CM & RE TOOLS

TEAM 1

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Configuration Management

1.1 About CM
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About CM

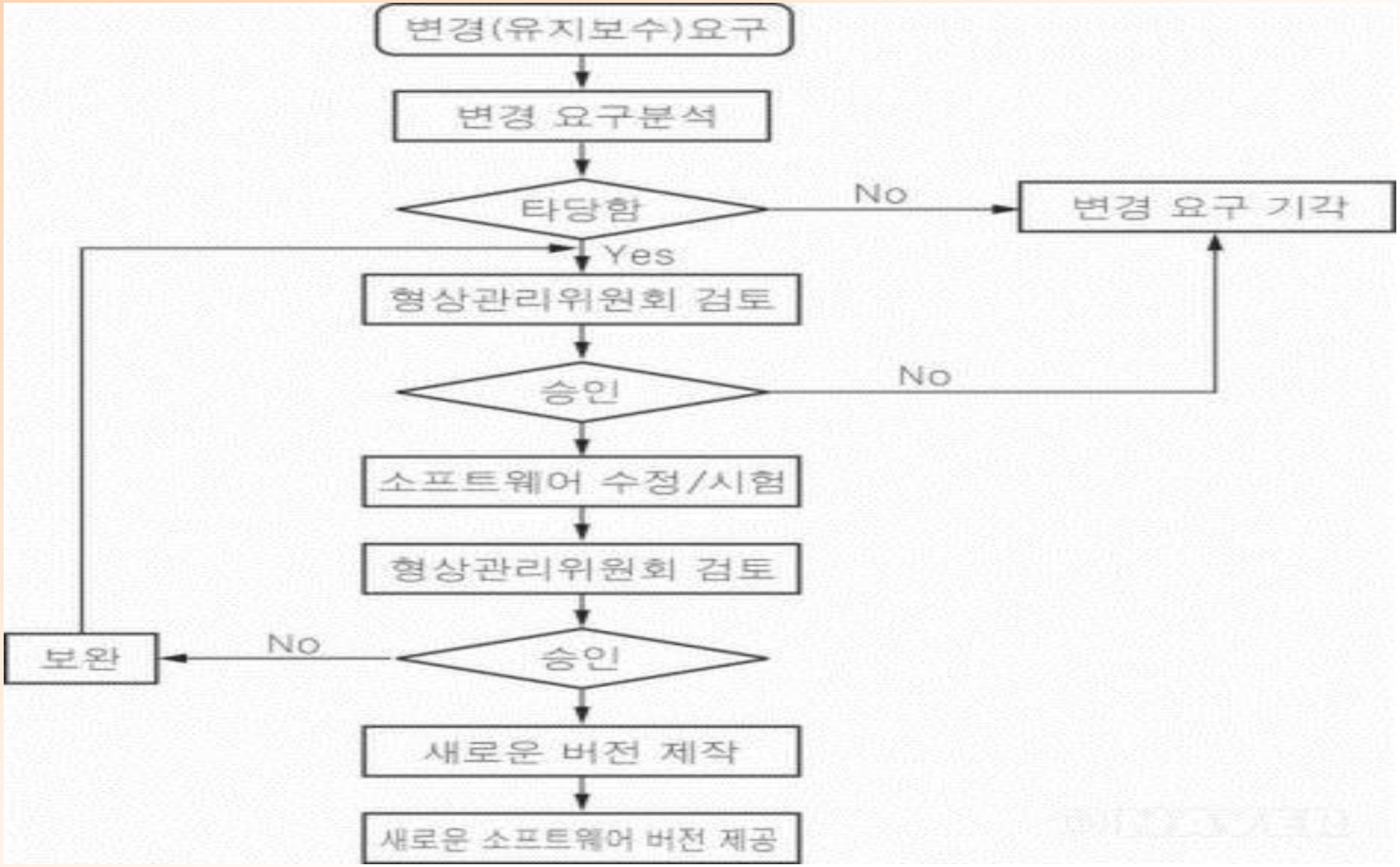
- **What is CM(Configuration Management)?**

A process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life.

→ 개발 및 유지 보수 과정에서 변화되어 가는 소프트웨어 짜임새를 질서있게 통제하고, 또한 변경 관리를 제도적으로 수렴하려는 방법

About CM

- **Example of CM Process**



About SCM

- **What is SCM**

In software engineering, Software Configuration Management (SCM) is the task of tracking and controlling changes in the software.

→ 소프트웨어의 생산물을 확인하고 소프트웨어 통제, 변경 상태를 기록하고 보관하는 일련의 관리 작업

✓ CM(Configuration Management)의 concept를 소프트웨어 공학에 적용시킨 것!

About SCM

- **Purposes of SCM**
  - ➢ Configuration identification - Configuration 및 기준 정의
  - ➢ Configuration control - 변화된 Process 통제 구현
  - ➢ Configuration status accounting – 개발도중 필요한 정보 기록보관
  - ➢ Configuration auditing – 요구사항, 구조 정의, 유저 매뉴얼 등 관리

About SCM

- Build management – Build를 위해 Process와 Tool 관리
- Process management – 개발도중 추가사항 관리
- Environment management – SW/HW 관리
- Teamwork – 개발도중 팀원 소통 가능
- Defect tracking – 결함 추적

SCM Tools

- **CVS(Concurrent Versions System)**

  파일로 이뤄진 모든 작업과 모든 변화를 추적하고, 여러 개발자(지역적으로 떨어진)가 협력하여 작업할 수 있게 함

- **CVS의 한계**

  - CVS 파일들은 이름을 바꿀 수 없어 제거하고 나서 다시 추가함
  - CVS 프로토콜은 디렉터리의 이동이나 이름 변경을 허용하지 않으므로 서브 디렉터리의 파일은 모두 지우고 다시 추가함
  - 아스키 코드로 된 파일 이름이 아닌 유니코드 파일을 제한적으로 지원함

SCM Tools

- **SVN(Subversion)**
  - ➢ CVS의 한계를 극복하기 위해 개발된 버전 관리 툴
  - ➢ CVS의 핵심 개발자들이 2004년부터 배포
  - ➢ Commit: 서버에 업로드, Update: 서버에서 다운로드
  - ➢ 한 번 commit할 때마다 전체 변경 사항에 대해 revision이 하나씩 증가
  - ➢ 파일 이름 변경, 이동, 디렉토리 버전 관리도 지원
- **GIT**

속도에 중점을 둔 distributed revision 관리 시스템

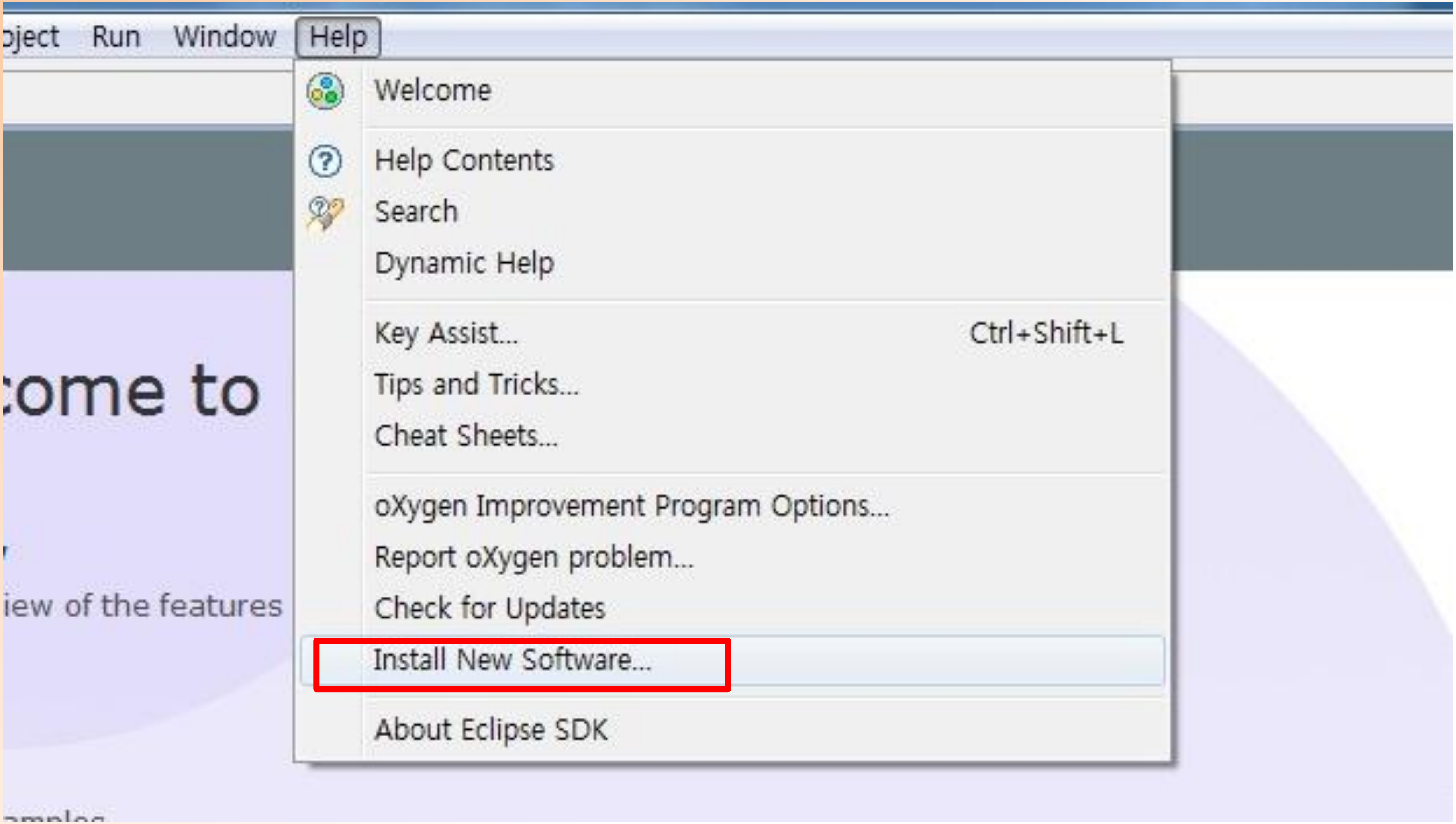
SCM Tools

- **SVN Tool**

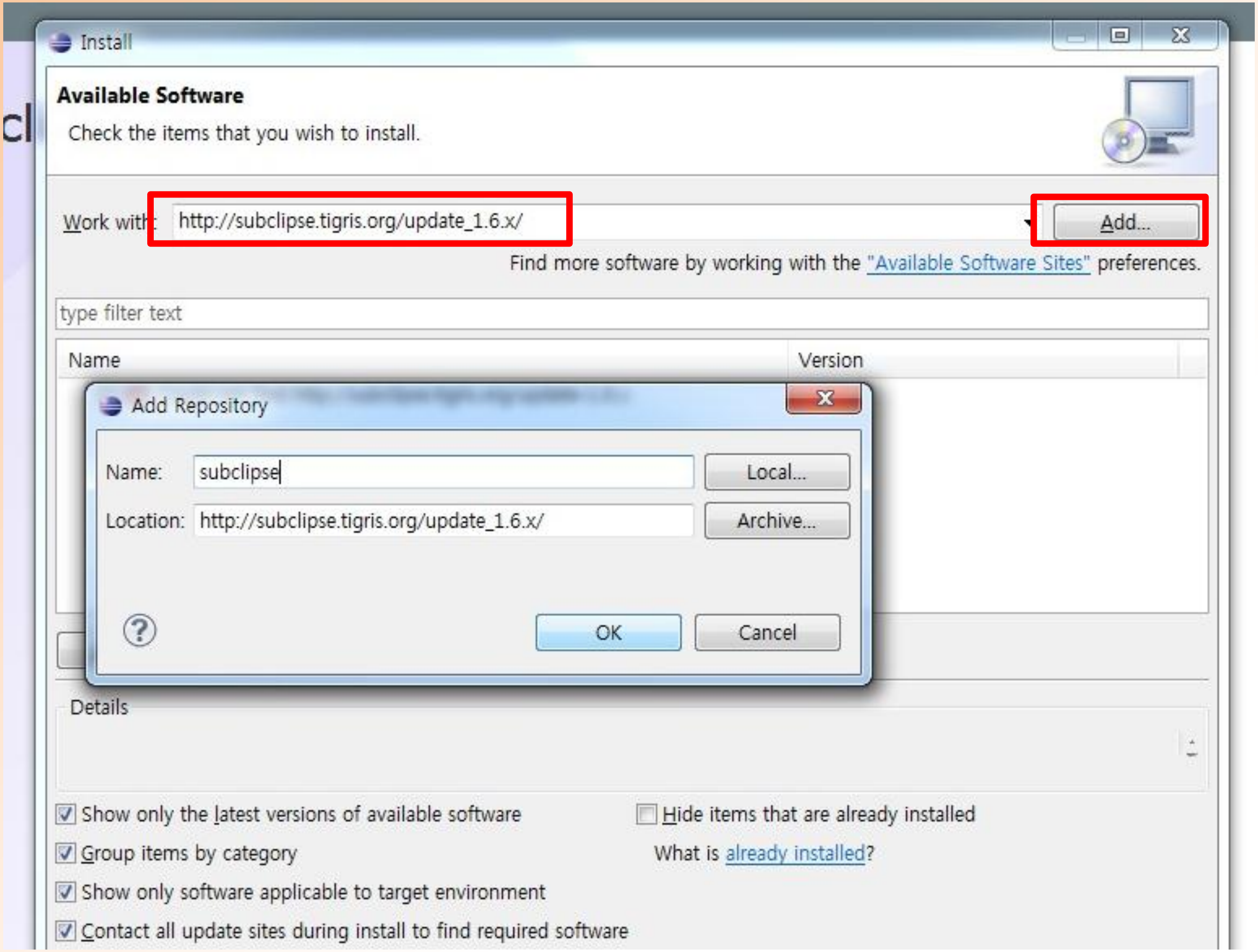
➡ Subclipse (Subversion+Eclipse)의 특징

- ➢ 대부분의 CVS 특징을 가짐
- ➢ 디렉토리, 파일 이름 변경, 이동, 메타 데이터(속성) 버전 관리도 지원
- ➢ 커밋 단위가 파일이 아닌 체인지셋
- ➢ 원자적 커밋
- ➢ 효율적인 브랜칭/태깅
- ➢ 네트워크 계층 선택

SCM Tools(Subclipse setting)



SCM Tools(Subclipse setting)



Install

Available Software

Check the items that you wish to install.

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

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

type filter text

Add Repository

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

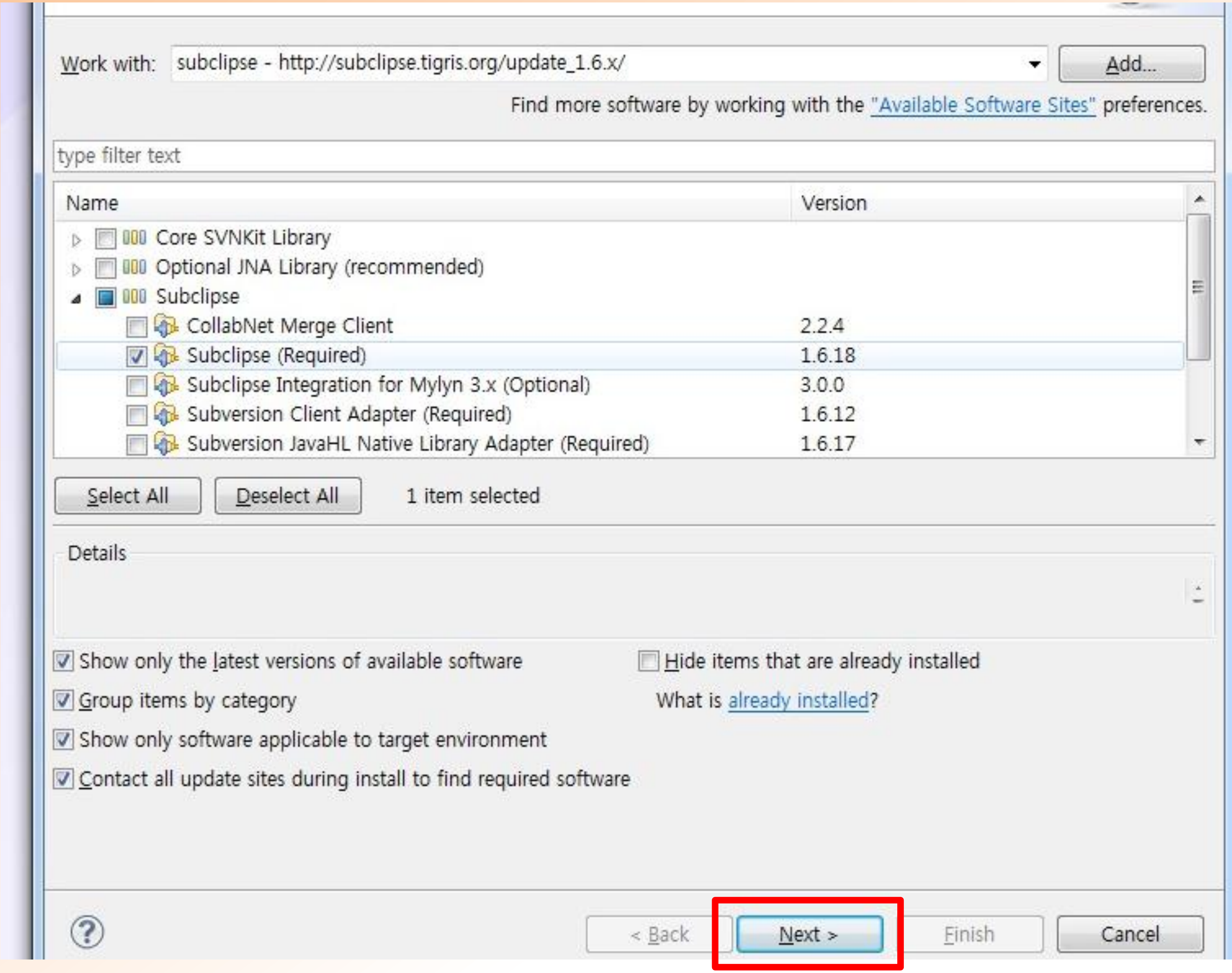
☑ Group items by category

What is already installed?

