

# GenerationCP Software Engineering Collaboration Platform

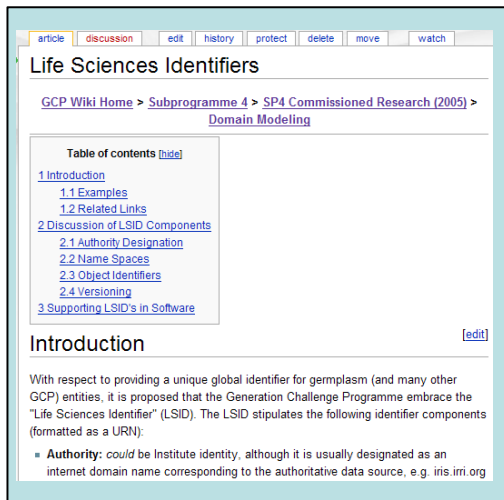
SP4 Commissioned Research  
Project 34, 2005/2006

# Content

- Collaboration platform overview
- CropForge overview
- SSH connection to CropForge
- CVS principles
- TortoiseCVS GUI

# Collaboration Platform Overview

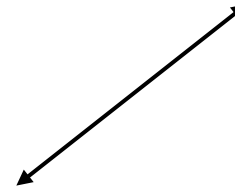
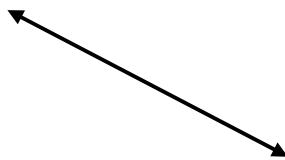
## CropWiki



The screenshot shows a web browser window displaying a wiki page. At the top, there are navigation tabs: 'article', 'discussion', 'edit', 'history', 'protect', 'delete', 'move', and 'watch'. The main heading is 'Life Sciences Identifiers'. Below it, a breadcrumb trail reads 'GCP Wiki Home > Subprogramme 4 > SP4 Commissioned Research (2005) > Domain Modeling'. A 'Table of contents' sidebar on the left lists sections: '1 Introduction', '1.1 Examples', '1.2 Related Links', '2 Discussion of LSID Components', '2.1 Authority Designation', '2.2 Name Spaces', '2.3 Object Identifiers', '2.4 Versioning', and '3 Supporting LSID's in Software'. The main content area is titled 'Introduction' and contains text about providing a unique global identifier for germplasm. A list item under 'Authority' is visible: 'Authority: could be Institute identity, although it is usually designated as an internet domain name corresponding to the authoritative data source, e.g. iris.iri.org'. An '[edit]' link is present at the end of the section title.

## CropForge

```
public interface Entity extends AccessionId {  
  
    /**  
     * Return Name identifier that is the primary or "canonical" name of the Entity  
     */  
    Name getName();  
  
    /**  
     * (Re)set the Name identifier that is the primary or "canonical" name of the Entity  
     * Unlike the AccessionId, the canonical name of an Entity can change  
     */  
    void setName(Name name);  
  
    /**  
     * Like setName(Name) except that it accepts a string  
     */  
    void setName(String name);  
  
    /**  
     * (Re)sets the owner of the Entity  
     * @param LegalEntity owner of the Entity  
     */  
    void setOwner(LegalEntity owner);  
  
    /**  
     * Return LegalEntity owner of the Entity  
     */  
    LegalEntity getOwner();  
  
    /**  
     * Return Set of all Identifiers assigned to an Entity  
     */  
    IdentifierSet getIdentifiers();  
}
```



# Collaboration System Overview

<http://cropwiki.irri.org>

## **GCPWiki**

- Wiki: website that can be edited by users using a web browser
- GCPWiki is based on the Mediawiki software which is used for the Wikipedia
- Key functionality: site-wide recent changes, complete document history, easy revision comparison, discussion pages

# Collaboration System Overview

<http://cropforge.org>

## **CropForge**

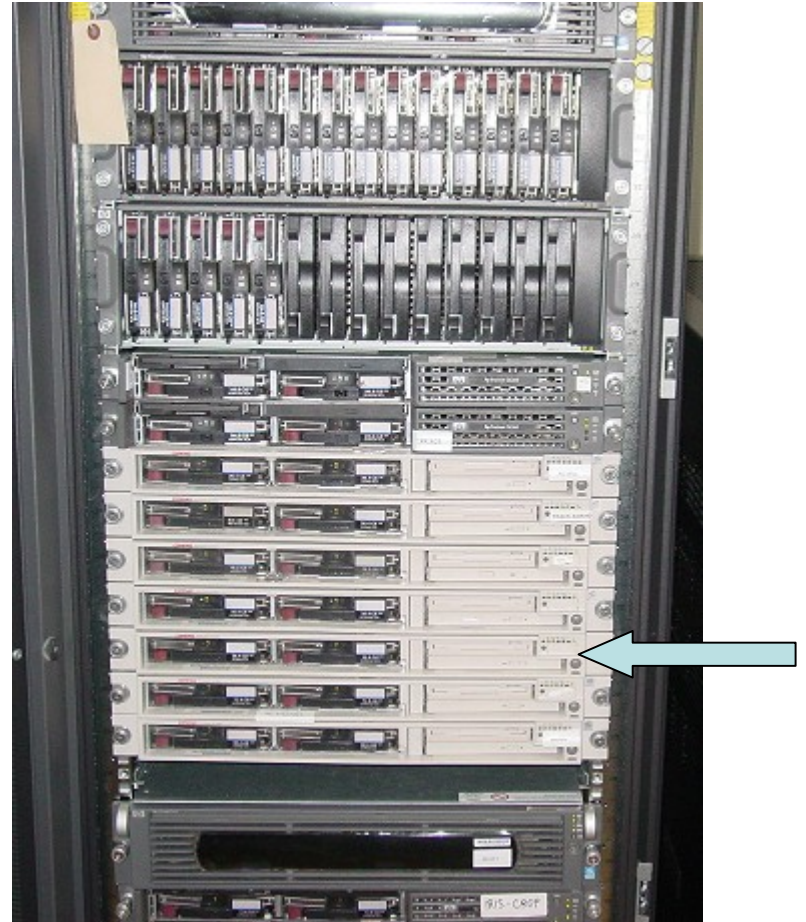
- Collaborative software development environment, hosting multiple projects that are individually managed
- CropForge is based on the Sourceforge software (GForge)
- Key functionality: source code management, tracker systems (bugs, feature requests, help), discussion fora, software release system

