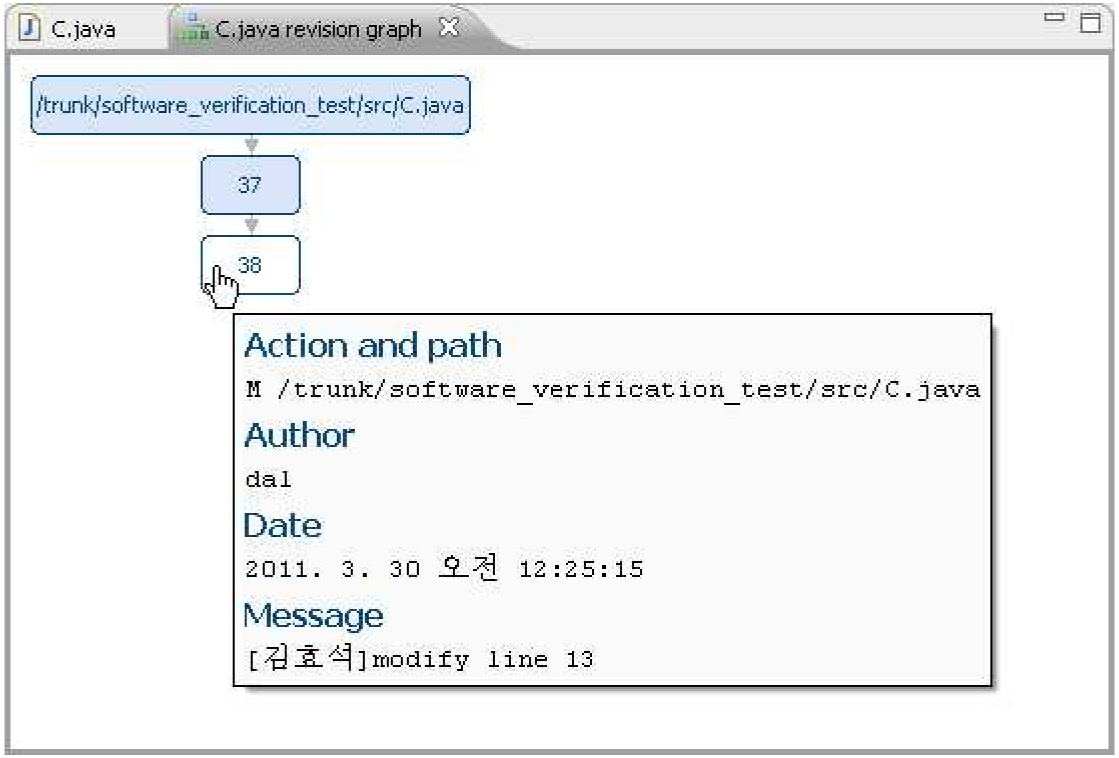
Ac...	Affected paths	Description
M	/trunk/software_verifica...	