☑ Show only software applicable to target environment

☑ Contact all update sites during install to find required software

SCM Tools(Subclipse setting)



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
▷ □ Core SVNKit Library	
▷ □ Optional JNA Library (recommended)	
◢ ■ Subclipse	
□ CollabNet Merge Client	2.2.4
☑ Subclipse (Required)	1.6.18
□ Subclipse Integration for Mylyn 3.x (Optional)	3.0.0
□ Subversion Client Adapter (Required)	1.6.12
□ Subversion JavaHL Native Library Adapter (Required)	1.6.17

1 item selected

Details

☑ Show only the latest versions of available software

☑ Group items by category

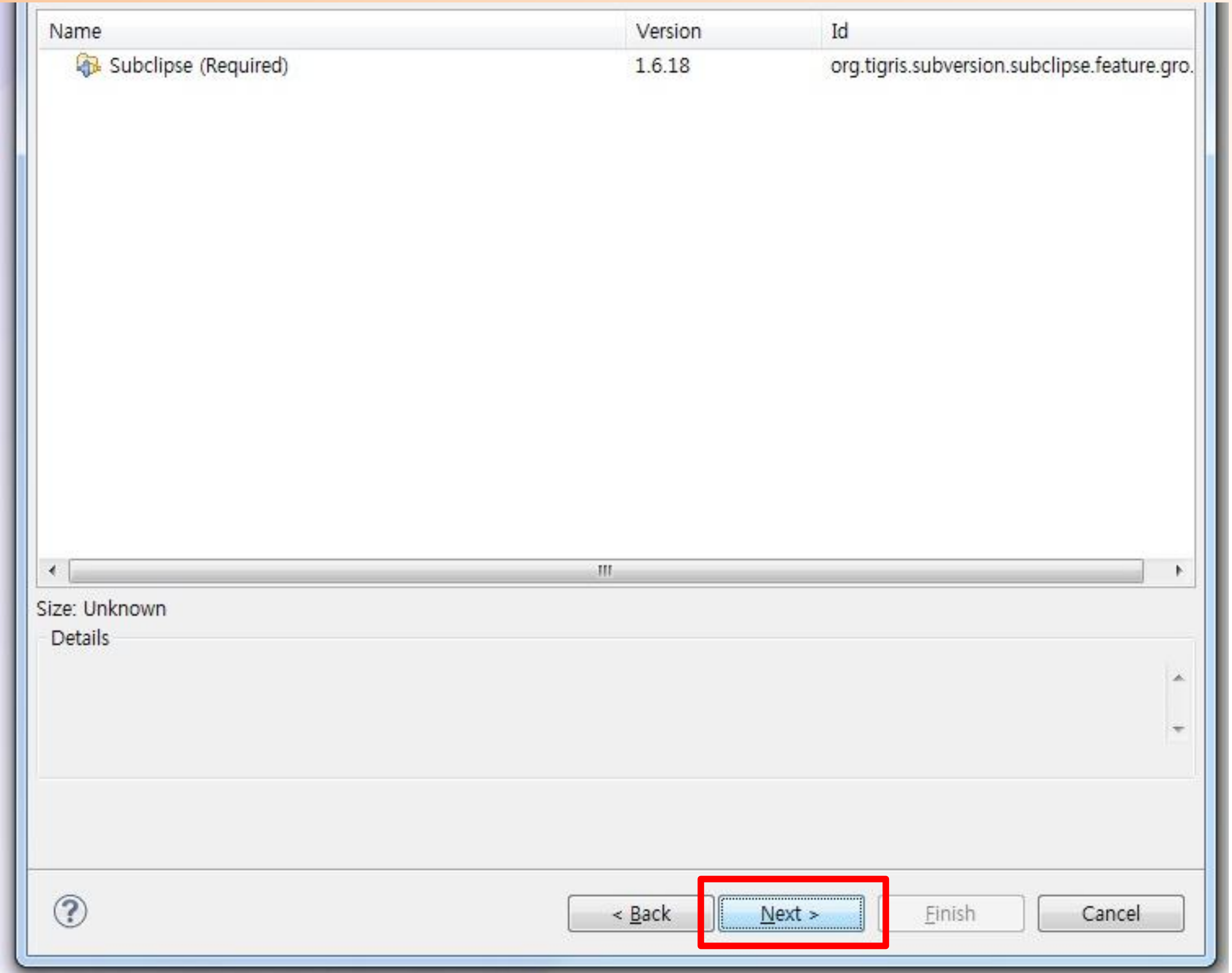
☑ Show only software applicable to target environment

☑ Contact all update sites during install to find required software

□ Hide items that are already installed

What is already installed?

SCM Tools(Subclipse setting)

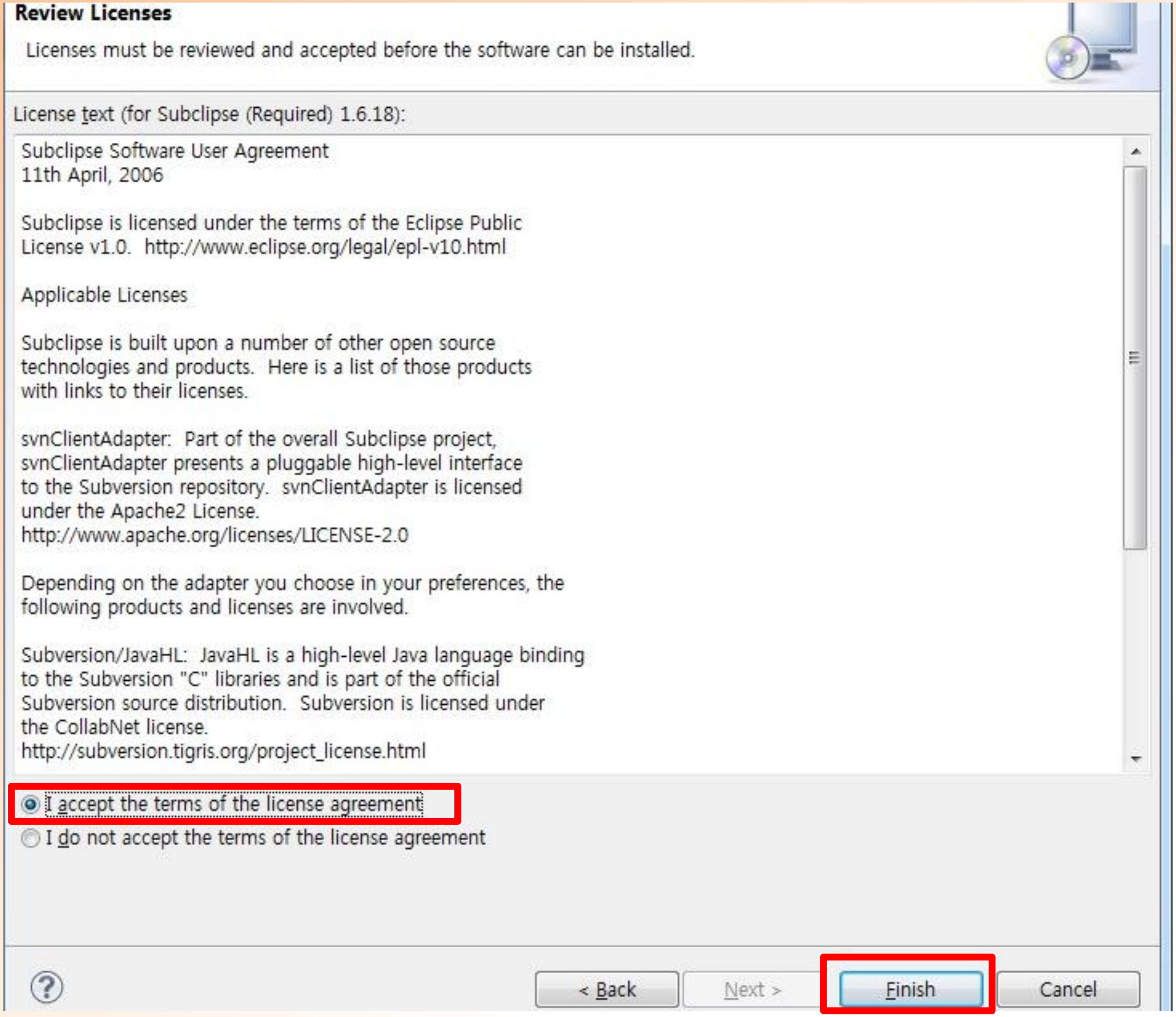


Name	Version	Id
Subclipse (Required)	1.6.18	org.tigris.subversion.subclipse.feature.gro.

Size: Unknown

Details

SCM Tools(Subclipse setting)



Review Licenses

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

License text (for Subclipse (Required) 1.6.18):

Subclipse Software User Agreement
11th April, 2006

Subclipse is licensed under the terms of the Eclipse Public
License v1.0. http://www.eclipse.org/legal/epl-v10.html

Applicable Licenses

Subclipse is built upon a number of other open source
technologies and products. Here is a list of those products
with links to their licenses.

svnClientAdapter: Part of the overall Subclipse project,
svnClientAdapter presents a pluggable high-level interface
to the Subversion repository. svnClientAdapter is licensed
under the Apache2 License.
http://www.apache.org/licenses/LICENSE-2.0

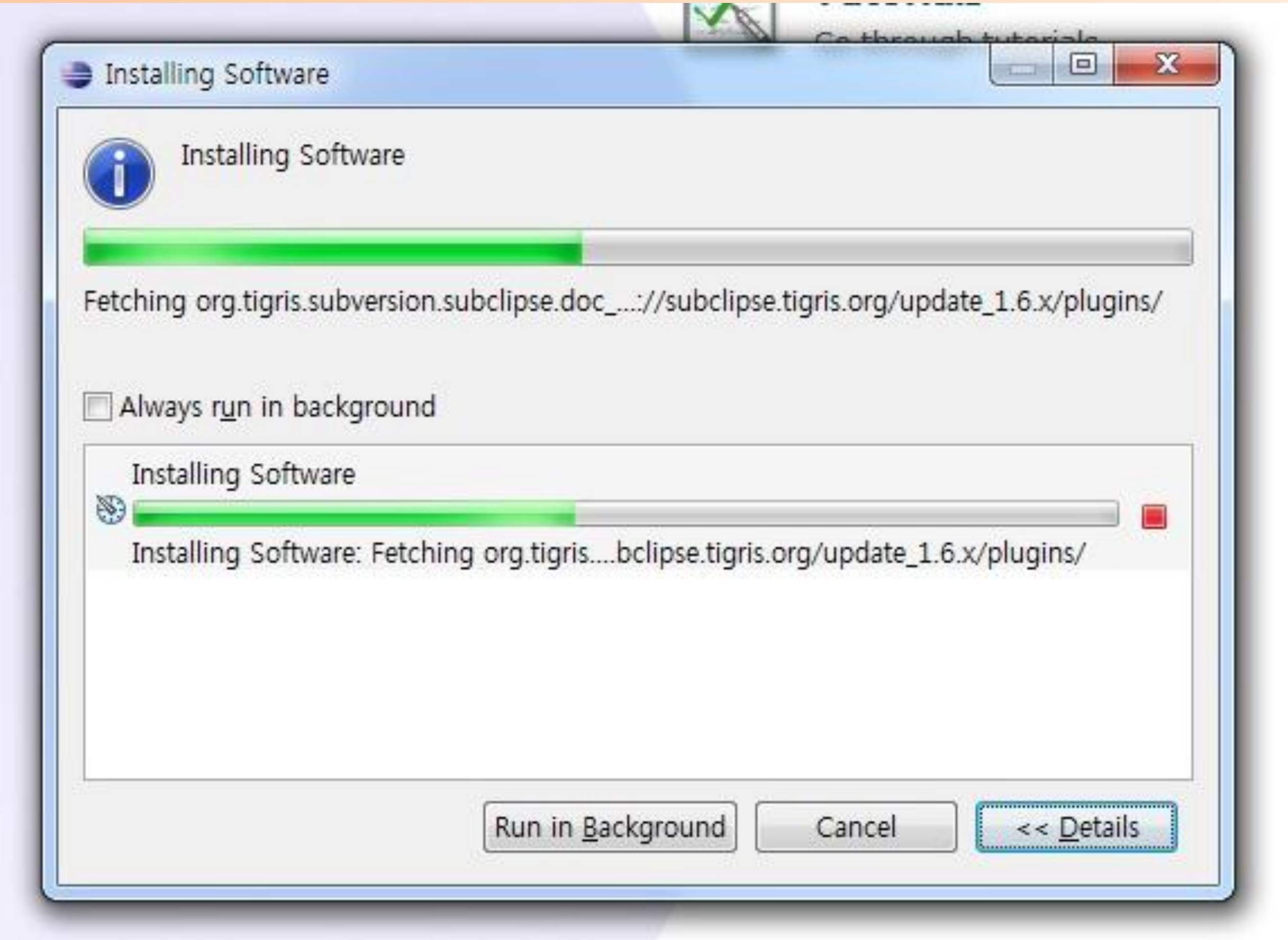
Depending on the adapter you choose in your preferences, the
following products and licenses are involved.

Subversion/JavaHL: JavaHL is a high-level Java language binding
to the Subversion "C" libraries and is part of the official
Subversion source distribution. Subversion is licensed under
the CollabNet license.
http://subversion.tigris.org/project_license.html

● I accept the terms of the license agreement

○ I do not accept the terms of the license agreement

SCM Tools(Subclipse setting)



Installing Software

Installing Software

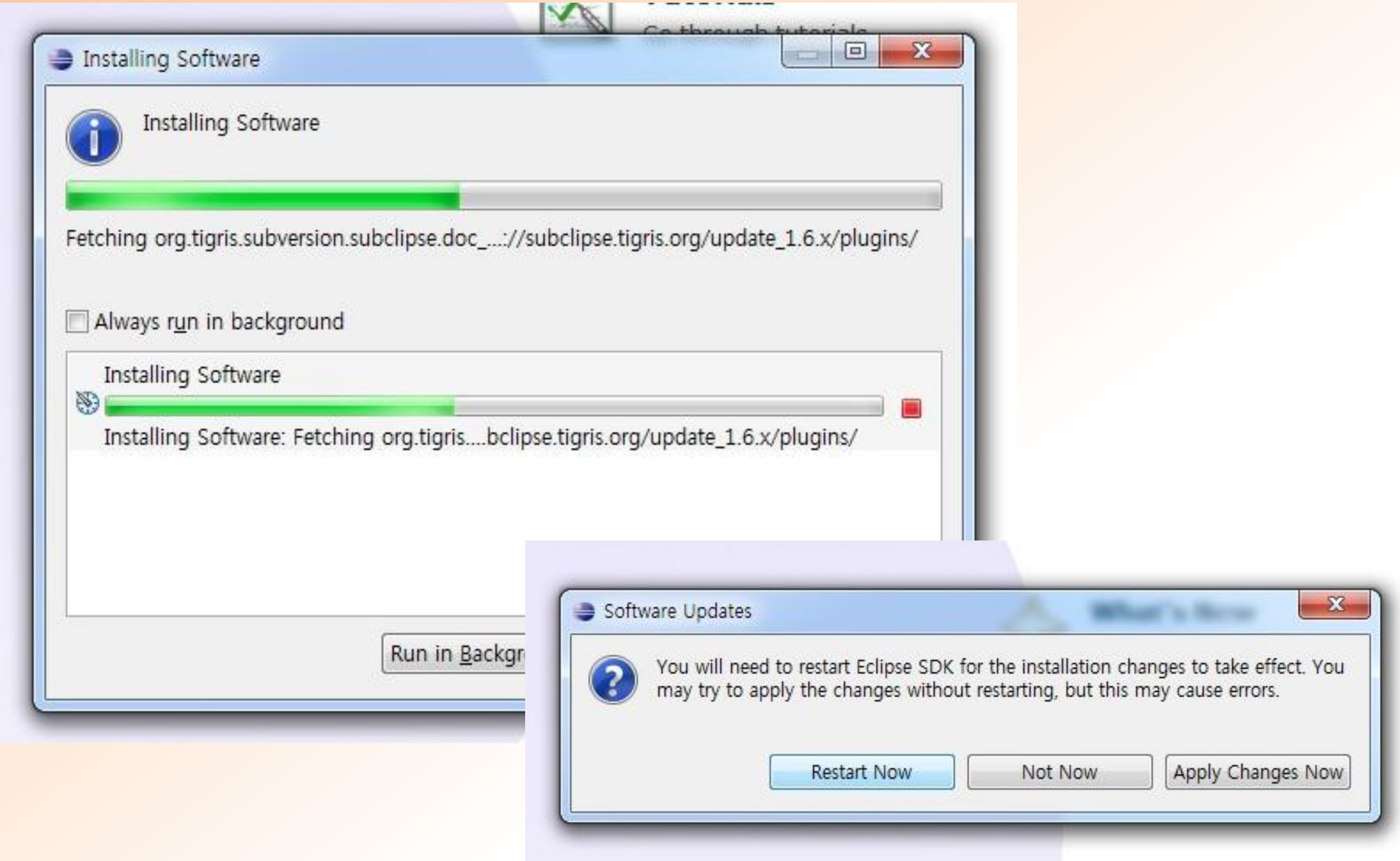
Fetching org.tigris.subversion.subclipse.doc_...://subclipse.tigris.org/update_1.6.x/plugins/