# What is CropForge?

Then: Feb. 2005 – Jan. 2006



Now: since Jan. 2006

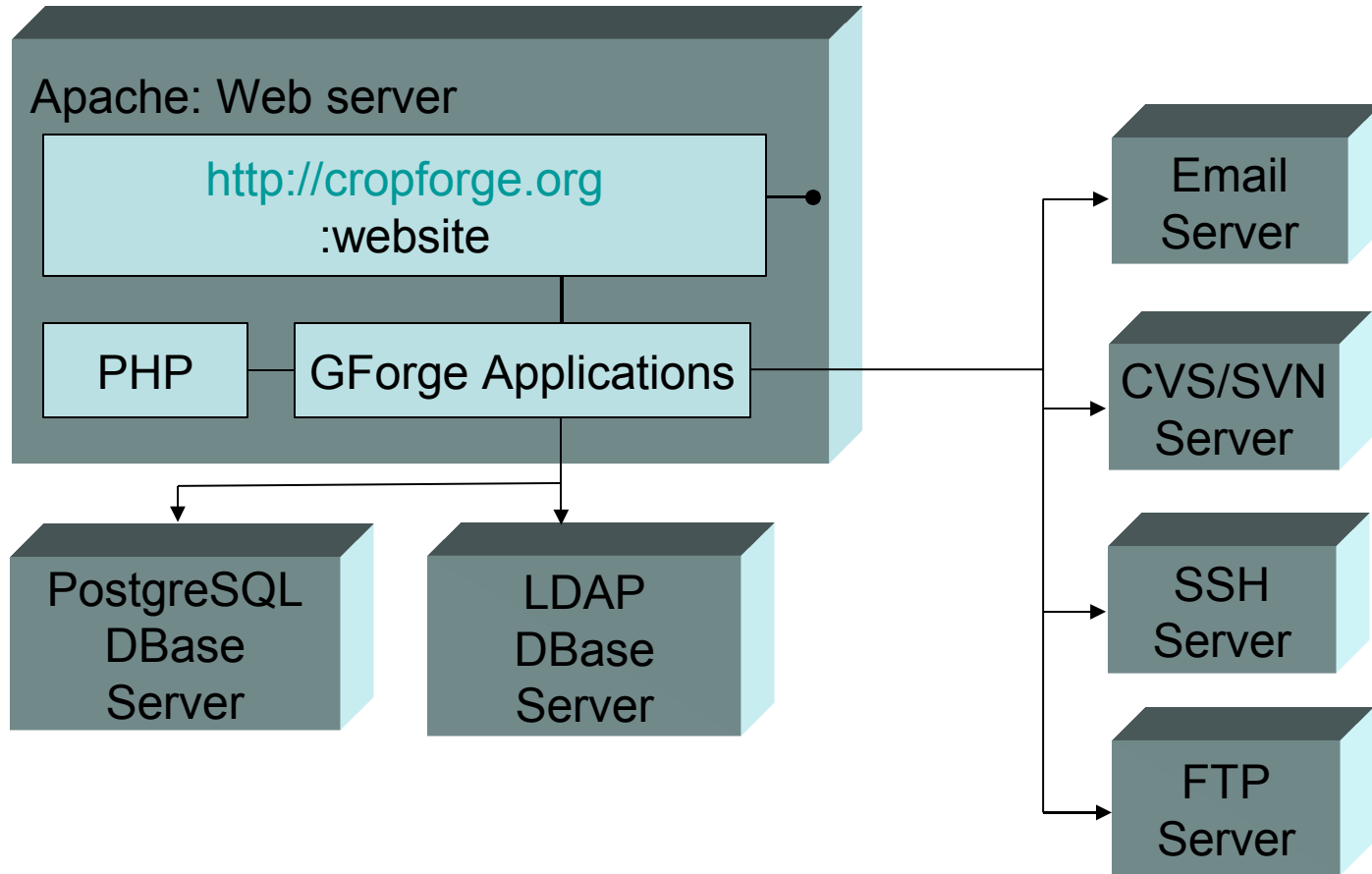


# The CropForge Server

- A publicly accessible server (<http://cropforge.org>)
- Hosts independently managed projects (~55)
- Has registered users (~105)
- Provides services for collaborative software development and support
- Based on GForge software (fork of SourceForge)