[김효석]modify line 13

  - If current code is older than SVN reversion, you can get source code from SVN

Examples of Operation

❖ revision graph of code



Action and path

M /trunk/software_verification_test/src/C.java

Author

dal

Date

2011. 3. 30 오전 12:25:15

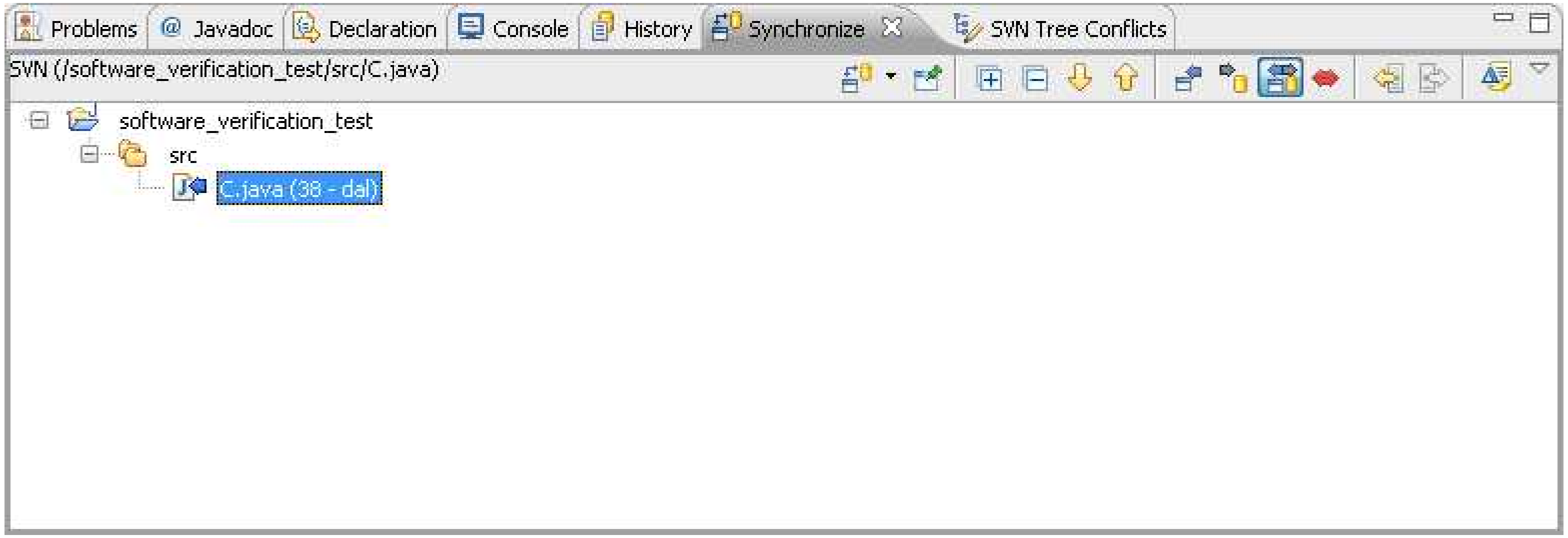
Message

[김효석]modify line 13

– You can see revision saved SVN to some graph

Examples of Operation

❖ code synchronize



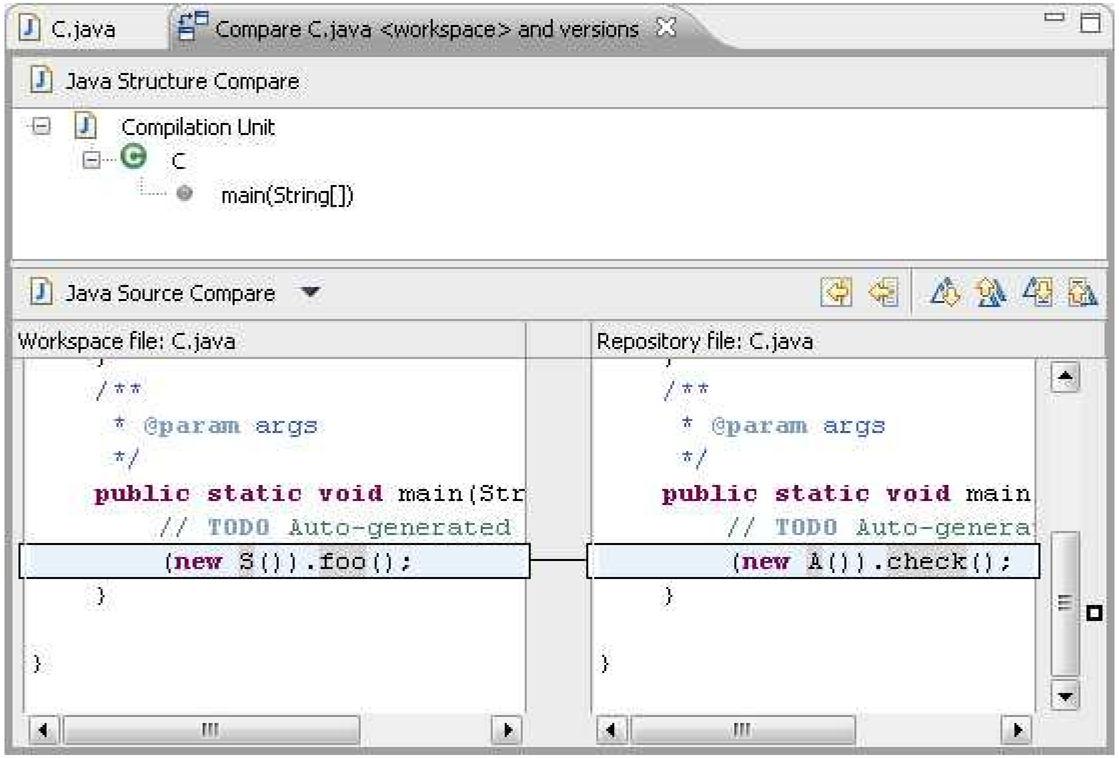
SVN (/software_verification_test/src/C.java)

software_verification_test
src
C.java (38 - dal)

- When It needs synchronized as dismatch current code and local code,

Examples of Operation

❖ code compare



Workspace file: C.java

```
    /**
     * @param args
     */
    public static void main(Str
        // TODO Auto-generated
        (new S()).foo();
    }

}
```

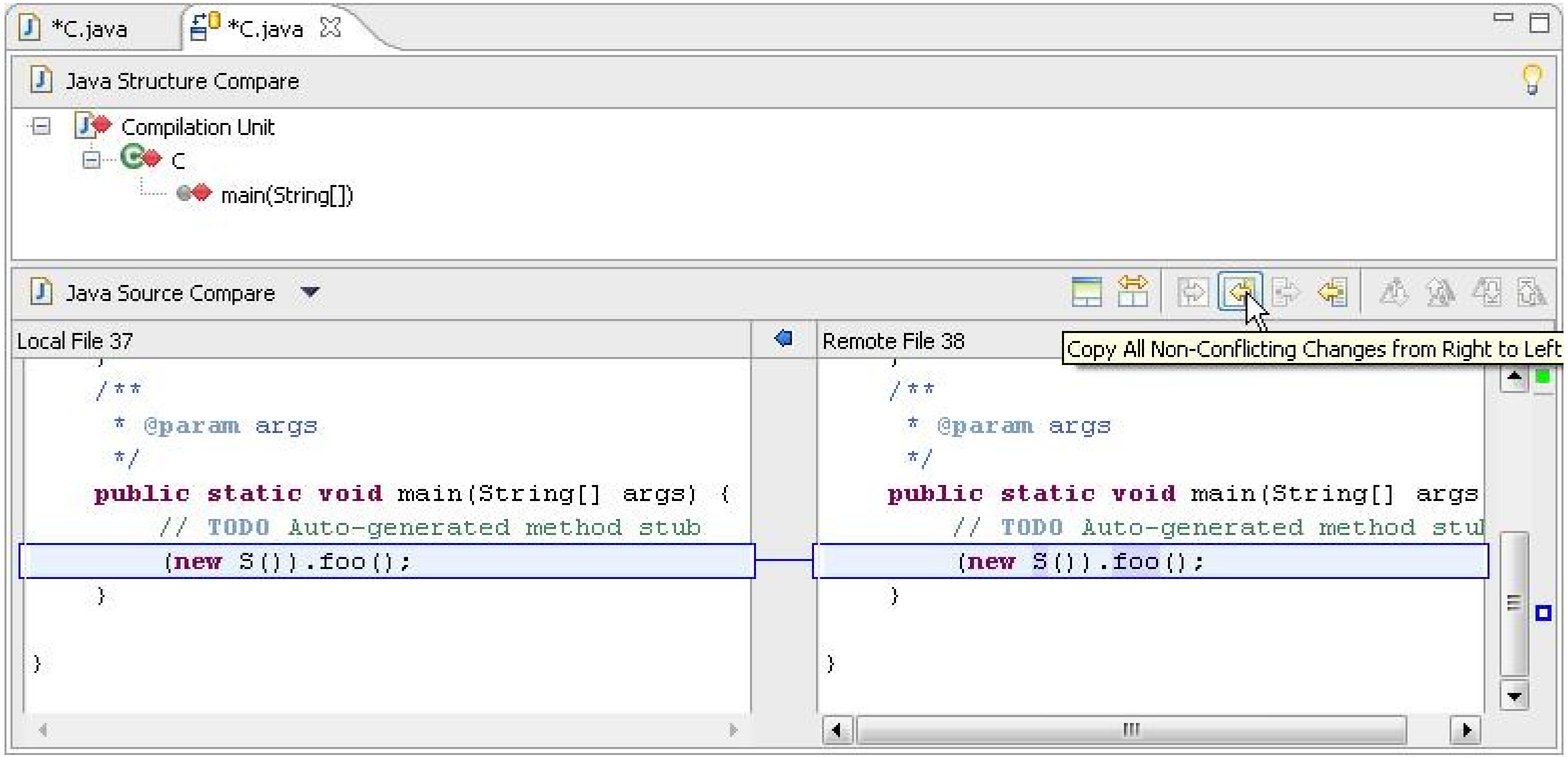
Repository file: C.java

```
    /**
     * @param args
     */
    public static void main
        // TODO Auto-genera
        (new A()).check();
    }

}
```