□ Always run in background

Installing Software

Installing Software: Fetching org.tigris....bclipse.tigris.org/update_1.6.x/plugins/

SCM Tools(Subclipse setting)



Installing Software

Installing Software

Fetching org.tigris.subversion.subclipse.doc_...://subclipse.tigris.org/update_1.6.x/plugins/

□ Always run in background

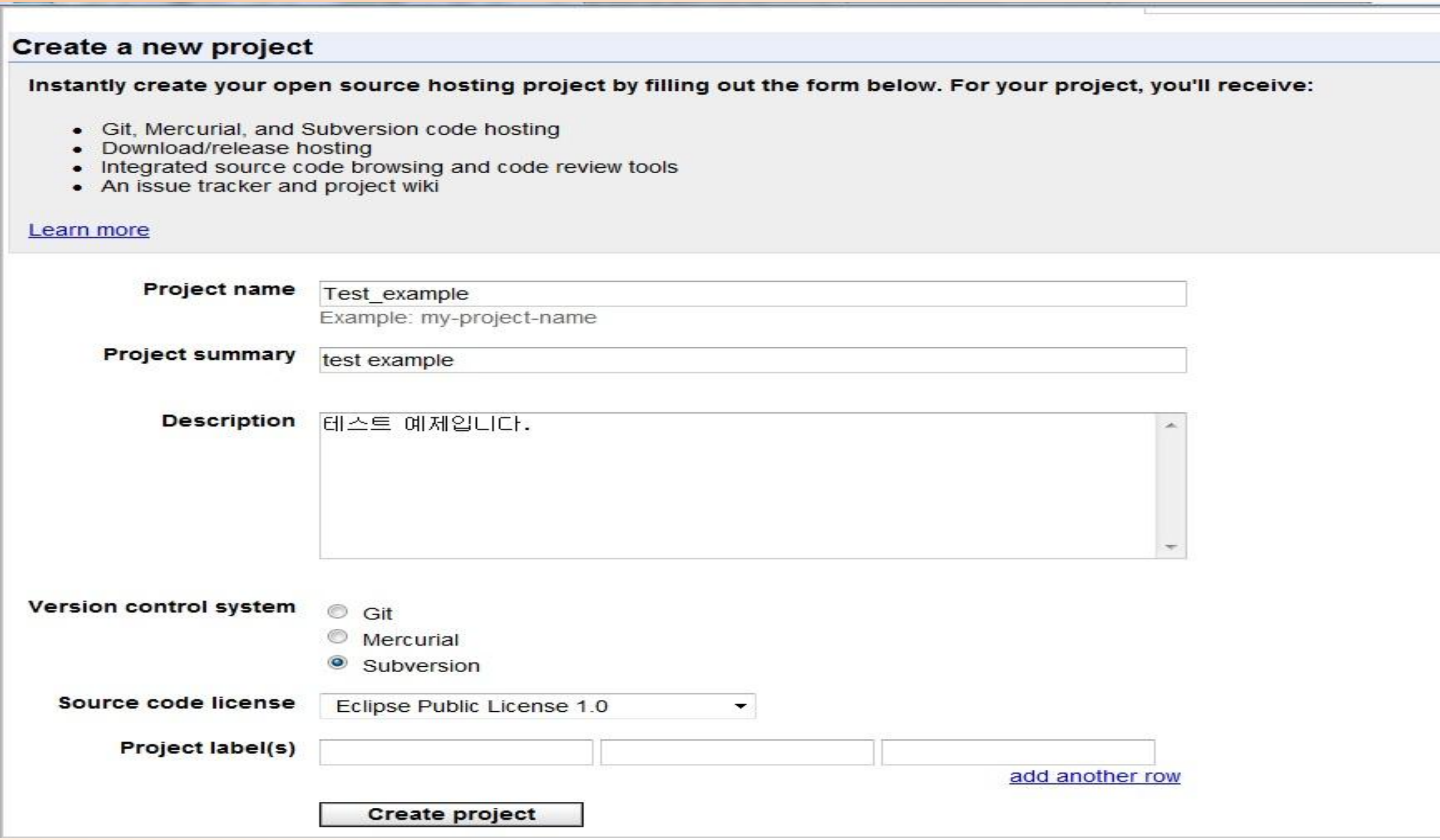
Installing Software

Installing Software: Fetching org.tigris....bclipse.tigris.org/update_1.6.x/plugins/

Software Updates

You will need to restart Eclipse SDK for the installation changes to take effect. You may try to apply the changes without restarting, but this may cause errors.

SCM Tools(use Subclipse)



Create a new project

Instantly create your open source hosting project by filling out the form below. For your project, you'll receive:

- Git, Mercurial, and Subversion code hosting
- Download/release hosting
- Integrated source code browsing and code review tools
- An issue tracker and project wiki

Learn more

Project name Test_example
Example: my-project-name

Project summary test example

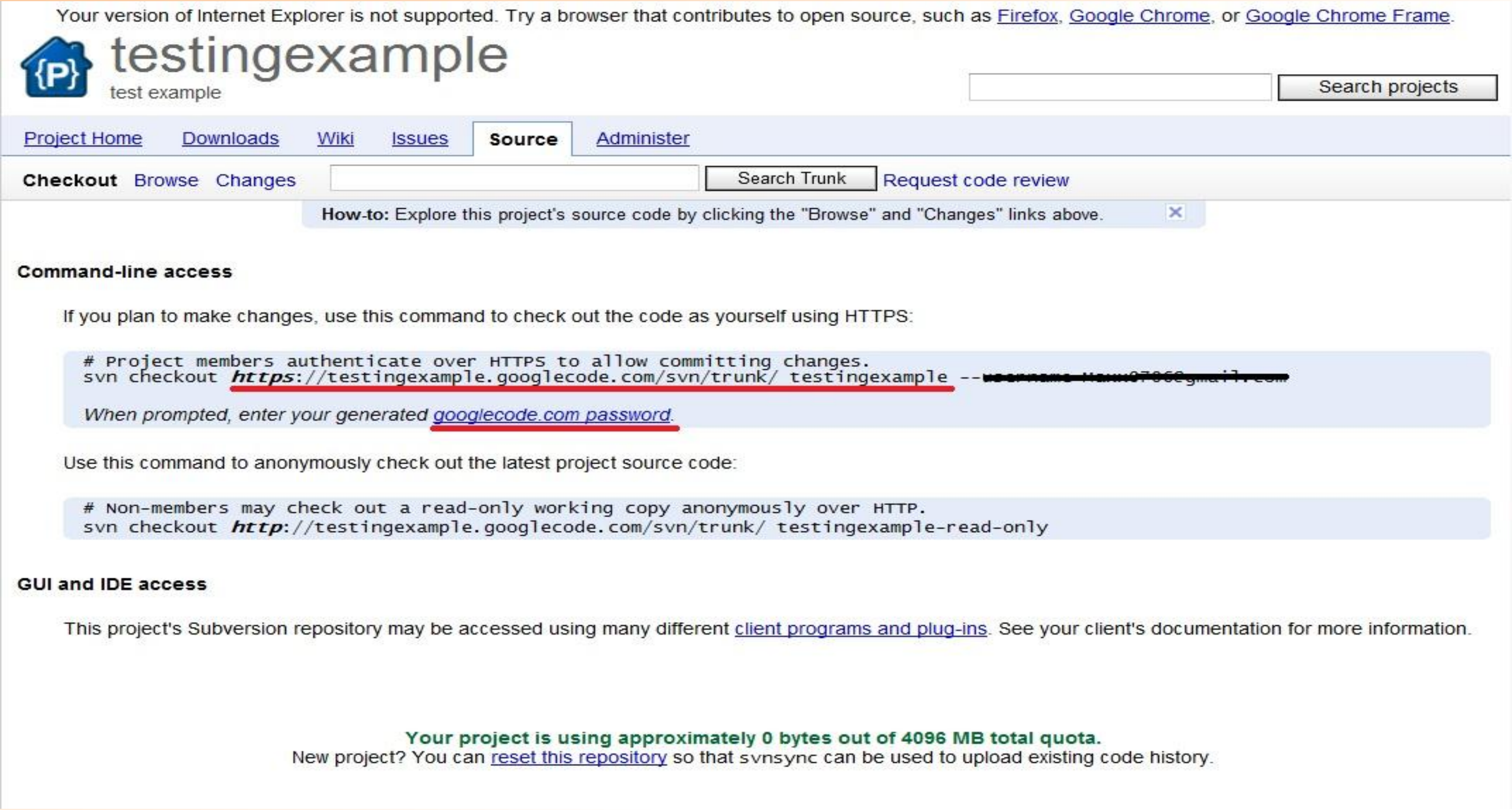
Description 테스트 예제입니다.

Version control system
○ Git
○ Mercurial
● Subversion

Source code license Eclipse Public License 1.0

Project label(s)

SCM Tools(use Subclipse)



Your version of Internet Explorer is not supported. Try a browser that contributes to open source, such as Firefox, Google Chrome, or Google Chrome Frame.

How-to: Explore this project's source code by clicking the "Browse" and "Changes" links above.

Command-line access

If you plan to make changes, use this command to check out the code as yourself using HTTPS:

```
# Project members authenticate over HTTPS to allow committing changes.
svn checkout https://testingexample.googlecode.com/svn/trunk/ testingexample --[redacted]
```

When prompted, enter your generated googlecode.com password.

Use this command to anonymously check out the latest project source code:

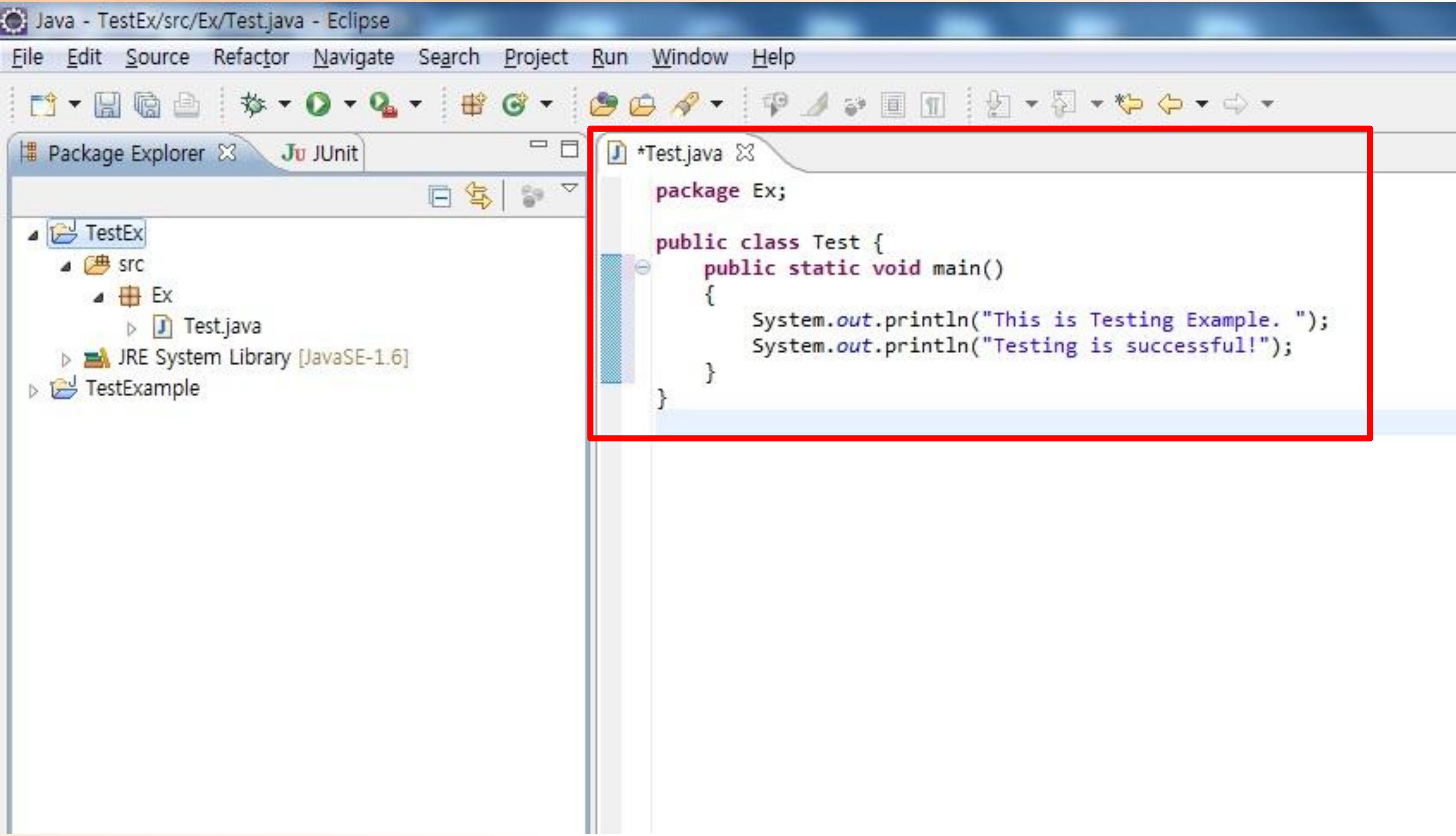
```
# Non-members may check out a read-only working copy anonymously over HTTP.
svn checkout http://testingexample.googlecode.com/svn/trunk/ testingexample-read-only
```

GUI and IDE access

This project's Subversion repository may be accessed using many different client programs and plug-ins. See your client's documentation for more information.

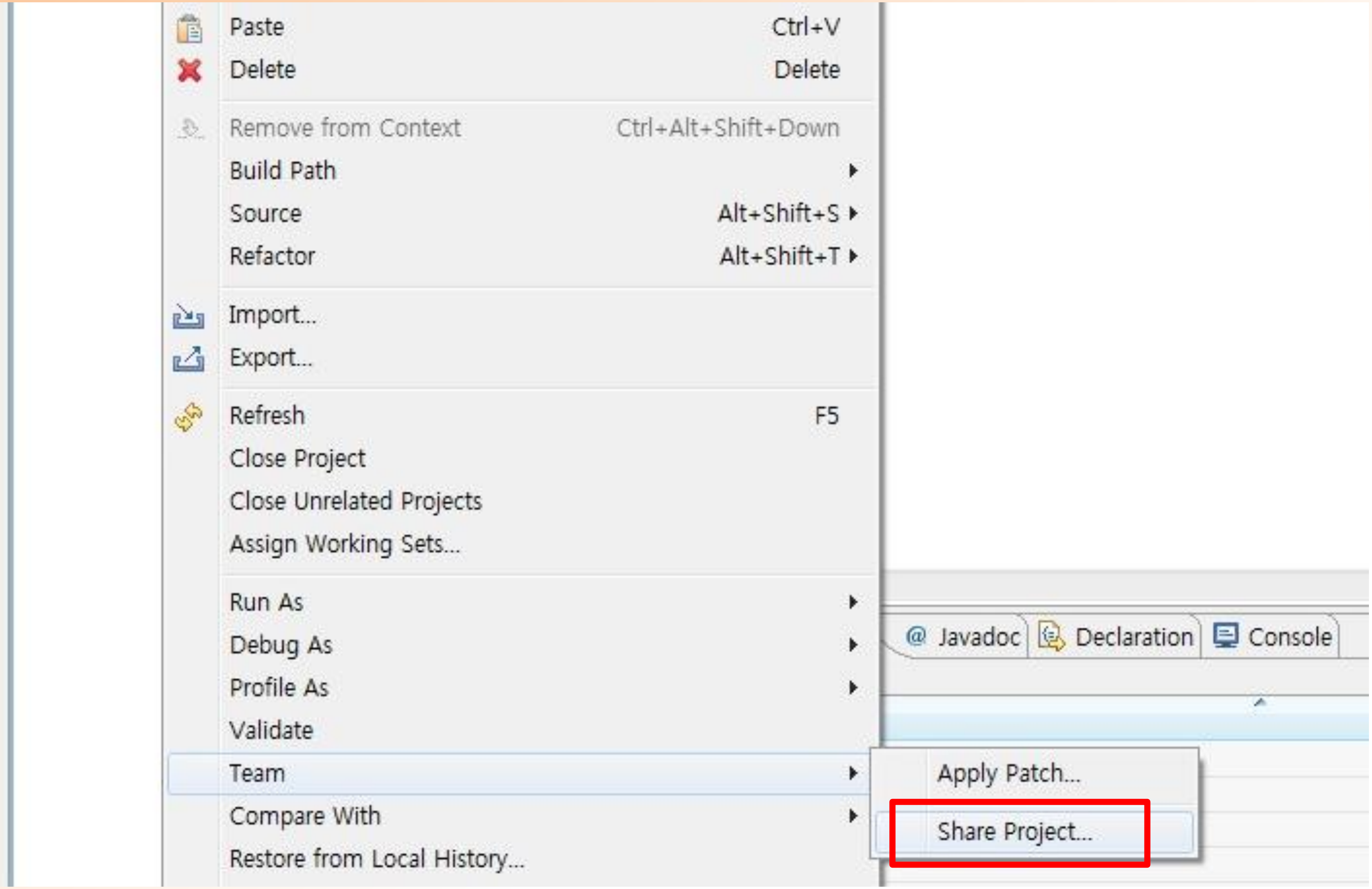
Your project is using approximately 0 bytes out of 4096 MB total quota.
New project? You can reset this repository so that svnsync can be used to upload existing code history.