# CropForge Components

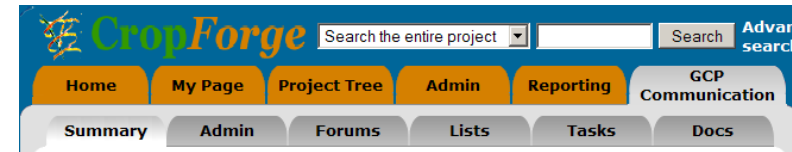


# A CropForge Project

Managed by administrator(s),  
run by a team of members

Provides a set of services

Alex Cosico	<a href="#">acosico</a>	Senior Developer
Alexis Dereeper	<a href="#">adereeper</a>	Junior Developer
Andrew Farmer	<a href="#">afarmer</a>	Senior Developer
<b>B Jayashree</b>	<a href="#">bjayashree</a>	Admin
Edwin Rojas	<a href="#">erojas</a>	Junior Developer
<b>Guy Davenport</b>	<a href="#">gdavenport</a>	Admin
Isaiah Mukema	<a href="#">imukema</a>	Junior Developer
Genevieve Mae Aquino	<a href="#">jemi</a>	Junior Developer
Jonell Enrique	<a href="#">jenrique</a>	Junior Developer
Masaru Takeya	<a href="#">katu</a>	Junior Developer
Kyle Braak	<a href="#">kbraak</a>	Junior Developer
Kevin Manansala	<a href="#">kmanansala</a>	Junior Developer
Mylah Rystie Anacleto	<a href="#">manacleto</a>	Junior Developer
Ma. Christina Salaya	<a href="#">mcqs</a>	Junior Developer
Jon Mendoza	<a href="#">mjmendoza</a>	Junior Developer
<b>Manuel Ruiz</b>	<a href="#">mruiz</a>	Admin
Martin Senger	<a href="#">msenger</a>	Senior Developer
Michael Echavez	<a href="#">mtechavez</a>	Junior Developer
Teri Ulat	<a href="#">mulat</a>	Junior Developer
<b>Richard Bruskiwich</b>	<a href="#">rbruskiwich</a>	Admin
<b>Reinhard Simon</b>	<a href="#">rsimon</a>	Admin
Sergio Gregorio	<a href="#">sgregorio</a>	Junior Developer
Sebastian Ritter	<a href="#">sritter</a>	Junior Developer
Tom Hazekamp	<a href="#">thazekamp</a>	Junior Developer
Thomas Metz	<a href="#">tmetz</a>	Senior Developer



## Active Features:

- Use Mailing Lists
- Use Surveys
- Use Forums
- Use Project/Task Manager
- Use SCM
- Use News
- Use Doc Mgr
- Use FTP
- Use Tracker
- Use File Release System
- Use Statistics
- Cvs 2 Tracker Plugin

# GCP Projects on CropForge

GCP - Central Registry (SP4 task 26)	2005-11-09 15:59
GCP BioMOBY	2006-02-09 13:13
GCP Communication	2006-02-17 13:03
GCP Comparative Gene Catalog	2005-05-12 10:15
GCP ContactsDB	2005-08-13 02:34
GCP DIVA-GIS	2005-05-19 13:01
GCP Dashboard Configuration	2005-10-27 13:39
GCP Domain Models	2005-03-01 15:39
GCP GDPC Interface Project	2006-02-08 14:59
GCP HPC Structure	2005-05-19 13:02
GCP INTIMAP	2005-05-19 13:03
GCP LIMS	2005-05-18 15:45
GCP Middleware	2005-05-19 16:38
GCP Query Builder	2005-06-27 09:36
GCP R Editor	2005-05-19 13:04
GCP R WS	2005-05-19 13:05
GCP SSO WS	2005-08-03 08:11
GCP Software Download Site	2005-08-13 02:36
GCP Templates	2005-02-16 20:56
GCP Use Case	2005-02-11 09:54
GCP Workshop	2005-05-17 16:46
GCP caLIMS	2005-03-04 08:20



GCP Communication  
Project

# GCP Communication Project

- Provides central communication functions for all GCP software-related project, and possibly also other sub-programs
  - Mailing lists
  - Discussion forums
  - Tracker systems
- Additional mailing lists, discussion forums, and trackers can be added and individually managed
- Communication project vs. software development project

# Tracker - Bug Report

## Message

Date: 2005-03-09 08:12  
Sender: [Sandra Micallef](#)

Attached are two files - one with a snapshot of the instant and one with a snapshot of the error.

Thanks

Date: 2005-03-09 08:10  
Sender: [Sandra Micallef](#)

When right clicking on a 'descendant' of a germplasm, and clicking "View characteristics", the following error comes up  
- "Access violation at address 004901D9 in module "GMSSRCH.EXE'."

Does not happen with all descendants.

Examples are (in wheat database) GID 2447427 - descendant named -AUS[AUS], and GID196129 - descendant -AUS[AUS] also.

## Attached Files:

Name	Description	Download
ErrorA_step2.jpg	Sanpshot of error message	<a href="#">Download</a>
ErrorA_step1.jpg	Snapshot of instant	<a href="#">Download</a>

## Changes:

Field	Old Value	Date	By
assigned_to	none	2005-03-10 21:06	gmclaren
File Added	2: ErrorA_step2.jpg	2005-03-09 08:12	sandra
category_id	None	2005-03-09 08:10	sandra
File Added	1: ErrorA_step1.jpg	2005-03-09 08:10	sandra

# Tracker - feature request

## Message

Date: 2005-02-04 01:25  
Sender: [Thomas Metz](#)

Here is the revised version Graham's proposed solution.

Date: 2005-02-04 01:11  
Sender: [Graham McLaren](#)

Hi All,

This is the first set of documents (attached) of my proposals to solve/implement new functionalities in SetGen. Kindly review and advise.

Kind regards,  
May

Check to Upload & Attach File:  (?)

File description:

Existing Files:

Delete	Name	Description	Download
<input type="checkbox"/> Delete	Proposed Solutions of New functionalities in SetGen 2.doc	Proposed solution to feature request ver 1	<a href="#">Download</a>
<input type="checkbox"/> Delete	Proposed Solutions of New functionalities in SetGen 2 vCasper1.doc	Casper's revision of the proposed solution	<a href="#">Download</a>

Change Log:

Field	Old Value	Date	By
priority	5	2005-02-04 01:37	tmetz
File Added	2: Proposed Solutions of New functionalities in SetGen 2 vCasper1.doc	2005-02-04 01:25	tmetz
File Added	1: Proposed Solutions of New functionalities in SetGen 2.doc	2005-02-04 01:11	gmclaren

# Source Code Management

[Home](#)[My Page](#)[Project Tree](#)[Admin](#)[Reporting](#)[GCP  
Middleware](#)[Summary](#)[Admin](#)[Forums](#)[Tracker](#)[Lists](#)[Tasks](#)[Docs](#)[Surveys](#)[News](#)[SCM](#)[Files](#)

## Admin

Click on a directory to enter that directory. Click on a file to display its revision history and to get a chance to display diffs between revisions.