– local code VS saved code in SVN

Examples of Operation

❖ code modify

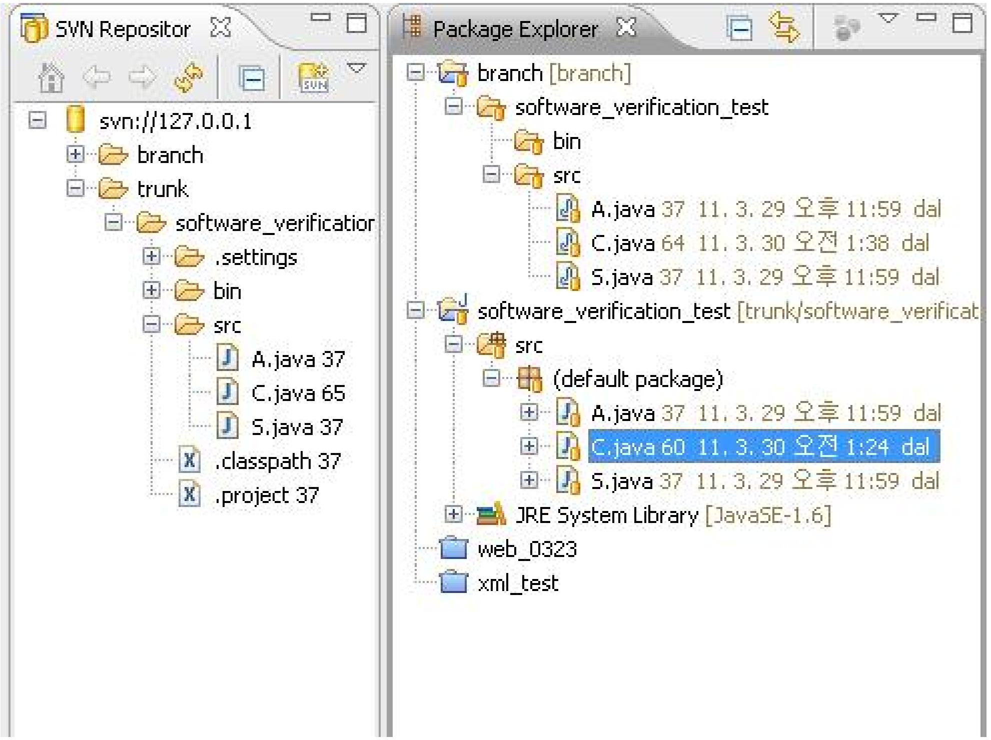


```
    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        (new S()).foo();
    }

}
```

```
    /**
     * @param args
     */
    public static void main(String[] args
        // TODO Auto-generated method stu
        (new S()).foo();
    }

}
```

Examples of Operation

❖ code conflicts



```
svn://127.0.0.1
  branch
  trunk
    software_verification
      .settings
      bin
      src
        A.java 37
        C.java 65
        S.java 37
      .classpath 37
      .project 37
```

```
branch [branch]
  software_verification_test
    bin
    src
      A.java 37  11. 3. 29 오후 11:59  dal
      C.java 64  11. 3. 30 오전 1:38  dal
      S.java 37  11. 3. 29 오후 11:59  dal
software_verification_test [trunk/software_verificat
  src
    (default package)
      A.java 37  11. 3. 29 오후 11:59  dal
      C.java 60  11. 3. 30 오전 1:24  dal
      S.java 37  11. 3. 29 오후 11:59  dal
  JRE System Library [JavaSE-1.6]
web_0323
xml_test
```