SCM Tools(use Subclipse)

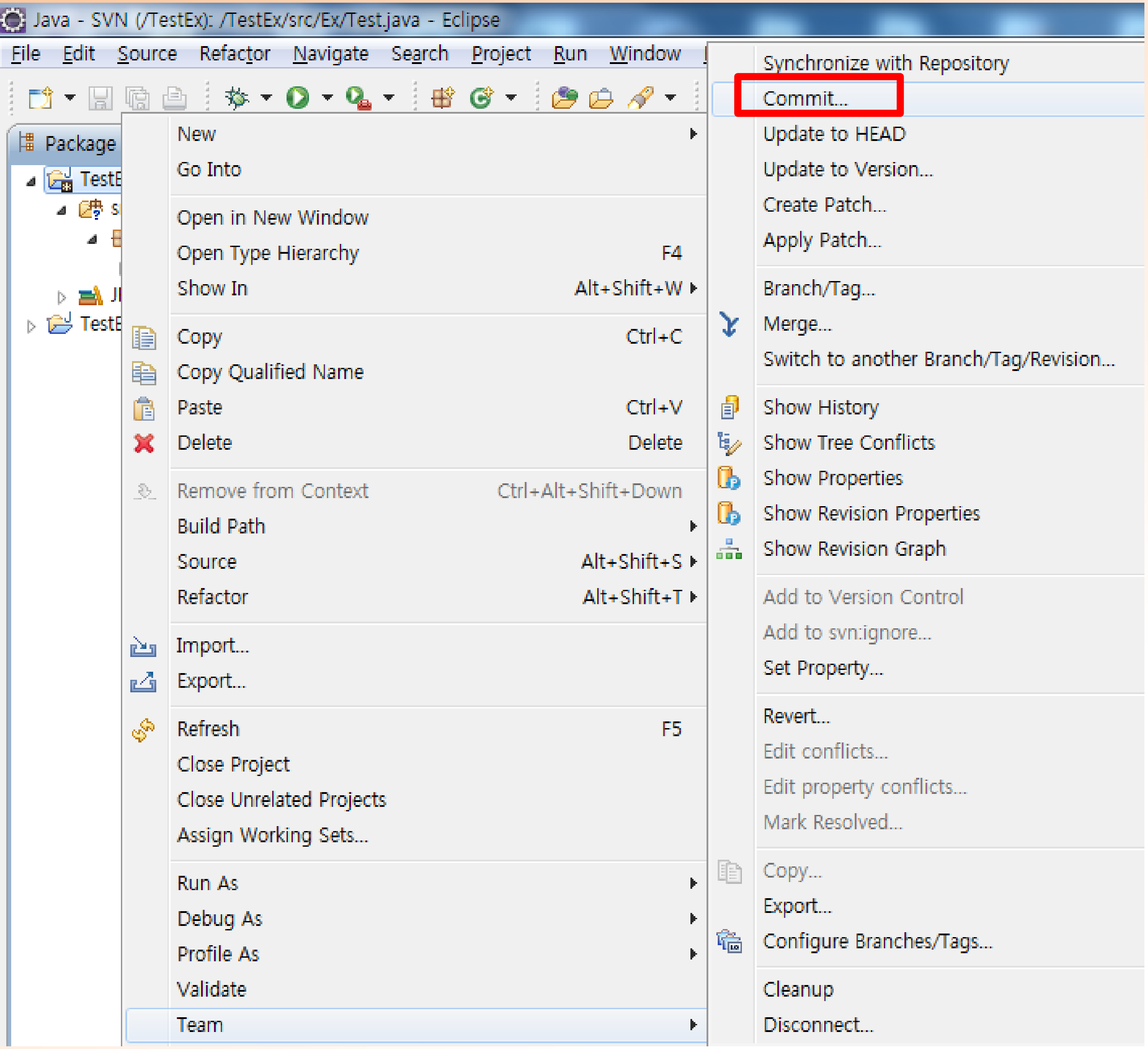

Java - TestEx/src/Ex/Test.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
JUnit
TestEx
src
Ex
Test.java
JRE System Library [JavaSE-1.6]
TestExample
*Test.java

```java
package Ex;

public class Test {
    public static void main()
    {
        System.out.println("This is Testing Example. ");
        System.out.println("Testing is successful!");
    }
}
```

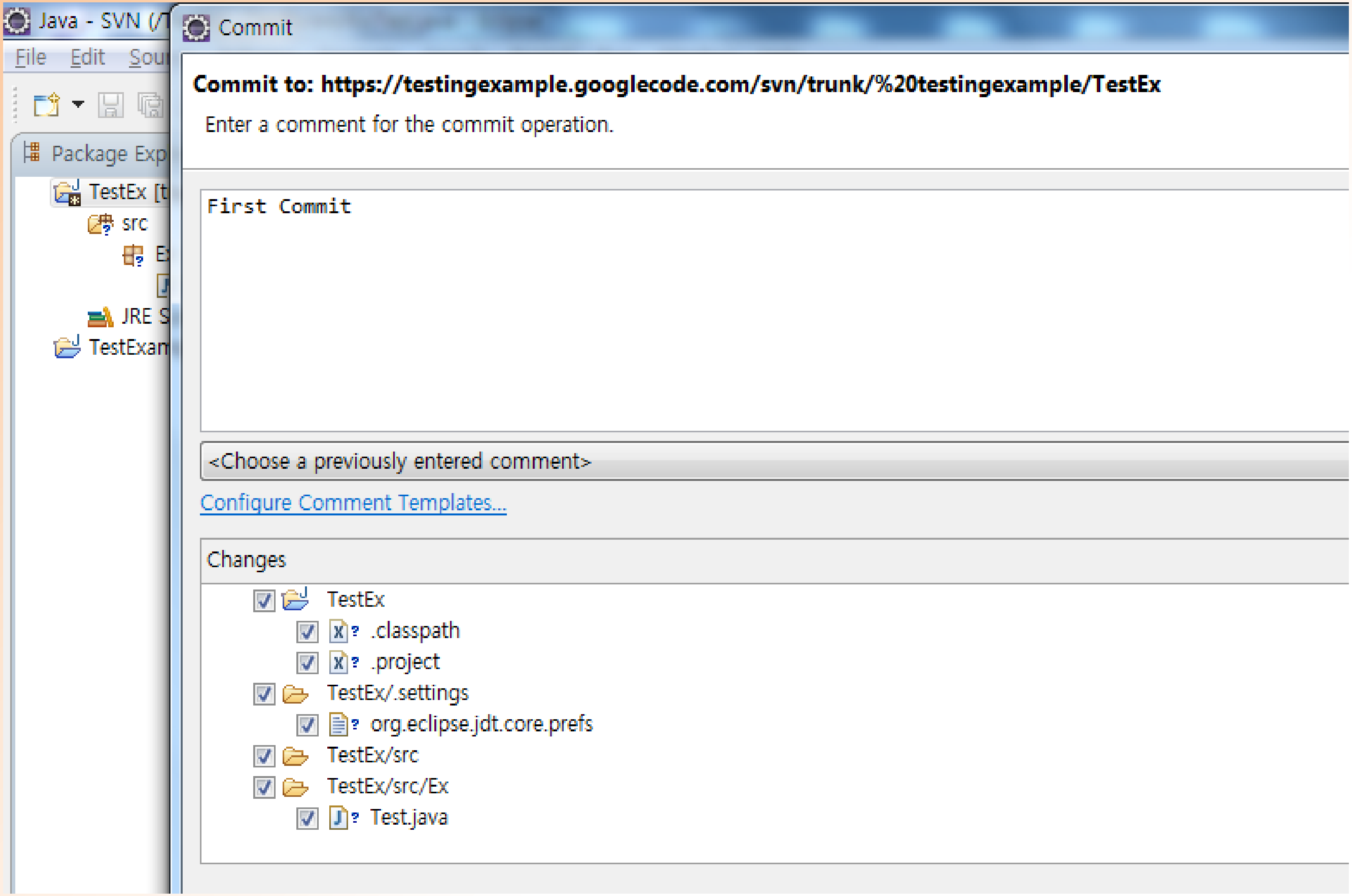
SCM Tools(use Subclipse)



SCM Tools(use Subclipse)



SCM Tools(use Subclipse)



Commit to: https://testingexample.googlecode.com/svn/trunk/%20testingexample/TestEx

Enter a comment for the commit operation.

```
First Commit
```

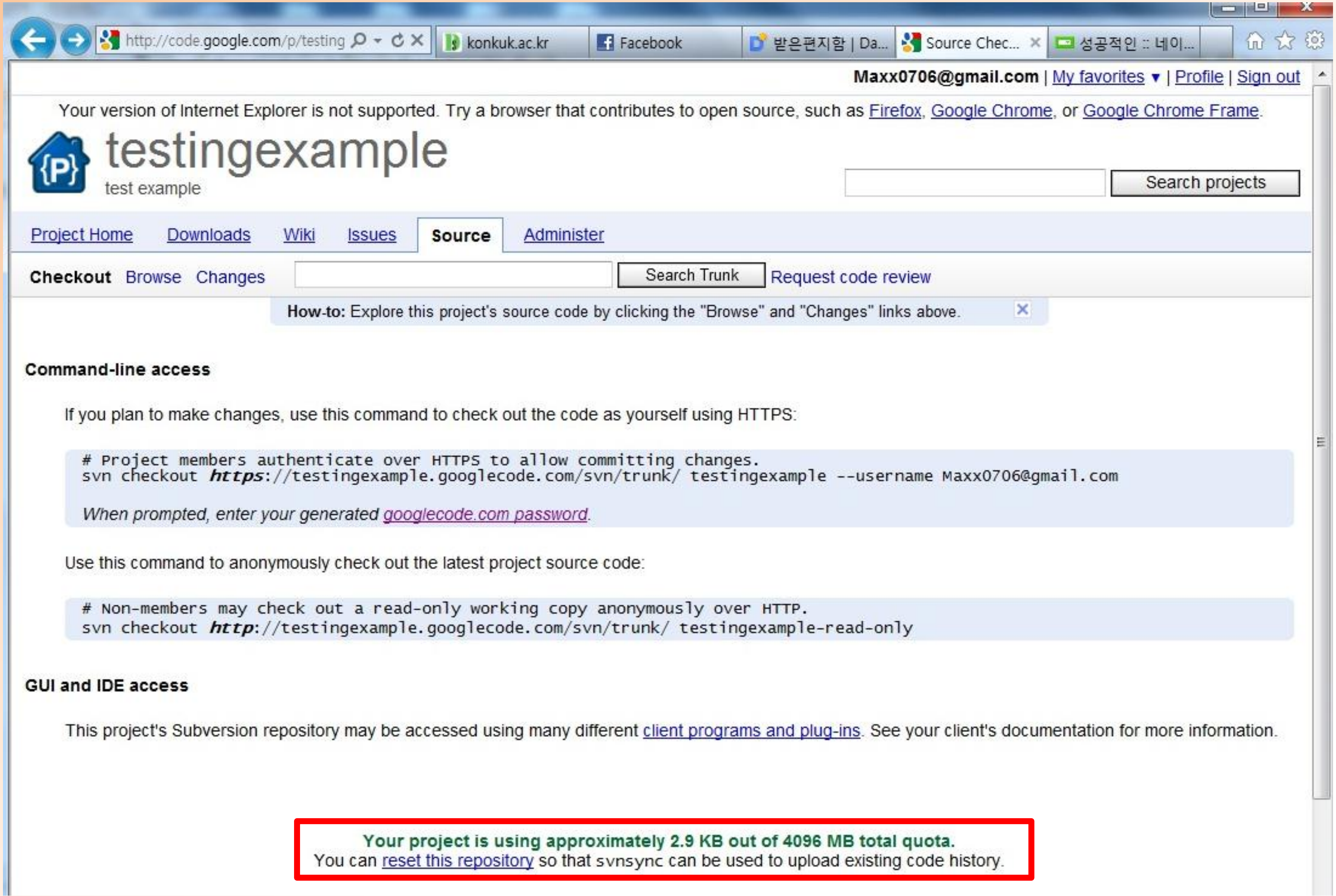
<Choose a previously entered comment>

Configure Comment Templates...

Changes

- ☑ TestEx
  - ☑ .classpath
  - ☑ .project
- ☑ TestEx/.settings
  - ☑ org.eclipse.jdt.core.prefs
- ☑ TestEx/src
- ☑ TestEx/src/Ex
  - ☑ Test.java

SCM Tools(use Subclipse)



Maxx0706@gmail.com | My favorites ▾ | Profile | Sign out

Your version of Internet Explorer is not supported. Try a browser that contributes to open source, such as Firefox, Google Chrome, or Google Chrome Frame.

testingexample

test example

How-to: Explore this project's source code by clicking the "Browse" and "Changes" links above.

Command-line access

If you plan to make changes, use this command to check out the code as yourself using HTTPS:

```
# Project members authenticate over HTTPS to allow committing changes.
svn checkout https://testingexample.googlecode.com/svn/trunk/ testingexample --username Maxx0706@gmail.com
```

When prompted, enter your generated googlecode.com password.

Use this command to anonymously check out the latest project source code:

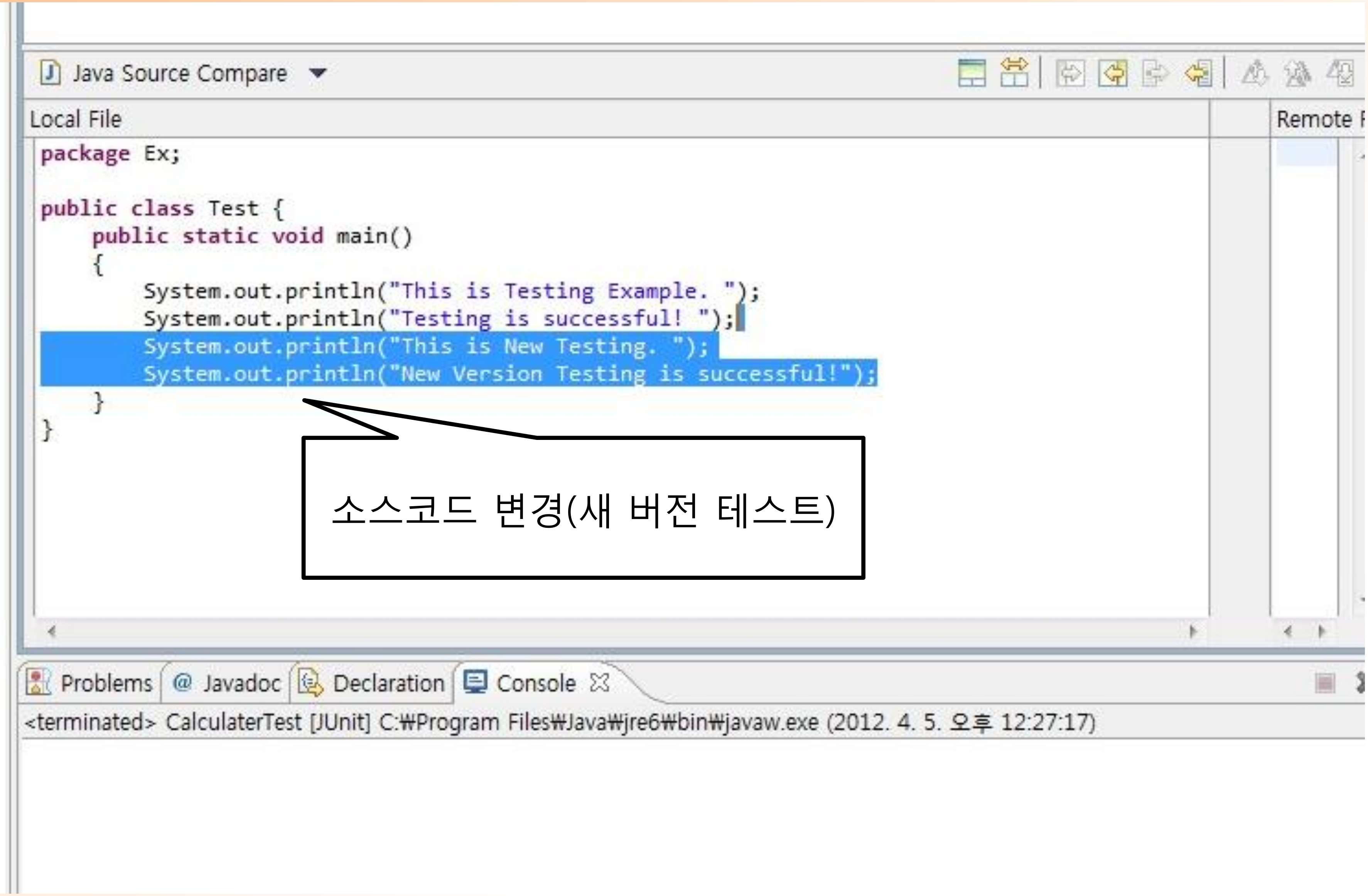
```
# Non-members may check out a read-only working copy anonymously over HTTP.
svn checkout http://testingexample.googlecode.com/svn/trunk/ testingexample-read-only
```

GUI and IDE access

This project's Subversion repository may be accessed using many different client programs and plug-ins. See your client's documentation for more information.