Current directory: [\[GForge-CVS:gcpmiddleware\]](#) / [org.generationcp.model.util.impl](#) / [src](#) / [org](#) / [generationcp](#) / [model](#) / [util](#) / [impl](#)

File	Rev.	Age	Author	Last log entry
 <a href="#">Parent Directory</a>				
 <a href="#">Aggregation.java</a>	 1.1	3 months	<a href="#">gdavenport</a>	Replaces code from Ceres-DMI
 <a href="#">Count.java</a>	 1.1	5 weeks	<a href="#">gdavenport</a>	Templates Generic parser created
 <a href="#">Flag.java</a>	 1.1	5 weeks	<a href="#">gdavenport</a>	Templates Generic parser created
 <a href="#">MapImpl.java</a>	 1.1	3 months	<a href="#">gdavenport</a>	Replaces code from Ceres-DMI
 <a href="#">SetImpl.java</a>	 1.1	3 months	<a href="#">gdavenport</a>	Replaces code from Ceres-DMI

# Mailing List

[gcpmiddleware-develop@lists.cropforge.org](mailto:gcpmiddleware-develop@lists.cropforge.org)

## The GCPmiddleware-develop Archives

You can get [more information about this list](#).

Archive	View by:	Downloadable version
March 2006:	<a href="#">[ Thread ]</a> <a href="#">[ Subject ]</a> <a href="#">[ Author ]</a> <a href="#">[ Date ]</a>	<a href="#">[ Gzip'd Text 37 KB ]</a>
February 2006:	<a href="#">[ Thread ]</a> <a href="#">[ Subject ]</a> <a href="#">[ Author ]</a> <a href="#">[ Date ]</a>	<a href="#">[ Gzip'd Text 42 KB ]</a>
January 2006:	<a href="#">[ Thread ]</a> <a href="#">[ Subject ]</a> <a href="#">[ Author ]</a> <a href="#">[ Date ]</a>	<a href="#">[ Gzip'd Text 19 KB ]</a>

## March 2006 Archives by thread

- ♦ Messages sorted by: [\[ subject \]](#) [\[ author \]](#) [\[ date \]](#)
- ♦ [More info on this list...](#)

**Starting:** *Wed Mar 1 00:07:20 PHT 2006*




**Ending:** *Thu Mar 16 13:06:04 PHT 2006*

**Messages:** 78





- ♦ [\[Gcpmiddleware-develop\] Move EclipseISYS and EclipseCMTV back to sourceforge](#) *Davenport, Guy (CIMMYT)*
- ♦ [\[Gcpmiddleware-develop\] The GCP middleware project has moved](#) *Davenport, Guy (CIMMYT)*
- ♦ [\[Gcpmiddleware-develop\] Move EclipseISYS and EclipseCMTV back to sourceforge](#) *Bruskiewich, Richard (IRRI)*
- ♦ [\[Gcpmiddleware-develop\] The GCP middleware project has moved](#) *Bruskiewich, Richard (IRRI)*
- ♦ [\[Gcpmiddleware-develop\] RE: subversion - advantages](#) *Bruskiewich, Richard (IRRI)*
- ♦ [\[Gcpmiddleware-develop\] RE: subversion - advantages](#) *Simon, Reinhard (CIP)*

# Discussion Forum




Discussion Forums: [developers](#) | [Admin](#)

 [Monitor Forum](#) |  [Save Place](#) |  [Start New Thread](#)


Ultimate

	Topic Start	Replies	Last Post
 <a href="#">General Platform Design</a>	Richard Bruskwiech	3	2005-11-25 11:08
 <a href="#">MOBY Integration into the platform</a>	Richard Bruskwiech	0	2005-11-25 09:50
 <a href="#">Welcome to Developers</a>	Jon Mendoza	1	2005-11-25 09:37
 <a href="#">Re: CMTV Integration</a>	Richard Bruskwiech	1	2005-11-25 09:30

Discussion Forums: [developers](#) | [Admin](#)

 [Monitor Forum](#) |  [Save Place](#) |  [Start New Thread](#)

Ultimate

**By:** [Richard Bruskwiech](#)  
 **RE: Migration to EMF - Checklist (RMB post) [ reply ]**  
2005-11-25 11:08

In the short time we have been working with EMF in the context of the model we realize (or re-realize actually, since it was commented before) that the DM consists of two types of interface. The POJO style data structure orientated interfaces and the true interfaces, which can be used for multiple implementations such as database connections etc. The former can easily be moved to EMF, the later can not and its not really the point to do so. Our plan is as follows