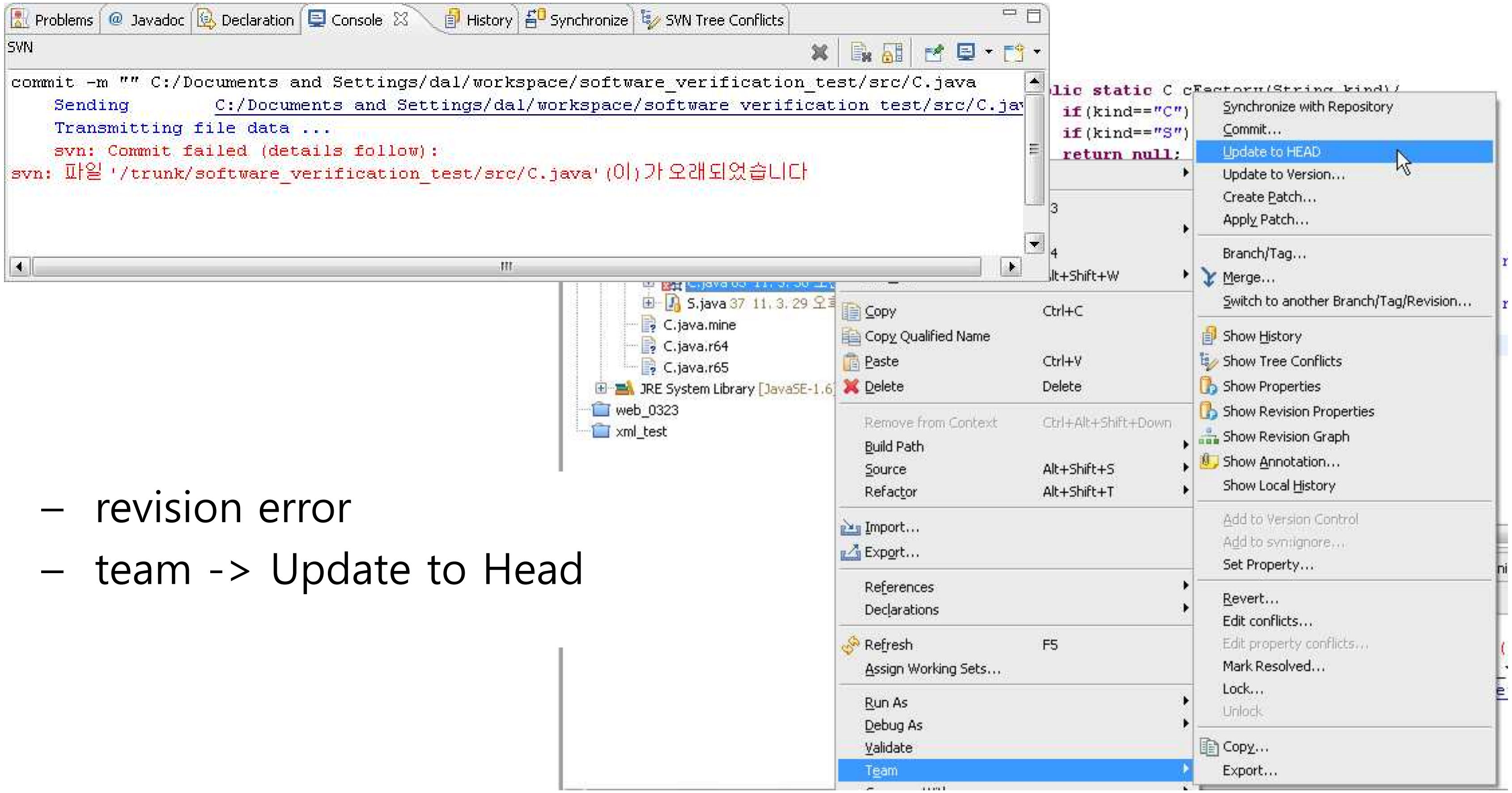
C.java

- current code revision : 65
- local code revision : 60

- You don't know new revision update, but you worked using previous revision.

Examples of Operation

- code conflicts

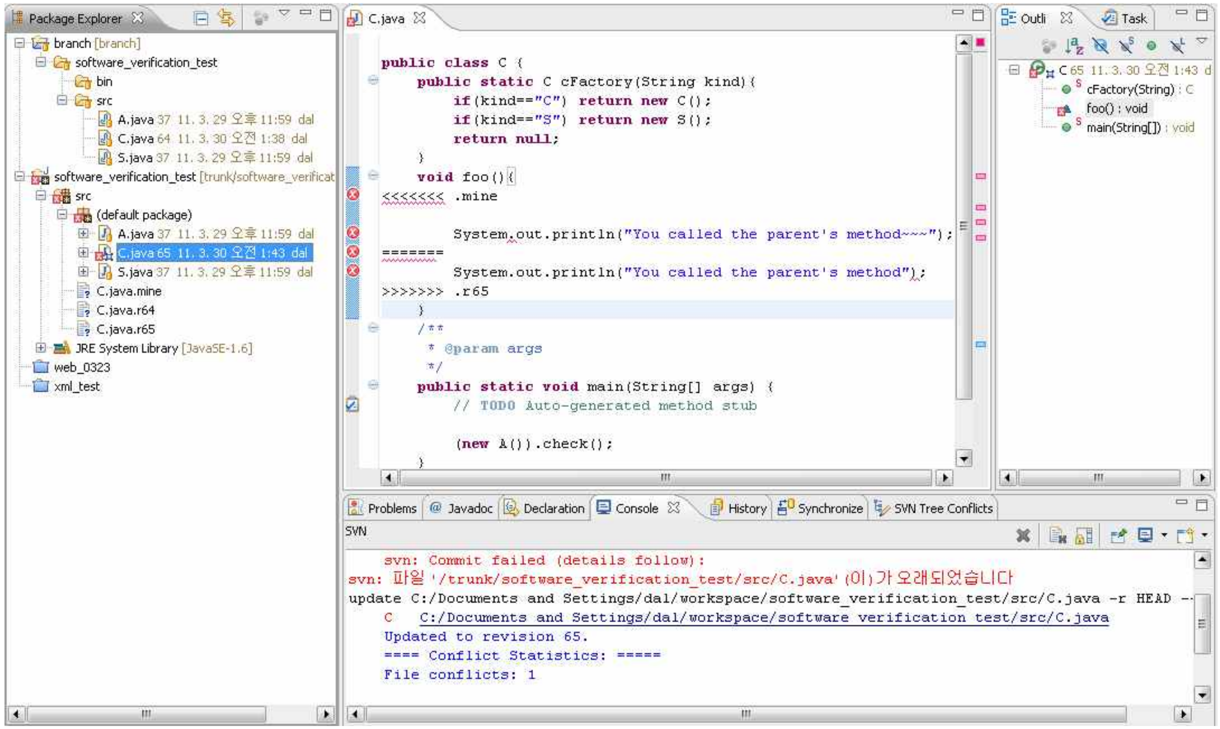


```
commit -m "" C:/Documents and Settings/dal/workspace/software_verification_test/src/C.java
    Sending        C:/Documents and Settings/dal/workspace/software verification test/src/C.jav
    Transmitting file data ...
    svn: Commit failed (details follow):
svn: 파일 '/trunk/software_verification_test/src/C.java' (이)가 오래되었습니다
```

- revision error
- team -> Update to Head

Examples of Operation

❖ code conflicts



Package Explorer
branch [branch]
software_verification_test
bin
src
A.java 37 11. 3. 29 오후 11:59 dal
C.java 64 11. 3. 30 오전 1:38 dal
S.java 37 11. 3. 29 오후 11:59 dal
software_verification_test [trunk/software_verificat
src
(default package)
A.java 37 11. 3. 29 오후 11:59 dal
C.java 65 11. 3. 30 오전 1:43 dal
S.java 37 11. 3. 29 오후 11:59 dal
C.java.mine
C.java.r64
C.java.r65
JRE System Library [JavaSE-1.6]
web_0323
xml_test
C.java
Outli
Task
C 65 11. 3. 30 오전 1:43 d
cFactory(String) : C
foo() : void
main(String[]) : void
Problems
Javadoc
Declaration
Console
History
Synchronize
SVN Tree Conflicts
SVN

```
public class C {
    public static C cFactory(String kind){
        if(kind=="C") return new C();
        if(kind=="S") return new S();
        return null;
    }
    void foo(){
<<<<<<< .mine

        System.out.println("You called the parent's method~~~");
=======
        System.out.println("You called the parent's method");
>>>>>>> .r65
    }
    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        (new A()).check();
    }
```