Your project is using approximately 2.9 KB out of 4096 MB total quota.
You can reset this repository so that svnsync can be used to upload existing code history.

SCM Tools(use Subclipse)

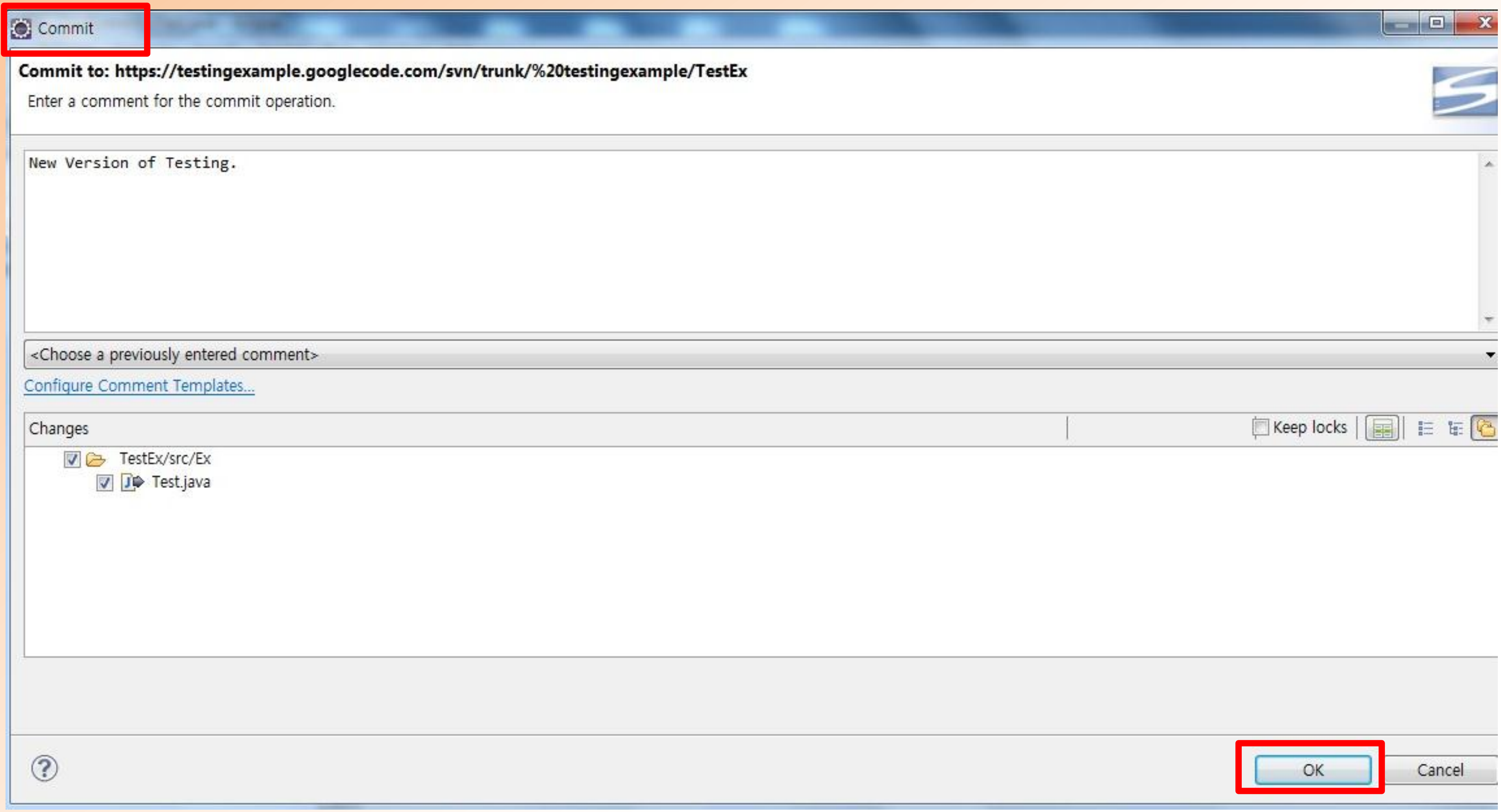


```
package Ex;

public class Test {
    public static void main()
    {
        System.out.println("This is Testing Example. ");
        System.out.println("Testing is successful! ");
        System.out.println("This is New Testing. ");
        System.out.println("New Version Testing is successful!");
    }
}
```

```
<terminated> CalculaterTest [JUnit] C:₩Program Files₩Java₩jre6₩bin₩javaw.exe (2012. 4. 5. 오후 12:27:17)
```

소스코드 변경(새 버전 테스트)

SCM Tools(use Subclipse)



Commit to: https://testingexample.googlecode.com/svn/trunk/%20testingexample/TestEx

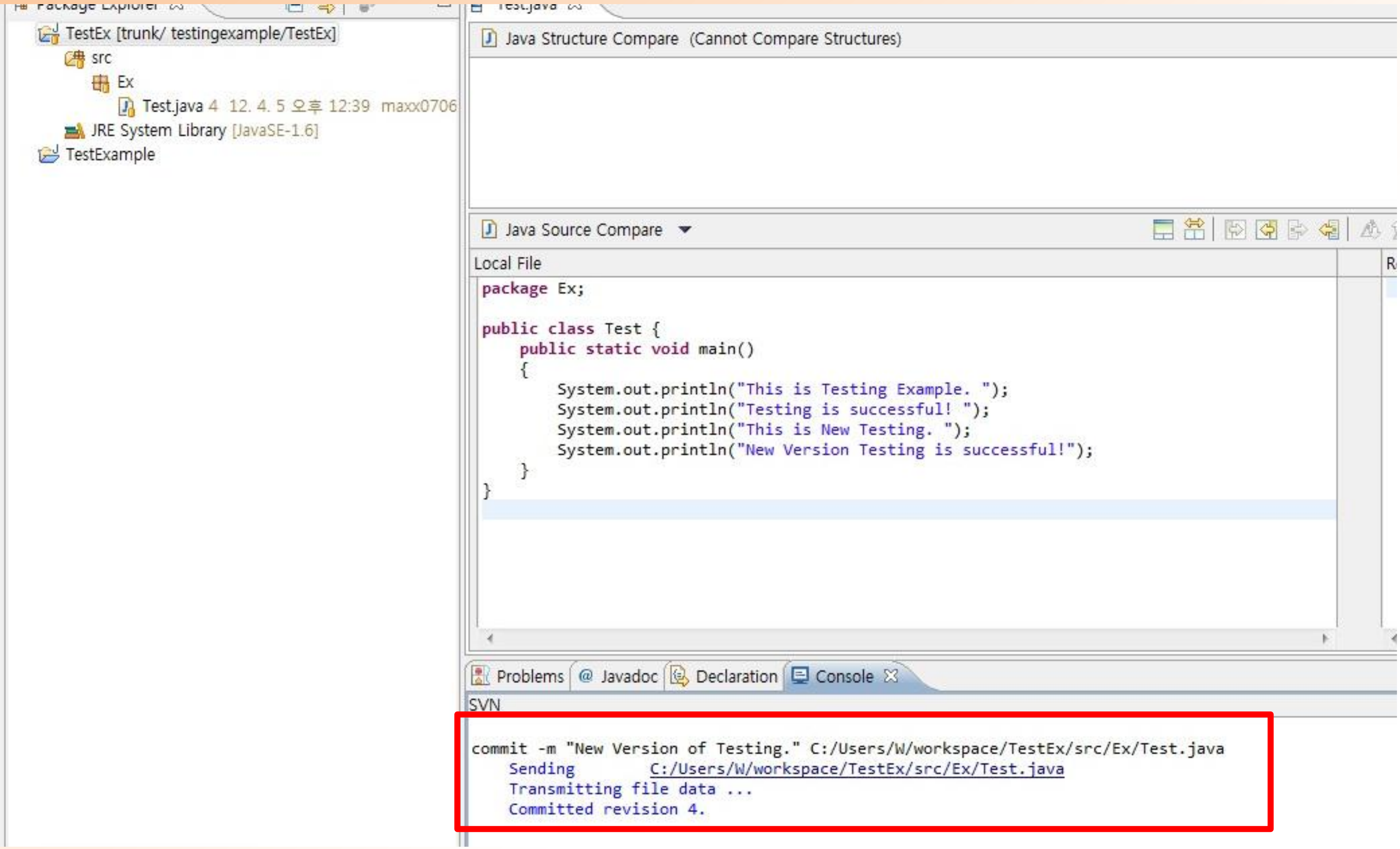
Enter a comment for the commit operation.

```
New Version of Testing.
```

<Choose a previously entered comment>
Configure Comment Templates...
Changes
□ Keep locks

☑ TestEx/src/Ex
☑ Test.java

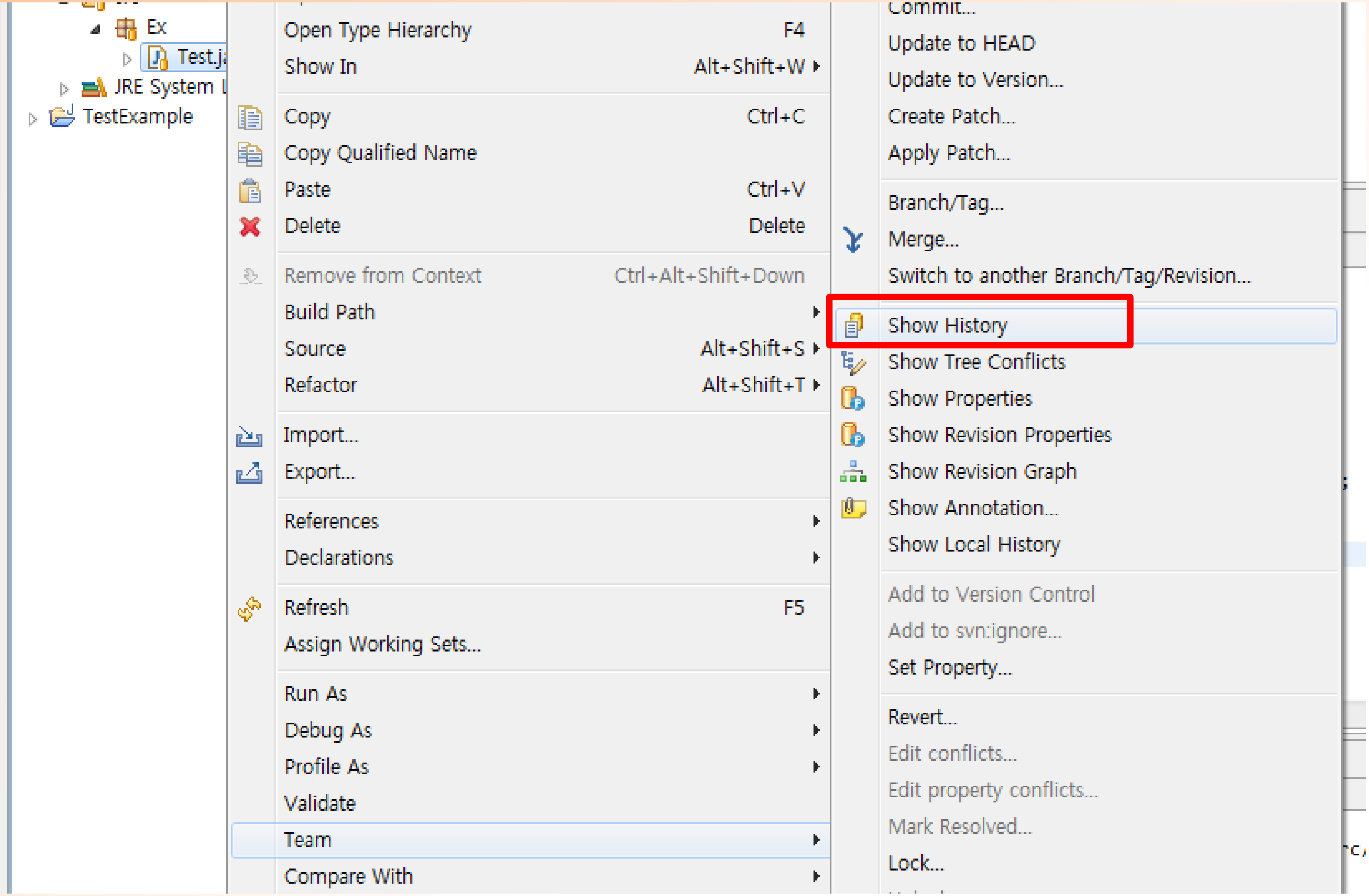
SCM Tools(use Subclipse)


Package Explorer
TestEx [trunk/ testingexample/TestEx]
src
Ex
Test.java 4 12. 4. 5 오후 12:39 maxx0706
JRE System Library [JavaSE-1.6]
TestExample
Test.java
Java Structure Compare (Cannot Compare Structures)
Java Source Compare
Local File
Problems
Javadoc
Declaration
Console
SVN

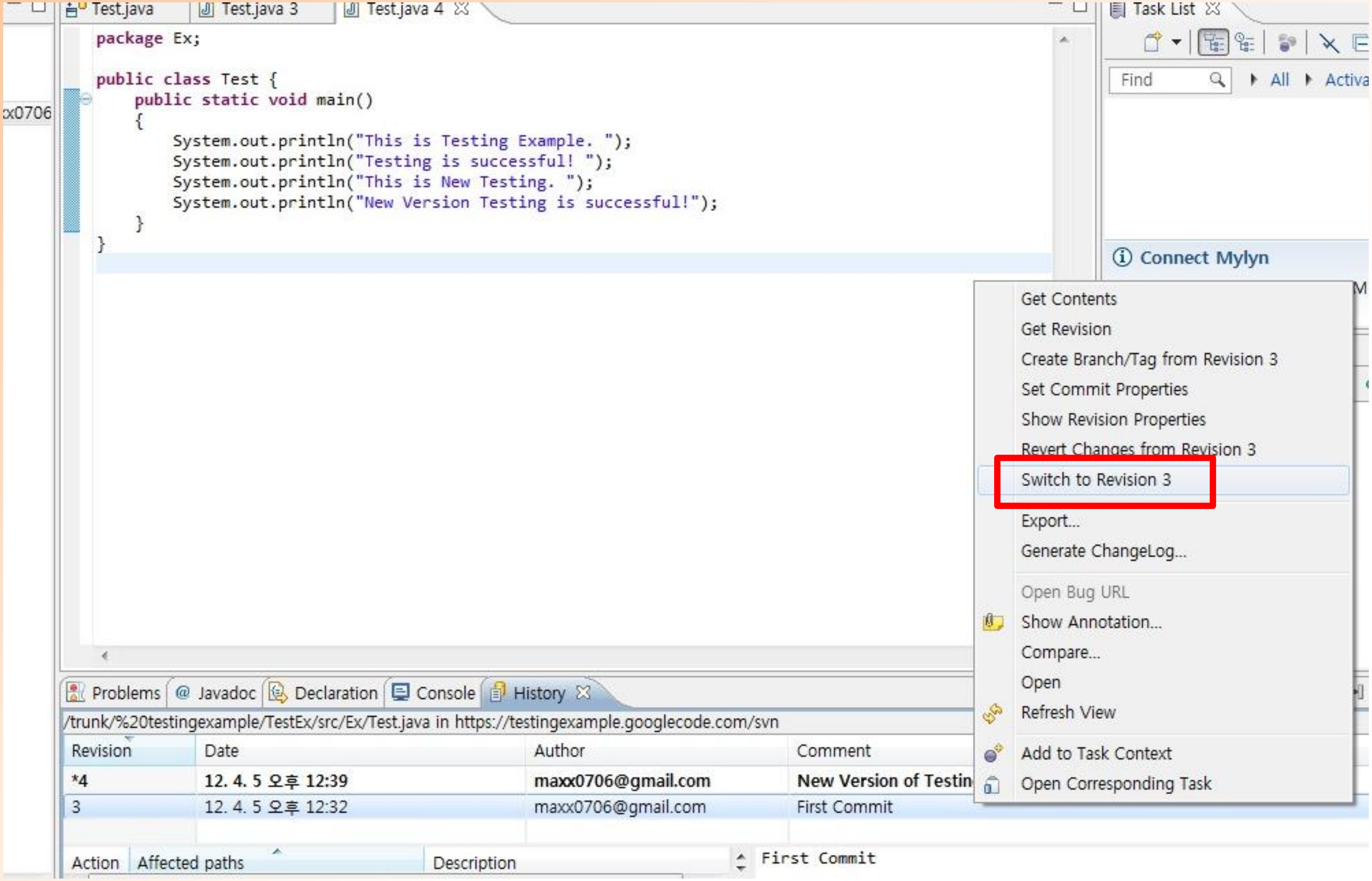
```
package Ex;

public class Test {
    public static void main()
    {
        System.out.println("This is Testing Example. ");
        System.out.println("Testing is successful! ");
        System.out.println("This is New Testing. ");
        System.out.println("New Version Testing is successful!");
    }
}
```

```
commit -m "New Version of Testing." C:/Users/W/workspace/TestEx/src/Ex/Test.java
    Sending        C:/Users/W/workspace/TestEx/src/Ex/Test.java
    Transmitting file data ...
    Committed revision 4.
```