# File Release

## ICIS Applications

### ICIS 5.3

2006-03-01 13:28

No Files

### ICIS 5.2

2005-09-14 15:52

icis-application-5.2.0-exe.zip

3.48 MB 1 i386 .zip

icis-application-5.2.1-exe.zip

4.23 MB 1 i386 .zip

### ICIS 5.1

2005-05-09 15:54

icis-application-5.1.0-exe.zip

2.75 MB 0 i386 .zip

### ICIS 5.0

2005-04-01 10:12

icis-application-5.0.1-exe.zip

2 MB 0 i386 .zip

## ICIS Schema

### ICIS DB 5.3

2006-04-01 10:29

No Files

### MS Access to ODBC Export Tool 1.0

2006-01-01 10:06

icis-db-export-1.0.zip

284 KB 0 i386 .zip

### ICIS DB 5.2

2006-01-01 07:59

No Files

### ICIS DB 5.1

2005-11-01 16:52

icis-schema-5.1-full-sql.zip

12 KB 0 Any Source .zip

icis-schema-5.1-patch-sql.zip

7 KB 0 Any Source .zip

### ICIS DB 5.0

2005-10-01 11:05

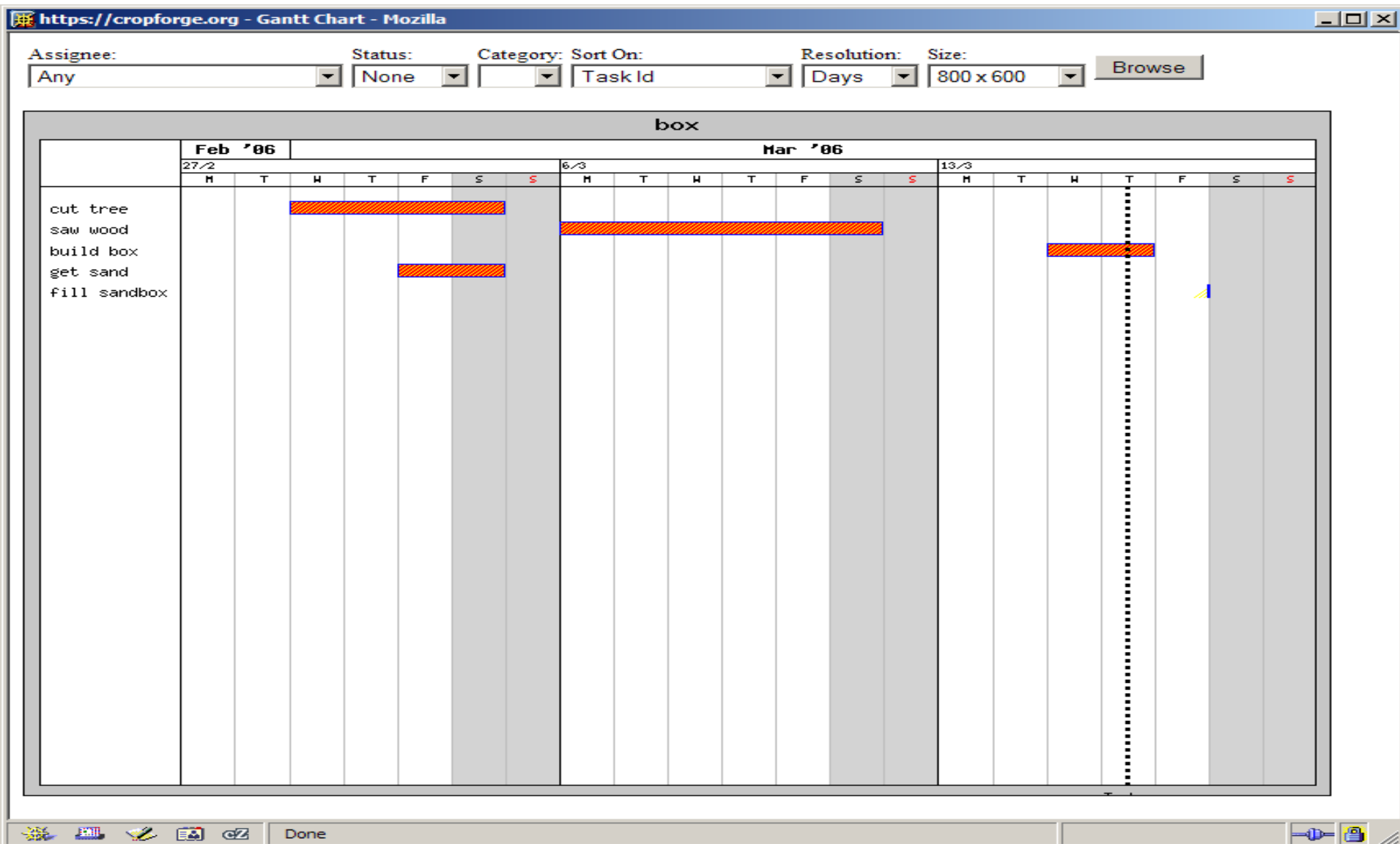
icis-schema-5.0-full-sql.zip

12 KB 0 Any Source .zip

icis-schema-5.0-patch-mdb.zip

28 KB 0 i386 Source .zip

# Project / Task Management

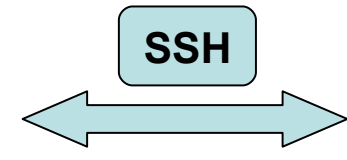


# SSH access to CropForge

Secure Shell or SSH is both a computer program and an associated network protocol designed for logging into and executing commands on a networked computer.

The screenshot shows the CropForge web interface. At the top, there is a navigation bar with tabs for Home, My Page, Project Tree, Admin, and Reporting. Below this is a secondary navigation bar with tabs for Summary, Admin, Forums, Tracker, Lists, Tasks, Docs, Surveys, News, SCM, and Files. The main content area is titled "Admin" and contains a list of files and directories. The current directory is [GForge-CVS:gcpdash] / gcp\_dashboard\_config. The file listing table has columns for File, Rev., Age, Author, and Last log entry. The files listed are Parent Directory, Attic/ [show], META-INF/, docs/, images/, and README. The README file has a revision of 1.1, is 3 weeks old, and was authored by msenger. The last log entry for README is "\*\*\* empty log message \*\*\*". At the bottom of the page, there is a search bar for tags and a "Go" button.