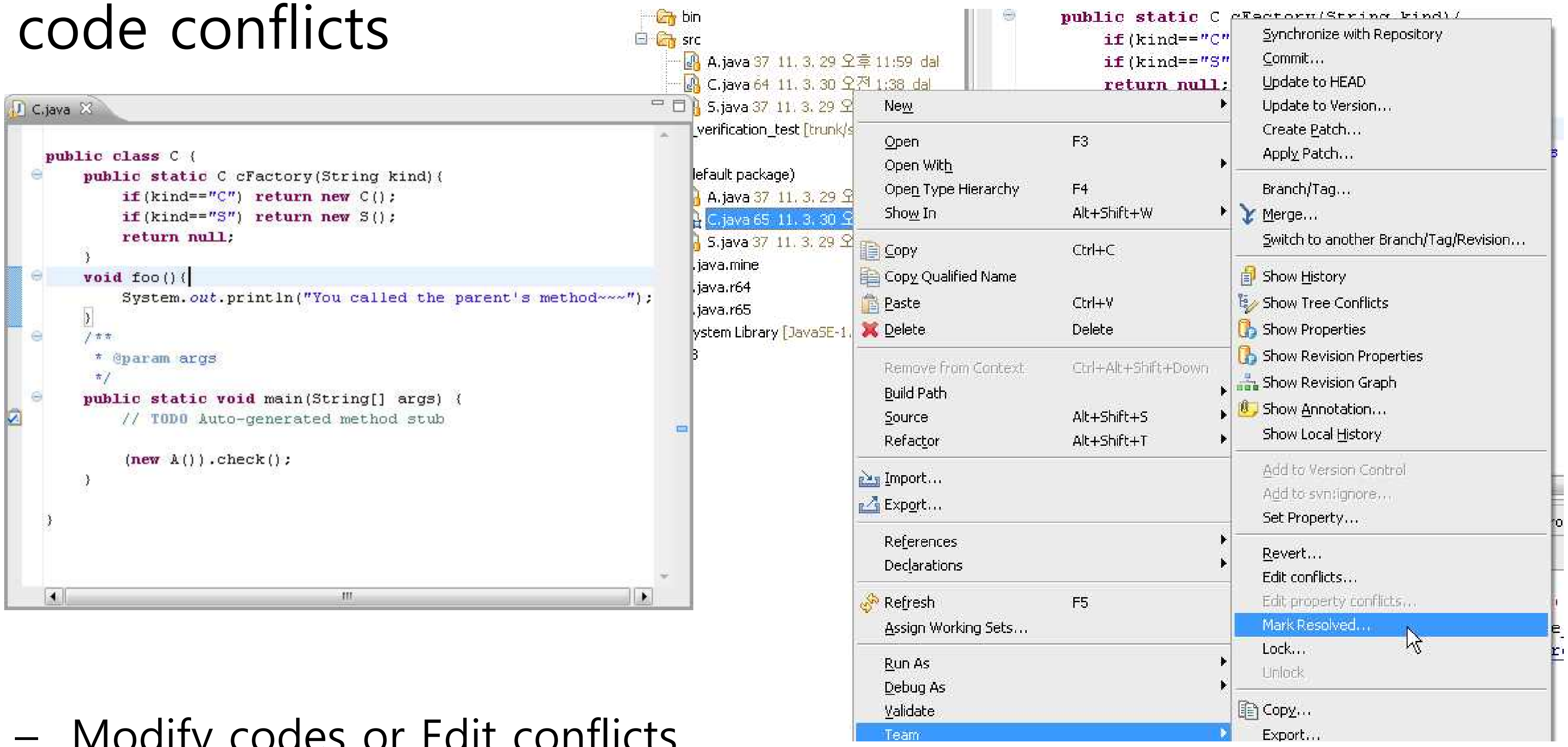
```
    svn: Commit failed (details follow):
svn: 파일 '/trunk/software_verification_test/src/C.java' (이)가 오래되었습니다
update C:/Documents and Settings/dal/workspace/software_verification_test/src/C.java -r HEAD --
    C   C:/Documents and Settings/dal/workspace/software verification test/src/C.java
    Updated to revision 65.
    ==== Conflict Statistics: =====
    File conflicts: 1
```

Conflicts!