SCM Tools(use Subclipse)



SCM Tools(use Subclipse)



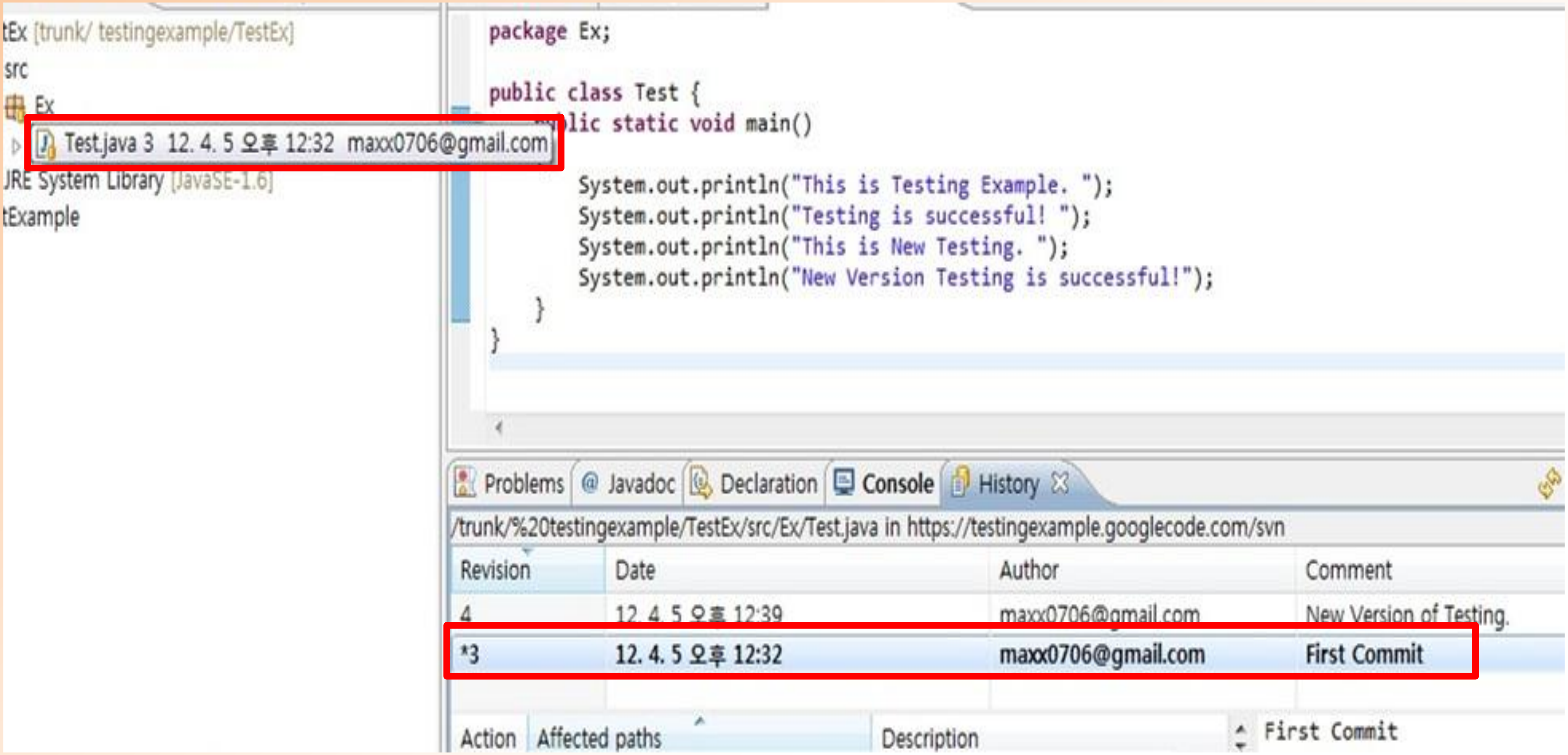
```
package Ex;

public class Test {
    public static void main()
    {
        System.out.println("This is Testing Example. ");
        System.out.println("Testing is successful! ");
        System.out.println("This is New Testing. ");
        System.out.println("New Version Testing is successful!");
    }
}
```

/trunk/%20testingexample/TestEx/src/Ex/Test.java in https://testingexample.googlecode.com/svn

Revision	Date	Author	Comment
*4	12. 4. 5 오후 12:39	maxx0706@gmail.com	New Version of Testin
3	12. 4. 5 오후 12:32	maxx0706@gmail.com	First Commit

First Commit

SCM Tools(use Subclipse)



tEx [trunk/ testingexample/TestEx]
src
Ex
Test.java 3 12. 4. 5 오후 12:32 maxx0706@gmail.com
JRE System Library [JavaSE-1.6]
tExample

```
package Ex;

public class Test {
    public static void main()

        System.out.println("This is Testing Example. ");
        System.out.println("Testing is successful! ");
        System.out.println("This is New Testing. ");
        System.out.println("New Version Testing is successful!");
    }
}
```

/trunk/%20testingexample/TestEx/src/Ex/Test.java in https://testingexample.googlecode.com/svn

Revision	Date	Author	Comment
4	12. 4. 5 오후 12:39	maxx0706@gmail.com	New Version of Testing.
*3	12. 4. 5 오후 12:32	maxx0706@gmail.com	First Commit

Action	Affected paths	Description

First Commit

Requirement Engineering

1.1 About RE
1.2 RE Tools

About RE

- **What is Requirements?**

A singular documented physical and functional need that a particular product or service must be or perform in engineering

→ 계약, 표준, 명세 또는 다른 형식으로 제시된 문서에 맞추어 시스템이나 시스템 구성 요소가 갖추어야 할, 검증 가능한 조건이나 능력

About RE

- **Types of product requirements**

Functional requirements
describe the functionality that the system is to execute; for example, formatting some text or modulating a signal. They are sometimes kn own as capabilities

- ➢ 소프트웨어의 내부 수행 기능
- ➢ 기술적 및 시스템 내부적(component한) 입/출력에 대한 요구사항

About RE

- **Types of product requirements**

Non-functional requirements
describe characteristics of the system that the user cannot affect or (immediately) perceive. Nonfunctional requirements are sometimes known as quality requirements or Llties(Long lead time items)

- ➢ 품질 특성에 관한 요구사항
- ➢ 실행 속도, 가격성 등 시스템이 의미를 가지기 위한 요구사항

About RE

- **What is Requirements Engineering?**

A systems and software engineering process which covers all of the activities involved in discovering, documenting and maintaining a set of requirements for a computer-based system.

➡ 컴퓨터 시스템 개발 계획 시에 현상 파악과 내용 분석에 의해 현재의 조건 또는 예견되는 조건 등을 명확하게 하여, 다음 개발 단계를 위해 요건을 확립하는 기술

➡ 요구사항 분석이 꼼꼼히 제대로 되어야 설계 완료 단계에서 급히 수정 요청을 받더라도 큰 피해 없이 수정이 가능하다

RE Tools

- **JFeature**

  요구사항을 보고 Unit Test를 진행하여 직관적인 Unit Test가 가능
  JUnit의 Testcase 메소드와 통합할 수 있음

- **OSRMT**

  Open Source Requirement Management Tool

- **JRequisite**

  Requirement management tool

- **Requirement Heap**

  web based requirement management /business analysis application

- **TRUC**

  Tracking Requirements & Use Cases

RE Tools

- **Jfeature의 특징 및 장점**

➢ 제공되는 view를 통해 빠른 편집이 가능

➢ CSV XML의 requirements의 동기화가 가능(확장성)

➢ 요구사항의 반영 여부를 Coverage형태로 쉽게 확인 가능

➢ Junit과 연동하여 requirements coverage대하여 Additional reporting format을 제공

RE Tools

- **OSRMT의 특징 및 장점**

➢ Requirements을 SDLC 별로 쉽게 구분가능

➢ 요구사항을 Feature / Requirement / Design / Implementation / Test Case로 구분가능

➢ 정의된Requirements들 간의 의존성을 설정, 추적관리가 용이

➢ Requirements 가 변경된 경우, 어떤 Requirements에 영향을 미치는지 여부를 그림으로 확인가능(편리성)

RE Tools

- **OSRMT vs Jfeature**

➢ Jfeature은 Java 개발자에게 편리함

➢ OSRMT는 강력한 독자적인 RE tool임(쓰기 간편함)

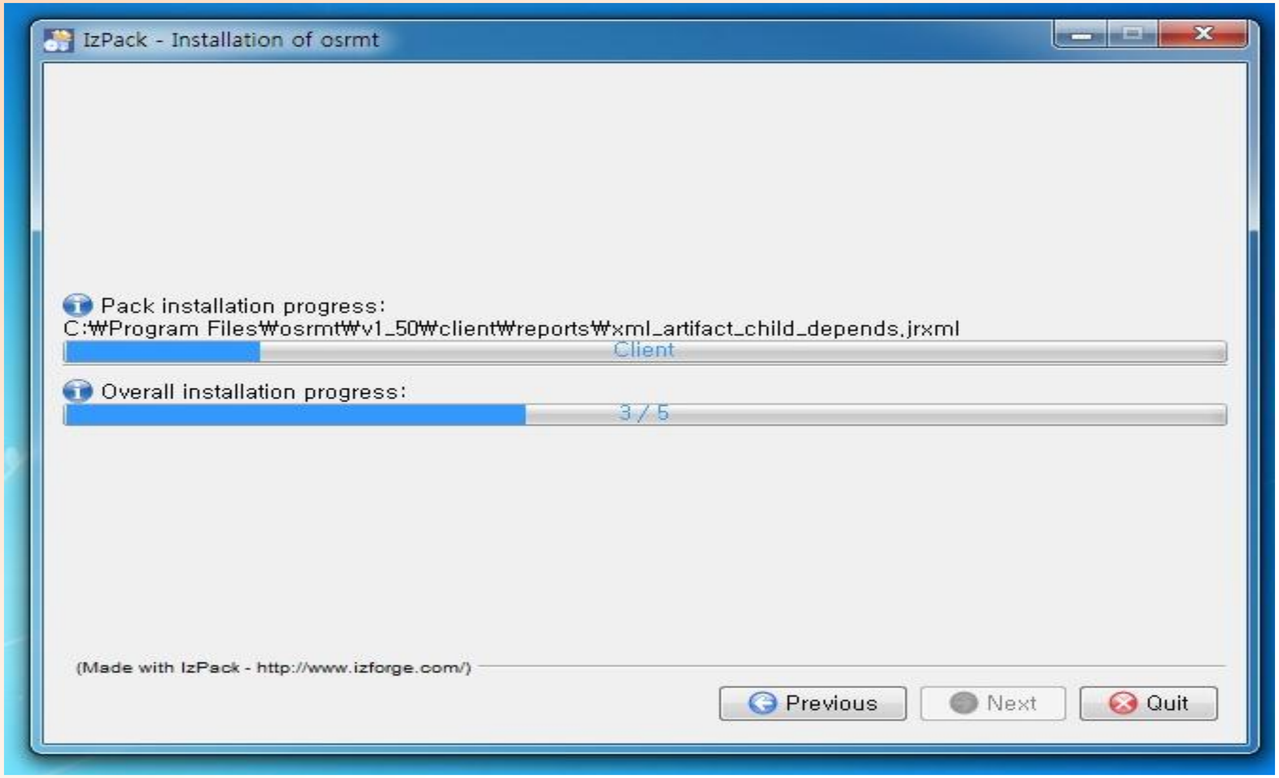
➢ OSRMT는 요구사항이 빈번하게 바뀔경우 고치거나 추적하기가 쉽기 때문에 큰 프로젝트에 강력함

➢ Jfeature은 개인 프로젝트나 규모가 작은 프로젝트에 유용함

RE Tools

- **OSRMT**

http://sourceforge.net/projects/osrmt/ 에서 다운로드 및 설치



Pack installation progress:
C:₩Program Files₩osrmt₩v1_50₩client₩reports₩xml_artifact_child_depends.jrxml

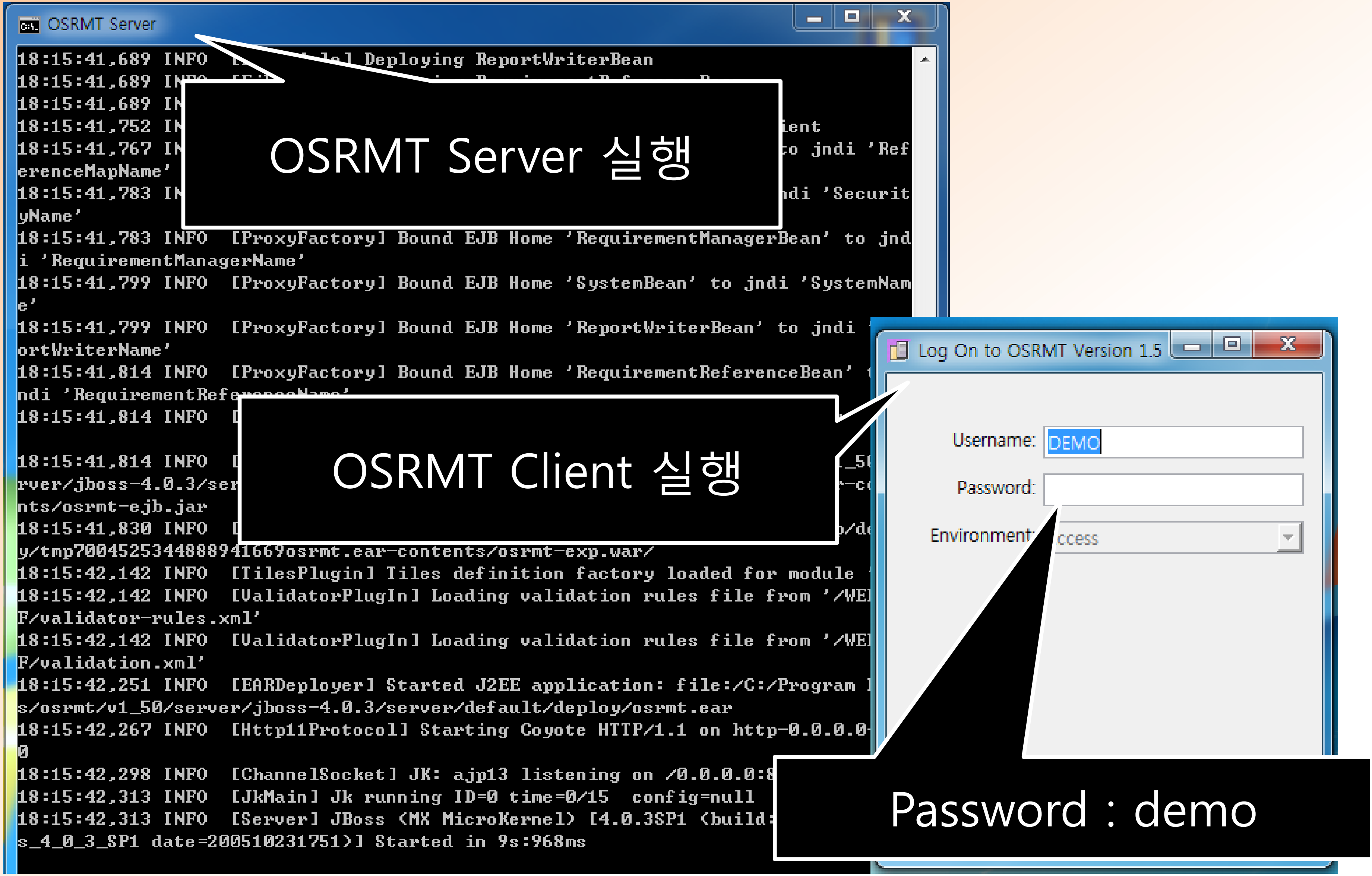
Client

Overall installation progress:

3 / 5

(Made with IzPack - http://www.izforge.com/)