CVS server  
public key



CVS client  
private key



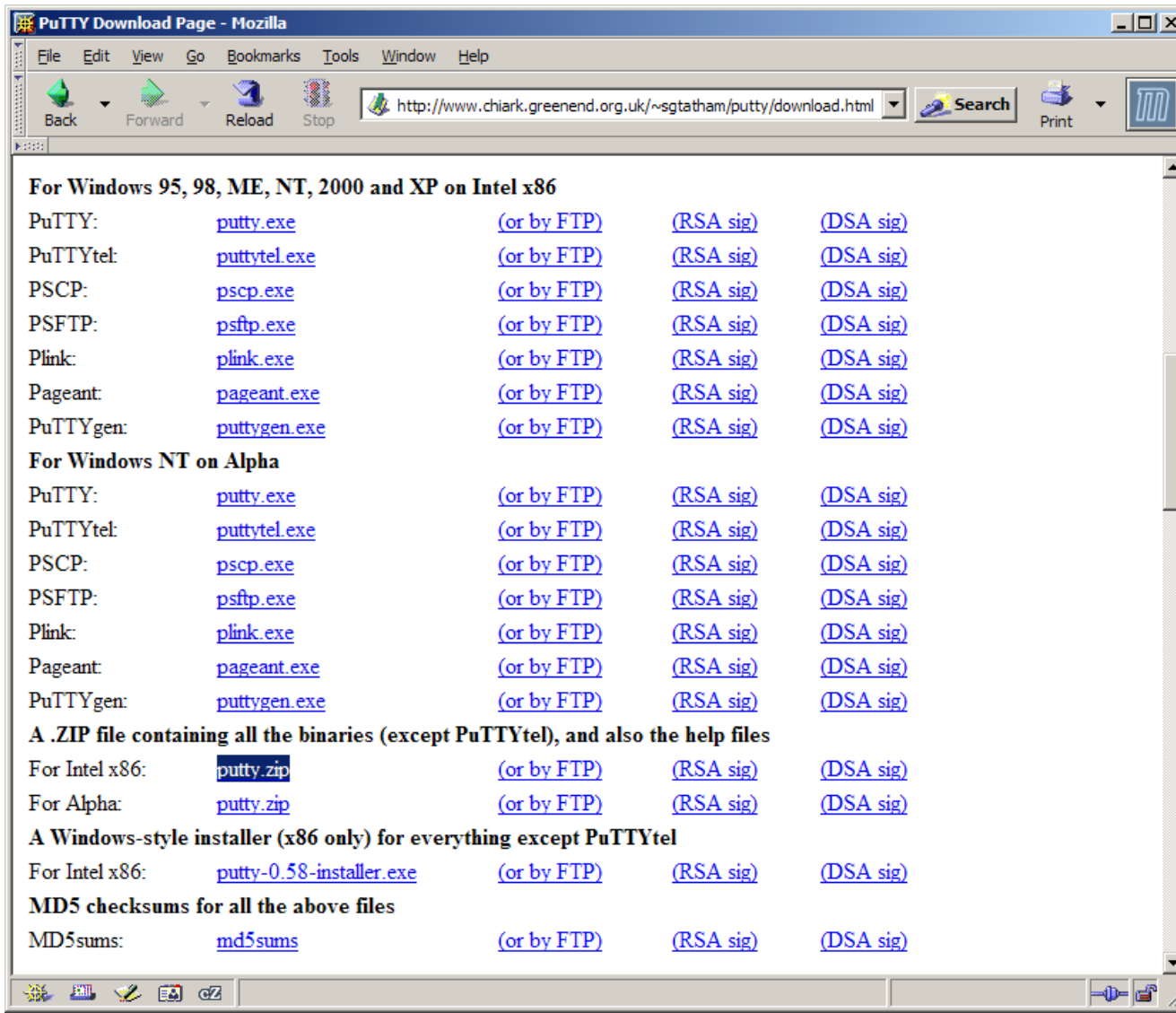
```
.p<13u0iXp<13u0_%p<I03E^XH0[EA
%P<U1%P<U0yE0Xp<U0%P<U0%XP<'i
i%P<U1%P<U0%P<U0%P<U0%XP<'i0
]''ba Aa00A<U0Ae00%ba Aa00E<E0$
:Se9pYYYAU<i0i00 vYu000uyyj Xj
E0yE0f<0cf%00-0BB9E0]éj0vè°Byy<00
BF9r00kyxM000LApXM0fj0 |0<M00- e0
```

# Secure Shell client for Windows OS

## **PuTTY** (MIT, open source license)

- PuTTY (Telnet and SSH client)
- Plink (command-line interface to the PuTTY back ends)
- Pageant (SSH authentication agent for PuTTY, PSCP and Plink)
- PuTTYgen (RSA and DSA key generator)
- <http://www.chiark.greenend.org.uk/~sgtatham/putty/>

# PuTTY download & install



**PuTTY Download Page - Mozilla**

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html> Search Print

**For Windows 95, 98, ME, NT, 2000 and XP on Intel x86**

PuTTY:	<a href="#">putty.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYtel:	<a href="#">puttytel.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PSCP:	<a href="#">pscp.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PSFTP:	<a href="#">psftp.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
Plink:	<a href="#">plink.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
Pageant:	<a href="#">pageant.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYgen:	<a href="#">puttygen.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)

**For Windows NT on Alpha**

PuTTY:	<a href="#">putty.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYtel:	<a href="#">puttytel.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PSCP:	<a href="#">pscp.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PSFTP:	<a href="#">psftp.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
Plink:	<a href="#">plink.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
Pageant:	<a href="#">pageant.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYgen:	<a href="#">puttygen.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)

**A .ZIP file containing all the binaries (except PuTTYtel), and also the help files**

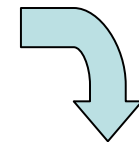
For Intel x86:	<a href="#">putty.zip</a>	(or by FTP)	(RSA sig)	(DSA sig)
For Alpha:	<a href="#">putty.zip</a>	(or by FTP)	(RSA sig)	(DSA sig)

**A Windows-style installer (x86 only) for everything except PuTTYtel**

For Intel x86:	<a href="#">putty-0.58-installer.exe</a>	(or by FTP)	(RSA sig)	(DSA sig)
----------------	--	-------------	-----------	-----------