- <<<<<<< .mine ========== : user
- ========== >>>>>>> .r65 : revision

Examples of Operation

❖ code conflicts

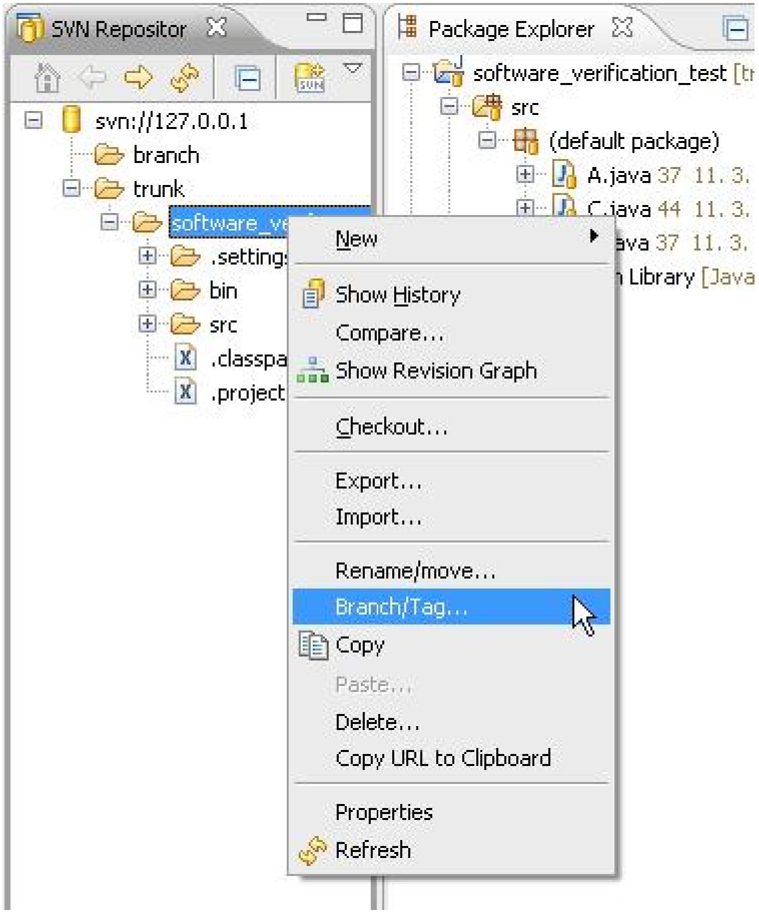


```
public class C {
    public static C cFactory(String kind){
        if(kind=="C") return new C();
        if(kind=="S") return new S();
        return null;
    }
    void foo(){
        System.out.println("You called the parent's method~~~");
    }
    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        (new A()).check();
    }

}
```

- Modify codes or Edit conflicts
- When it revert, "SVN Head revision"
- Team -> Mark Resolved -> select contents
- Commit, and it will be OK

Examples of Operation

- branch of code

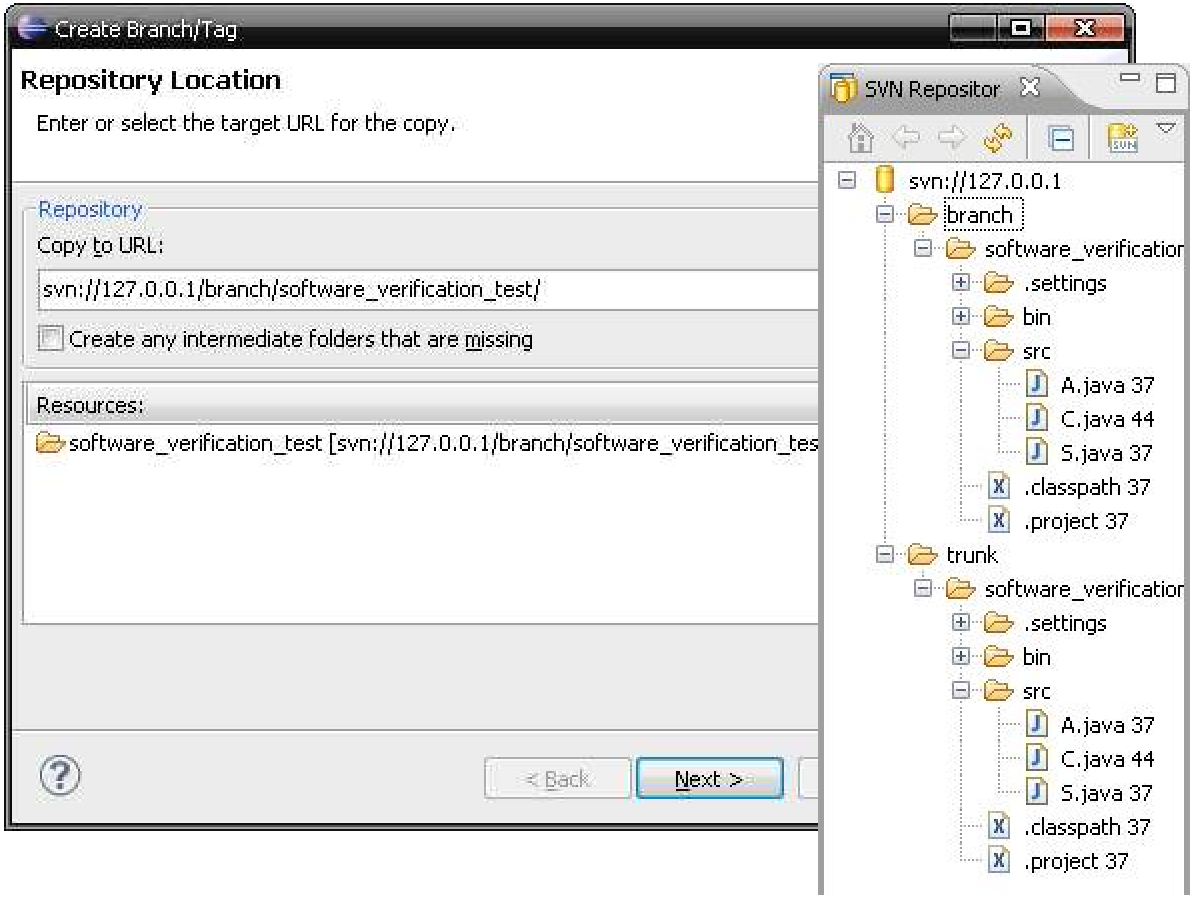


– One method for evading conflict

– Branch code or folder -> Branch/Tag...

Examples of Operation

❖ branch of code



Create Branch/Tag

Repository Location

Enter or select the target URL for the copy.

Repository

Copy to URL:

svn://127.0.0.1/branch/software_verification_test/

□ Create any intermediate folders that are missing

Resources:

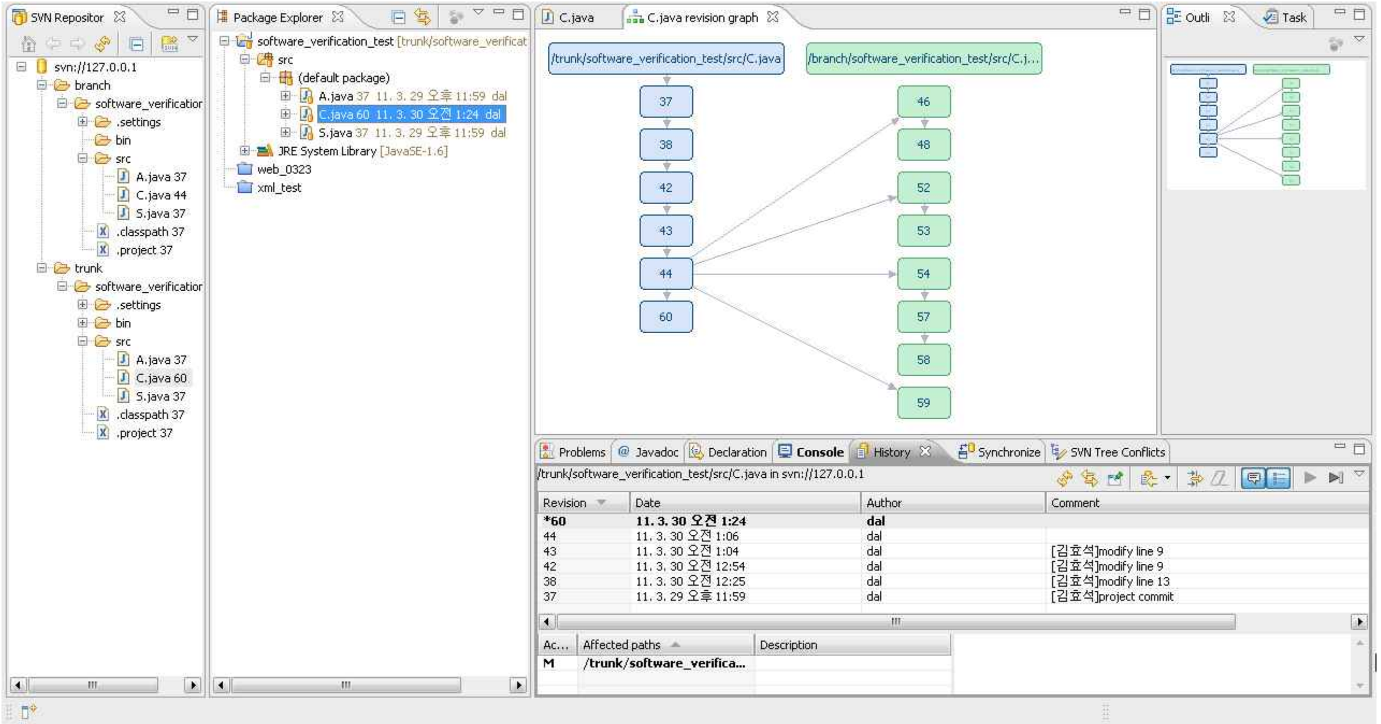
software_verification_test [svn://127.0.0.1/branch/software_verification_tes

```
svn://127.0.0.1
  branch
    software_verificatior
      .settings
      bin
      src
        A.java 37
        C.java 44
        S.java 37
      .classpath 37
      .project 37
  trunk
    software_verificatior
      .settings
      bin
      src
        A.java 37
        C.java 44
        S.java 37
      .classpath 37
      .project 37
```

- Set repository
- Recent revision or Specific revision available
- Create branch in specific position

Examples of Operation

- branch of code



/trunk/software_verification_test/src/C.java in svn://127.0.0.1

Revision	Date	Author	Comment
***60**	**11. 3. 30 오전 1:24**	**dal**	
44	11. 3. 30 오전 1:06	dal	
43	11. 3. 30 오전 1:04	dal	[김효석]modify line 9
42	11. 3. 30 오전 12:54	dal	[김효석]modify line 9
38	11. 3. 30 오전 12:25	dal	[김효석]modify line 13
37	11. 3. 29 오후 11:59	dal	[김효석]project commit

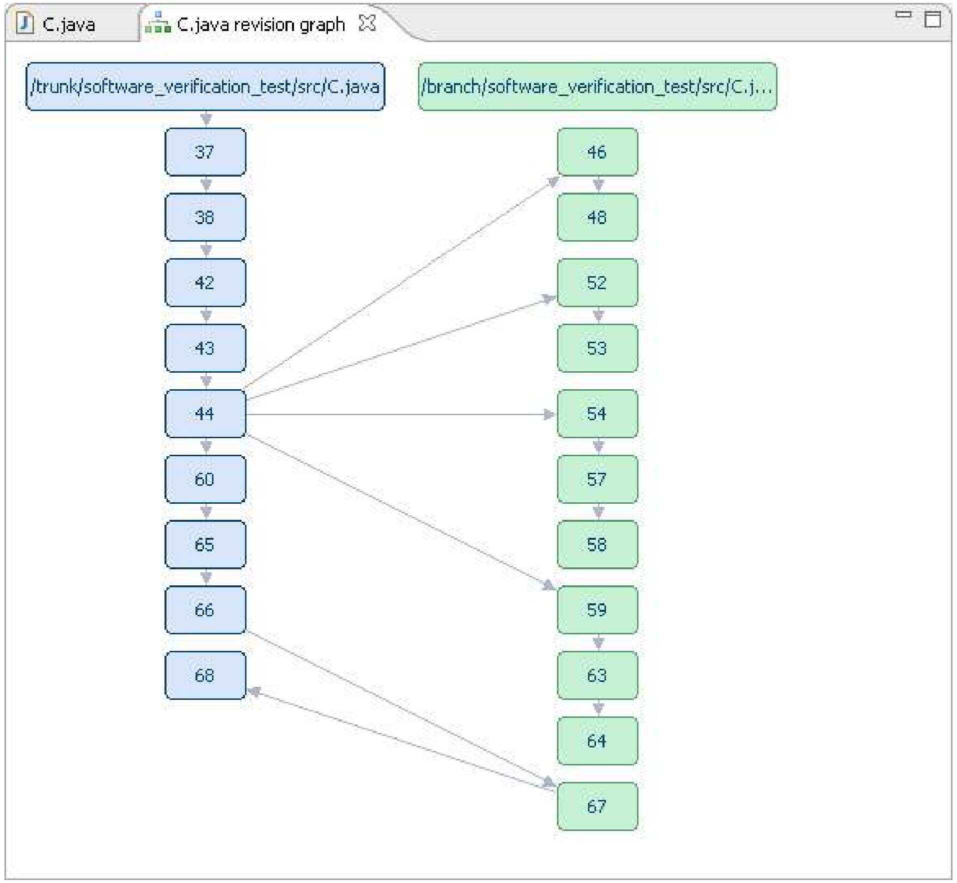
Ac...	Affected paths	Description
M	**/trunk/software_verifica...**	