RE Tools



OSRMT Server

```
18:15:41,689 INFO  [        le] Deploying ReportWriterBean
18:15:41,689 INFO  [E
18:15:41,689 IN
18:15:41,752 IN                                                   ient
18:15:41,767 IN                                                   to jndi 'Ref
erenceMapName'
18:15:41,783 IN                                                   ndi 'Securit
yName'
18:15:41,783 INFO  [ProxyFactory] Bound EJB Home 'RequirementManagerBean' to jnd
i 'RequirementManagerName'
18:15:41,799 INFO  [ProxyFactory] Bound EJB Home 'SystemBean' to jndi 'SystemNam
e'
18:15:41,799 INFO  [ProxyFactory] Bound EJB Home 'ReportWriterBean' to jndi
ortWriterName'
18:15:41,814 INFO  [ProxyFactory] Bound EJB Home 'RequirementReferenceBean' t
ndi 'RequirementRef
18:15:41,814 INFO  [

18:15:41,814 INFO  [                                                     _50
rver/jboss-4.0.3/ser                                                     r-co
nts/osrmt-ejb.jar
18:15:41,830 INFO  [                                                     y/de
y/tmp7004525344888941669osrmt.ear-contents/osrmt-exp.war/
18:15:42,142 INFO  [TilesPlugin] Tiles definition factory loaded for module '
18:15:42,142 INFO  [ValidatorPlugIn] Loading validation rules file from '/WEI
F/validator-rules.xml'
18:15:42,142 INFO  [ValidatorPlugIn] Loading validation rules file from '/WEI
F/validation.xml'
18:15:42,251 INFO  [EARDeployer] Started J2EE application: file:/C:/Program F
s/osrmt/v1_50/server/jboss-4.0.3/server/default/deploy/osrmt.ear
18:15:42,267 INFO  [Http11Protocol] Starting Coyote HTTP/1.1 on http-0.0.0.0-
0
18:15:42,298 INFO  [ChannelSocket] JK: ajp13 listening on /0.0.0.0:8
18:15:42,313 INFO  [JkMain] Jk running ID=0 time=0/15  config=null
18:15:42,313 INFO  [Server] JBoss (MX MicroKernel) [4.0.3SP1 (build:
s_4_0_3_SP1 date=200510231751)] Started in 9s:968ms
```

Log On to OSRMT Version 1.5

Username: DEMO

Password:

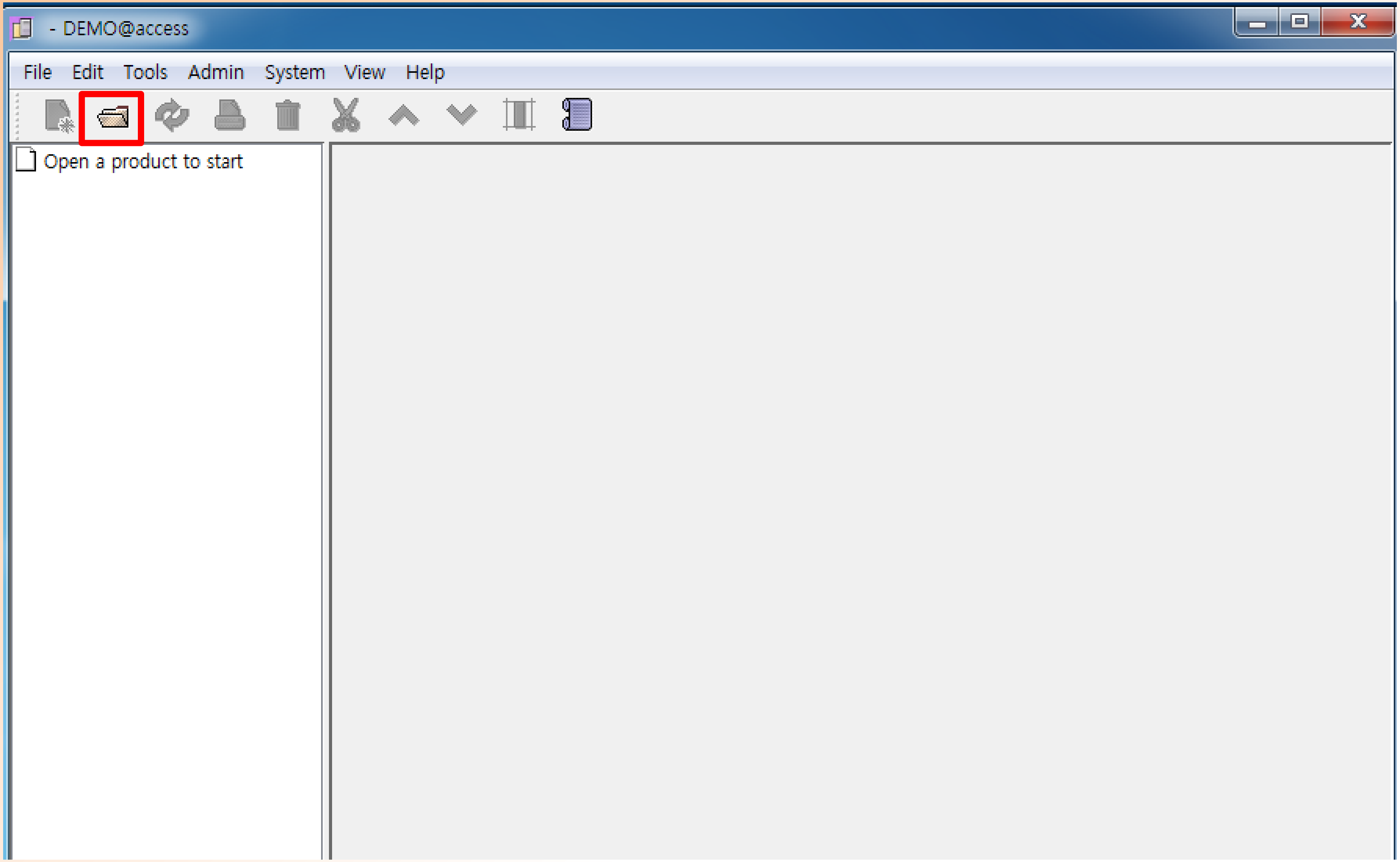
Environment: ccess

OSRMT Server 실행

OSRMT Client 실행

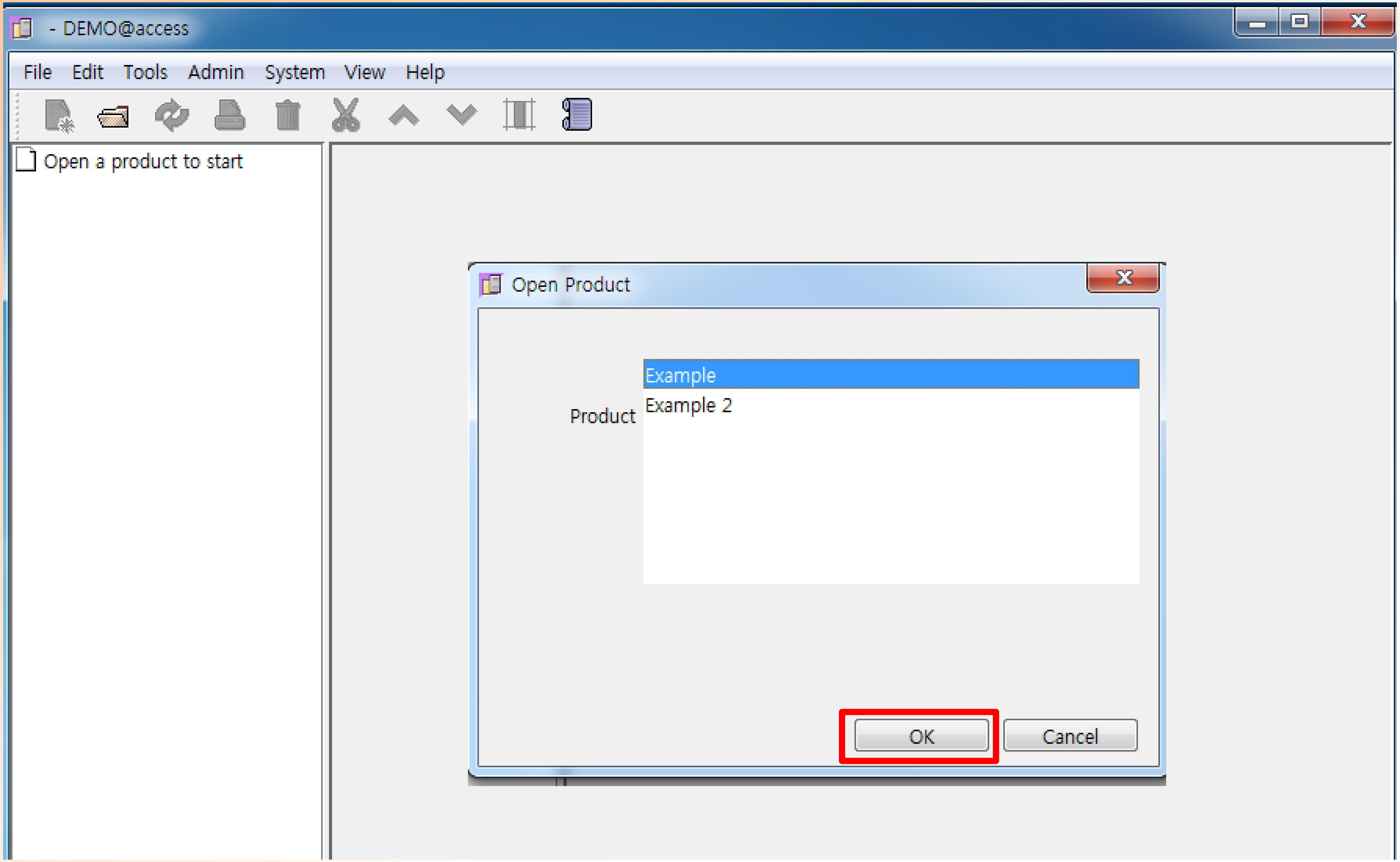
Password : demo

RE Tools



Open a product to start

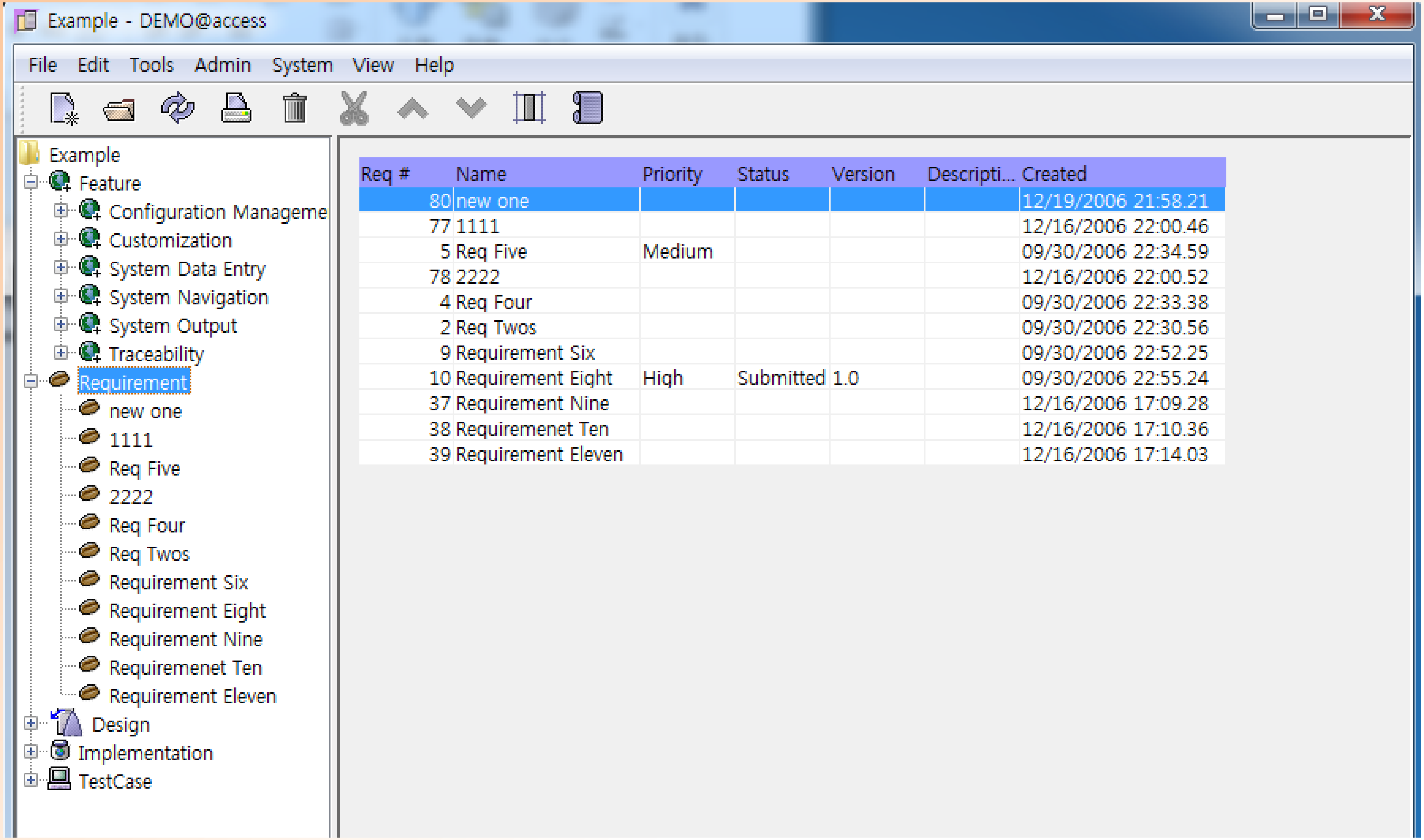
RE Tools



Example

Example 2

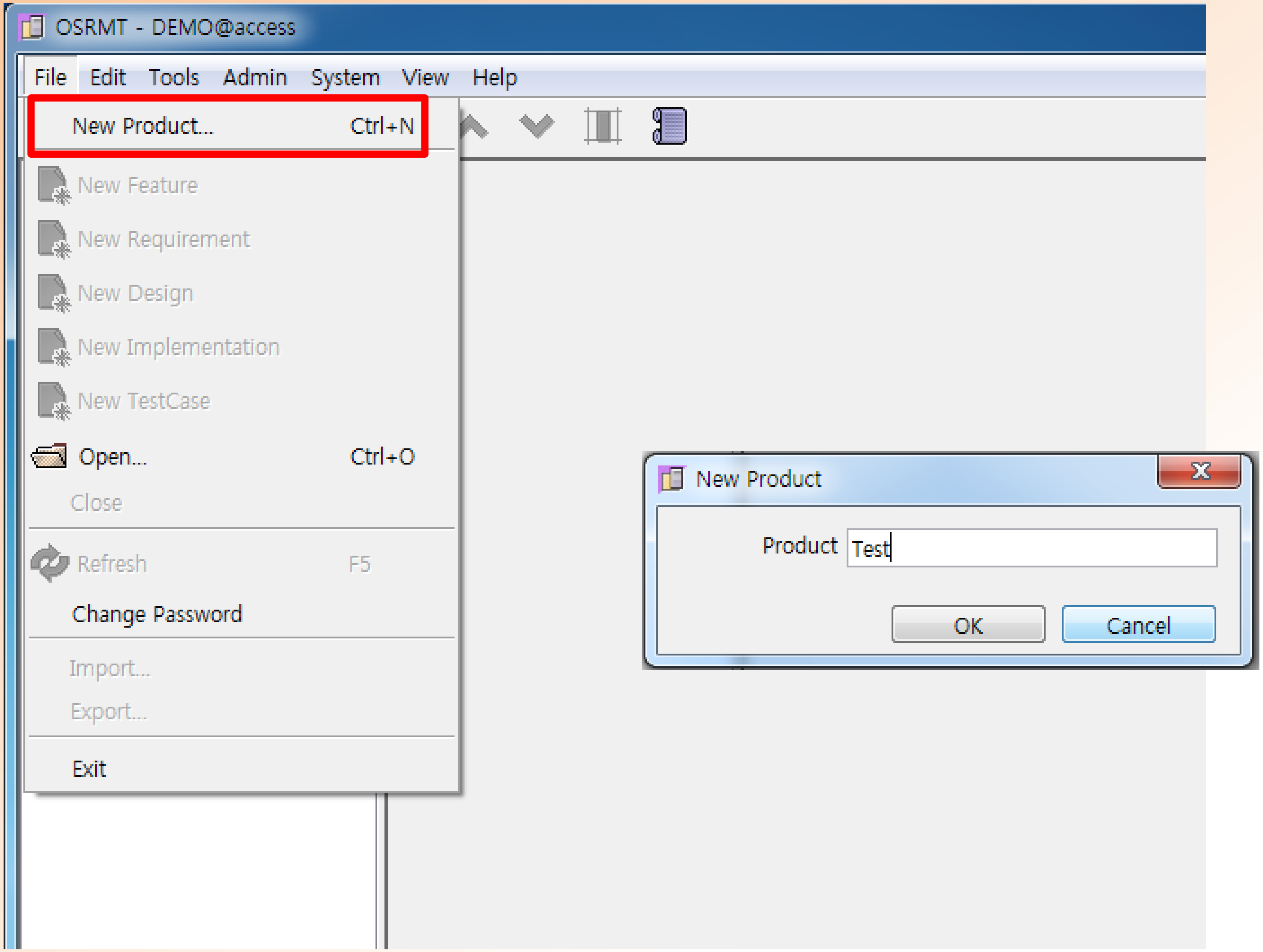
RE Tools



- Example
  - Feature
    - Configuration Manageme
    - Customization
    - System Data Entry
    - System Navigation
    - System Output
    - Traceability
  - Requirement
    - new one
    - 1111
    - Req Five
    - 2222
    - Req Four
    - Req Twos
    - Requirement Six
    - Requirement Eight
    - Requirement Nine
    - Requiremenet Ten
    - Requirement Eleven
  - Design
  - Implementation
  - TestCase