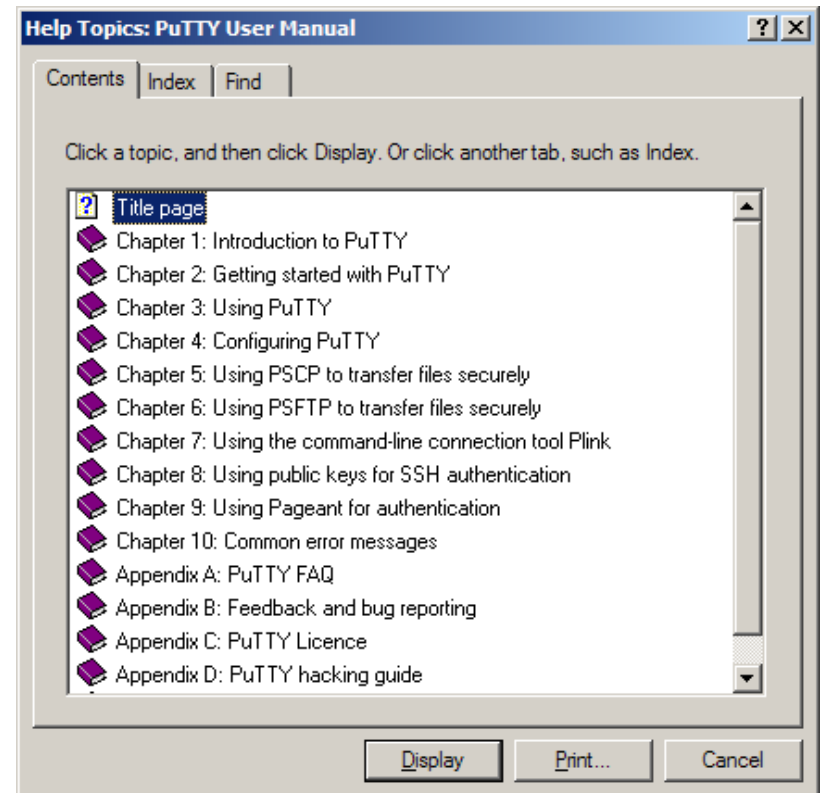
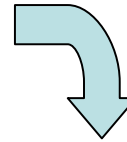
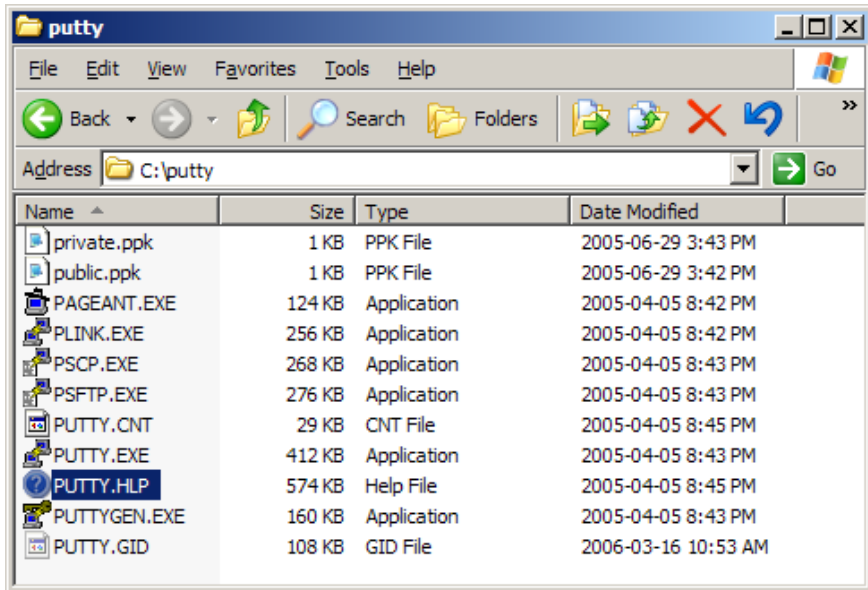
**MD5 checksums for all the above files**

MD5sums:	<a href="#">md5sums</a>	(or by FTP)	(RSA sig)	(DSA sig)
----------	-------------------------	-------------	-----------	-----------

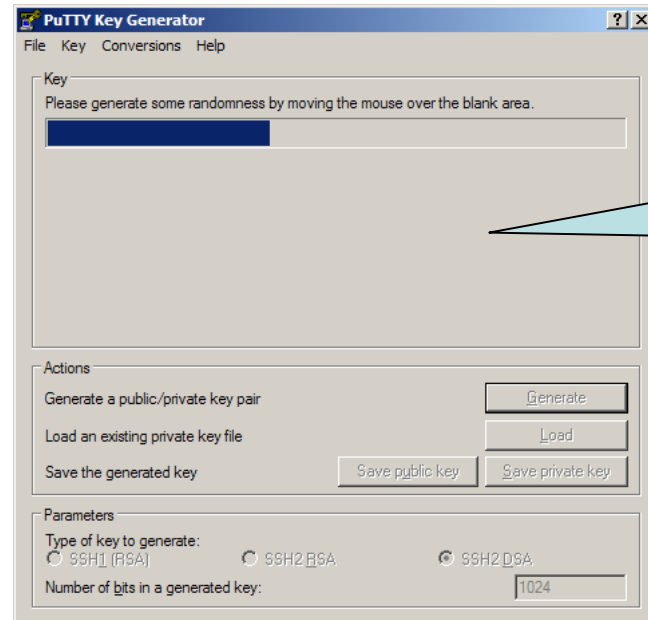
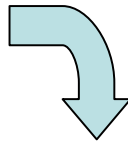
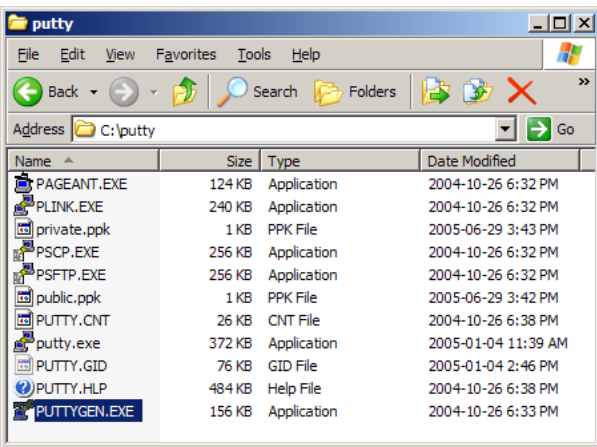