– You can see branched results

– You should checkout to new branched source

Examples of Operation

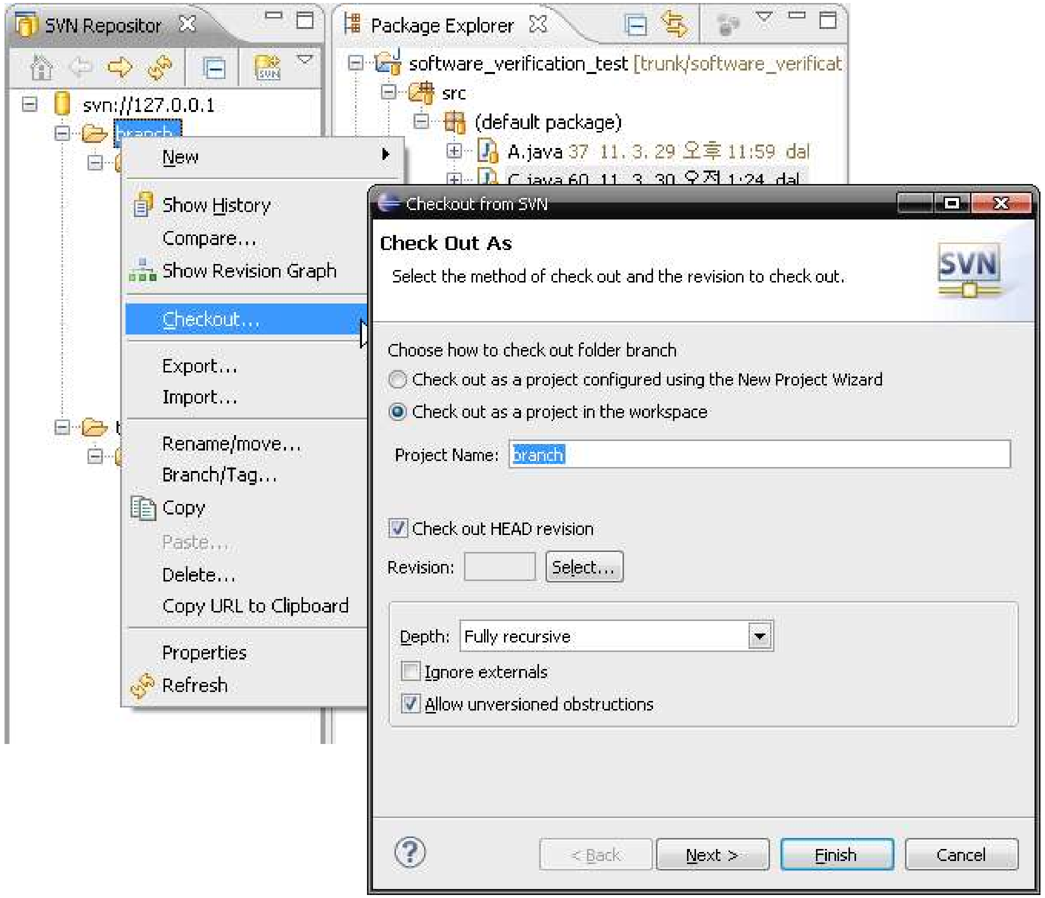
❖ branch of code


C.java
C.java revision graph
/trunk/software_verification_test/src/C.java
/branch/software_verification_test/src/C.j...
37
38
42
43
44
60
65
66
68
46
48
52
53
54
57
58
59
63
64
67

– Branched code can't affects base code

Examples of Operation

❖ checkout of code



Check Out As

Select the method of check out and the revision to check out.

Choose how to check out folder branch

○ Check out as a project configured using the New Project Wizard

● Check out as a project in the workspace

Project Name: branch

☑ Check out HEAD revision

Revision: Select...

Depth: Fully recursive

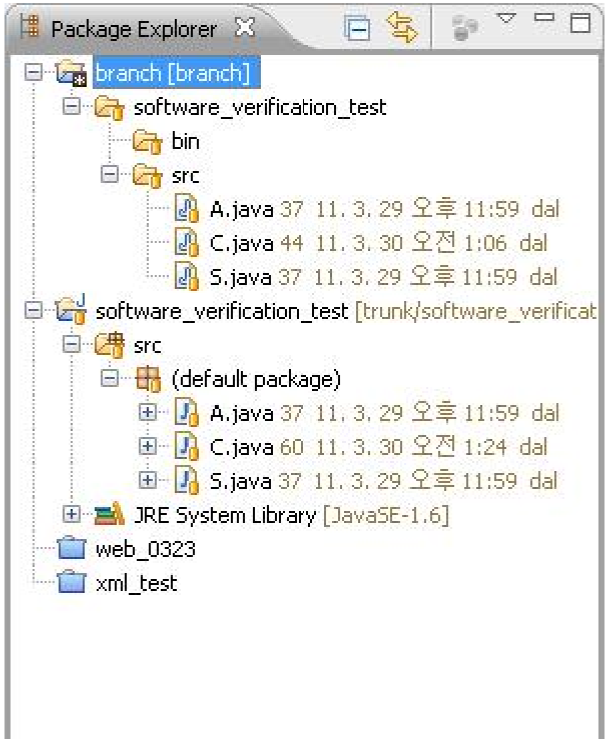
□ Ignore externals

☑ Allow unversioned obstructions

– Load to local from source in SVN
– You can choice between making new project, using old project
– Set a revision

Examples of Operation

❖ checkout of code



```
Package Explorer
branch [branch]
    software_verification_test
        bin
        src
            A.java 37  11. 3. 29 오후 11:59  dal
            C.java 44  11. 3. 30 오전 1:06  dal
            S.java 37  11. 3. 29 오후 11:59  dal
software_verification_test [trunk/software_verificat
    src
        (default package)
            A.java 37  11. 3. 29 오후 11:59  dal
            C.java 60  11. 3. 30 오전 1:24  dal
            S.java 37  11. 3. 29 오후 11:59  dal
    JRE System Library [JavaSE-1.6]
web_0323
xml_test
```

– Checkout -> Commit -> Save SVN

End