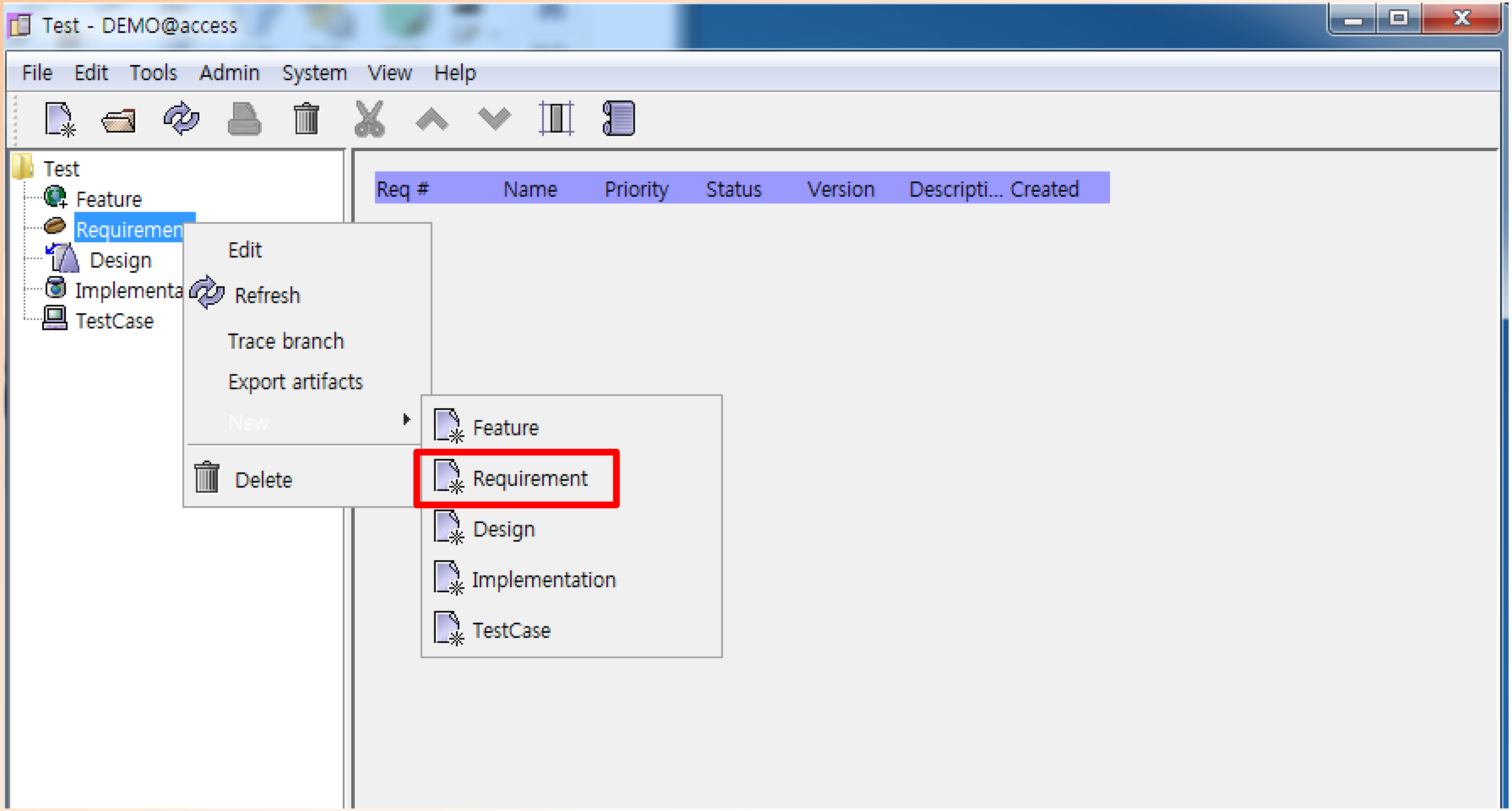
Req #	Name	Priority	Status	Version	Descripti...	Created
80	new one					12/19/2006 21:58.21
77	1111					12/16/2006 22:00.46
5	Req Five	Medium				09/30/2006 22:34.59
78	2222					12/16/2006 22:00.52
4	Req Four					09/30/2006 22:33.38
2	Req Twos					09/30/2006 22:30.56
9	Requirement Six					09/30/2006 22:52.25
10	Requirement Eight	High	Submitted	1.0		09/30/2006 22:55.24
37	Requirement Nine					12/16/2006 17:09.28
38	Requiremenet Ten					12/16/2006 17:10.36
39	Requirement Eleven					12/16/2006 17:14.03

RE Tools

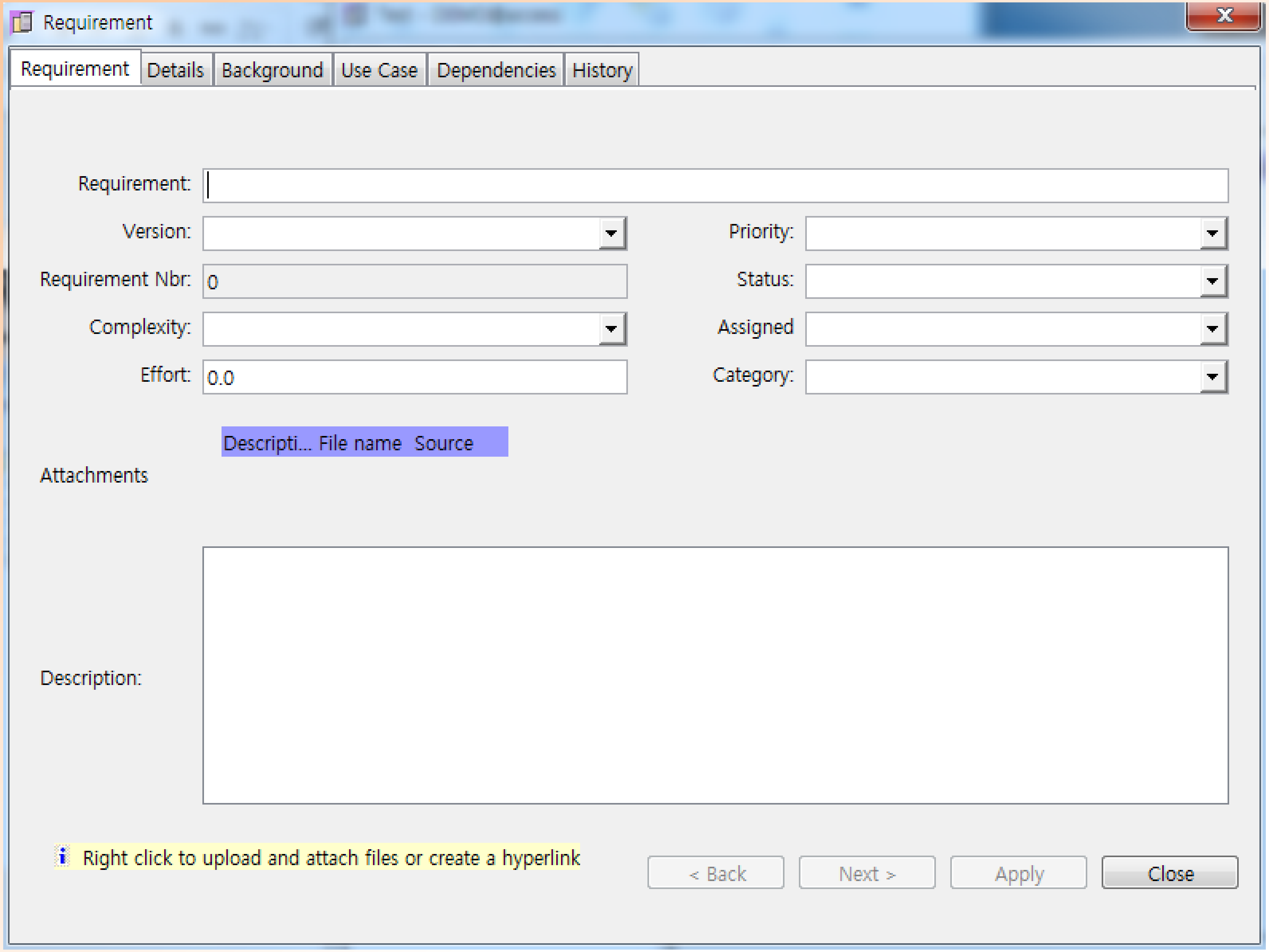


Product Test

RE Tools


Test - DEMO@access
File
Edit
Tools
Admin
System
View
Help
Test
Feature
Requirement
Design
Implementation
TestCase
Edit
Refresh
Trace branch
Export artifacts
New
Delete
Feature
Requirement
Design
Implementation
TestCase
Req #
Name
Priority
Status
Version
Descripti...
Created

RE Tools



Requirement:

Version:

Priority:

Requirement Nbr: 0

Status:

Complexity:

Assigned

Effort: 0.0

Category:

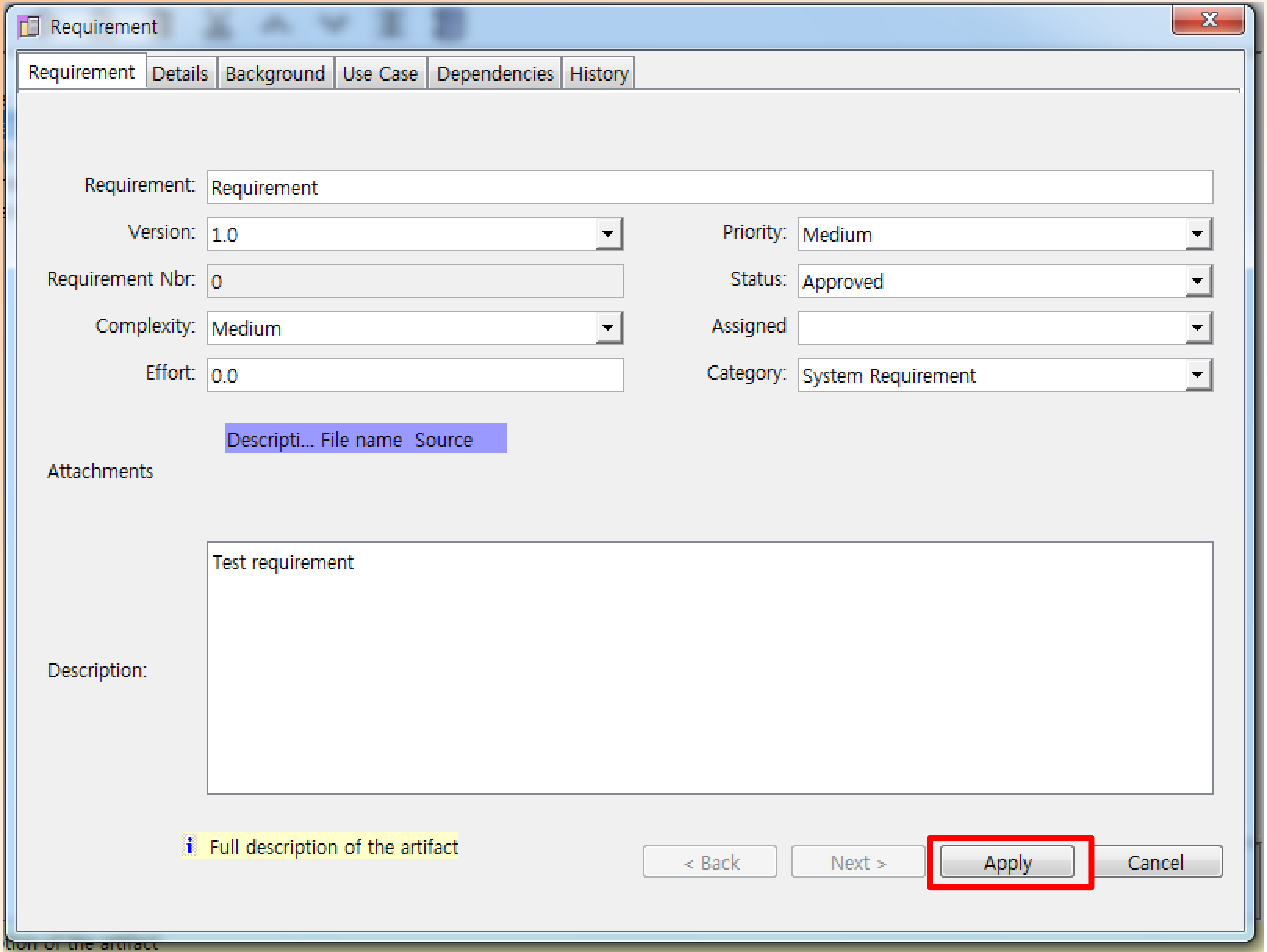
Descripti...	File name	Source

Attachments

Description:

Right click to upload and attach files or create a hyperlink

RE Tools



Requirement: Requirement

Version: 1.0

Priority: Medium

Requirement Nbr: 0

Status: Approved

Complexity: Medium

Assigned

Effort: 0.0

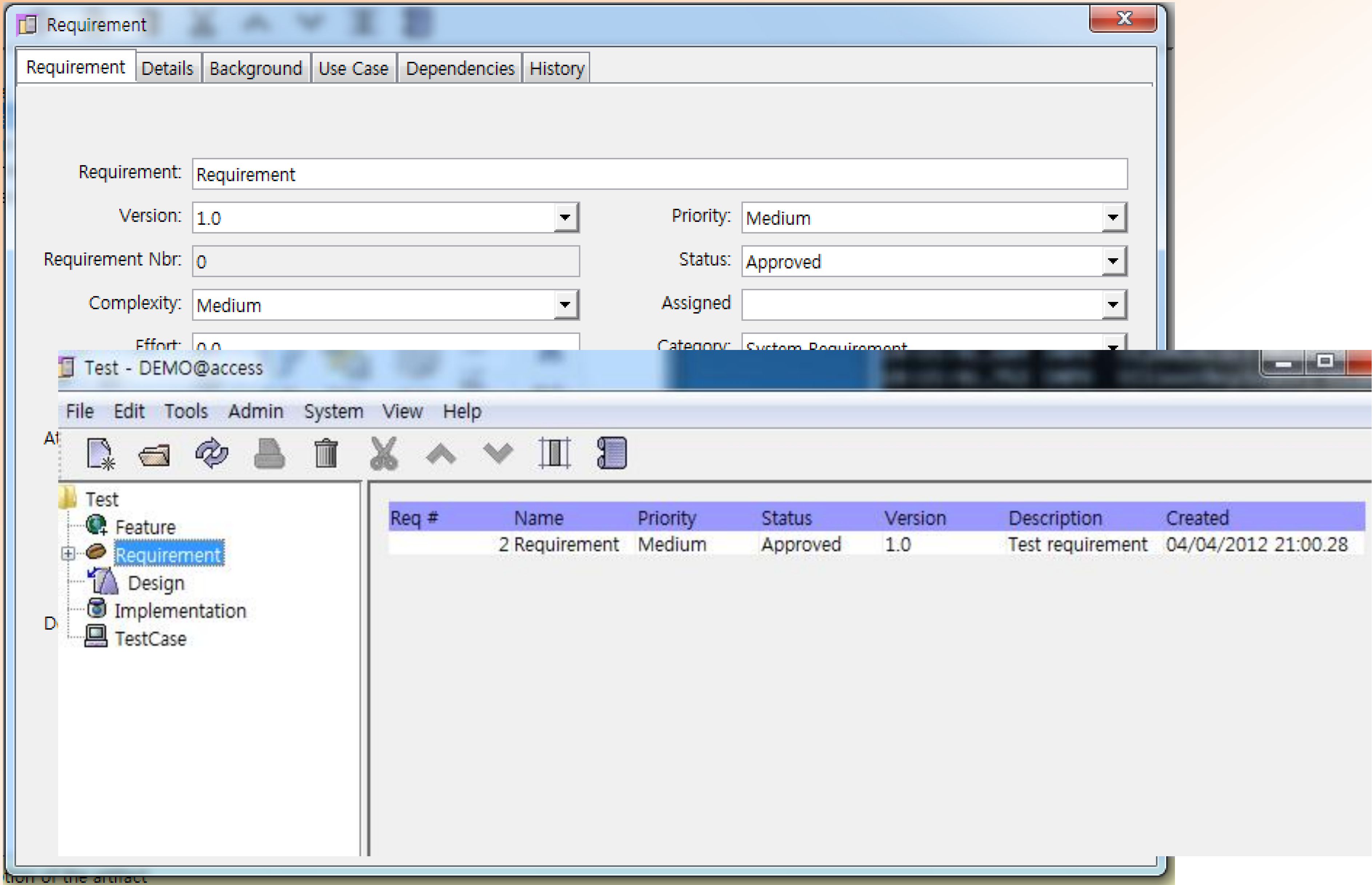
Category: System Requirement

Attachments

Description: Test requirement

Full description of the artifact

RE Tools



Requirement:	Requirement		
Version:	1.0	Priority:	Medium
Requirement Nbr:	0	Status:	Approved
Complexity:	Medium	Assigned	
Effort:	0.0	Category:	System Requirement

Req #	Name	Priority	Status	Version	Description	Created
2	Requirement	Medium	Approved	1.0	Test requirement	04/04/2012 21:00.28

References

Software Engineering 8, SOMMERVILLE

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