**extract to:  
c:\putty**

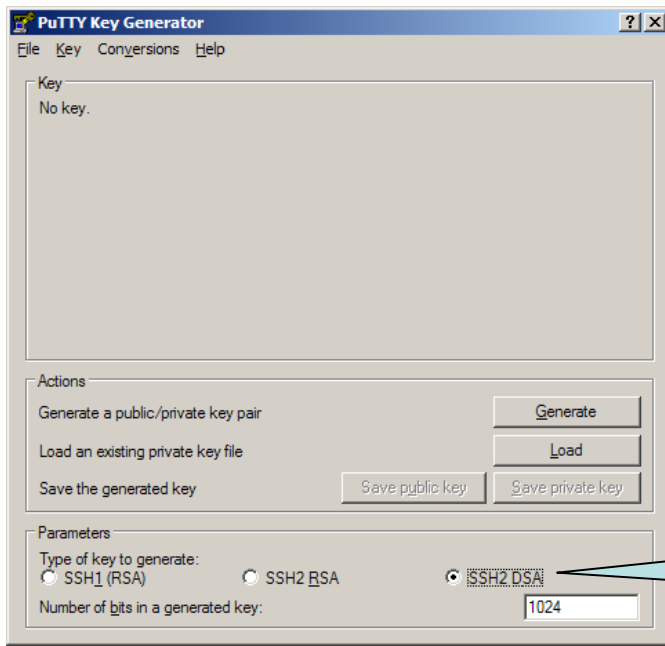
# PuTTY help



# PUTTYGEN – Key Generator creating public/private keys

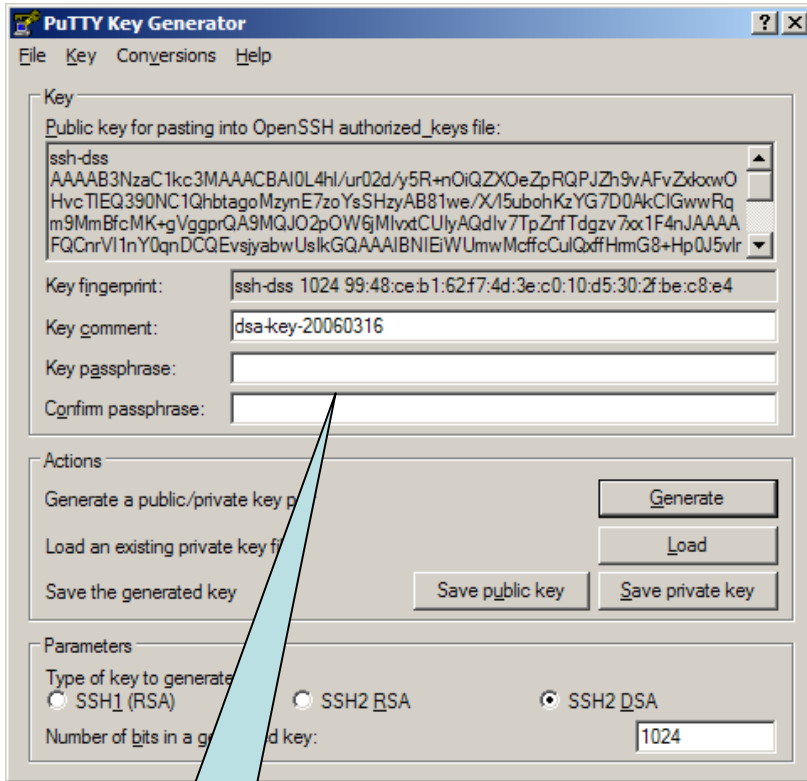


move  
mouse

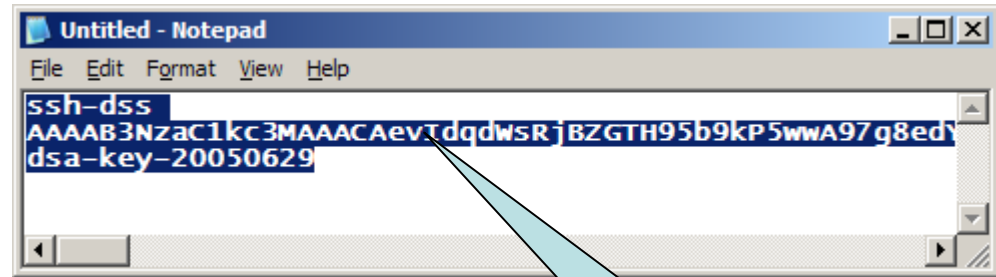
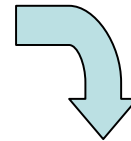


DSA

# PUTTYGEN – Key Generator creating public/private keys



optional key  
password



key must be  
on single line

# CropForge SSH access public key uploading

The screenshot shows the CropForge website interface. At the top, there is a navigation bar with the CropForge logo on the left, a search box with a dropdown menu labeled 'Software./Group' and a 'Search' button, and 'Logout My Account' on the right. Below the navigation bar are five tabs: 'Home', 'My Page' (which is active), 'Project Tree', 'Code Snippets', and 'Project Openings'. The main content area is titled 'My Personal Page | Diary & Notes | Account Maintenance | Register Project'. A green header bar reads 'Account Maintenance'. Below this, a brown banner says 'Welcome Thomas Metz.' and contains two links: 'View My Developer Profile' and 'Edit My Skills Profile'. The user profile information is listed as follows:

Member since:	2005-01-10 16:28
User Id:	103
Login Name:	tmetz <a href="#">[Change Password]</a>
First Name:	<input type="text" value="Thomas"/>
Last Name:	<input type="text" value="Metz"/>
Language:	<input type="text" value="English"/>
Timezone:	<input type="text" value="Asia/Manila"/>
Theme:	<input type="text" value="Default Theme"/>
Country:	<input type="text" value="PHILIPPINES"/>
Email Addr:	tmetz@cgiar.org <a href="#">[Change Email Addr]</a>
Address:	<input type="text" value="IRRI"/>
Address:	<input type="text"/>
Phone:	<input type="text"/>
FAX:	<input type="text"/>

# CropForge SSH access public key uploading

Language: English

Timezone: Asia/Manila

Theme: Default Theme

Country: PHILIPPINES

Email Addr: **t.metz@cgiar.org**  
[\[Change Email Addr\]](#)

Address: IRR

Address:

Phone:

FAX:

Title:

## Preferences

- Receive Email about Site Updates *(Very low traffic and includes security notices. Highly Recommended.)*
- Receive additional community mailings. *(Low traffic.)*
- Participate in peer ratings. *(Allows you to rate other users using several criteria as well as to be rated by others. More information is available on your [user page](#) if you have chosen to participate in ratings).*

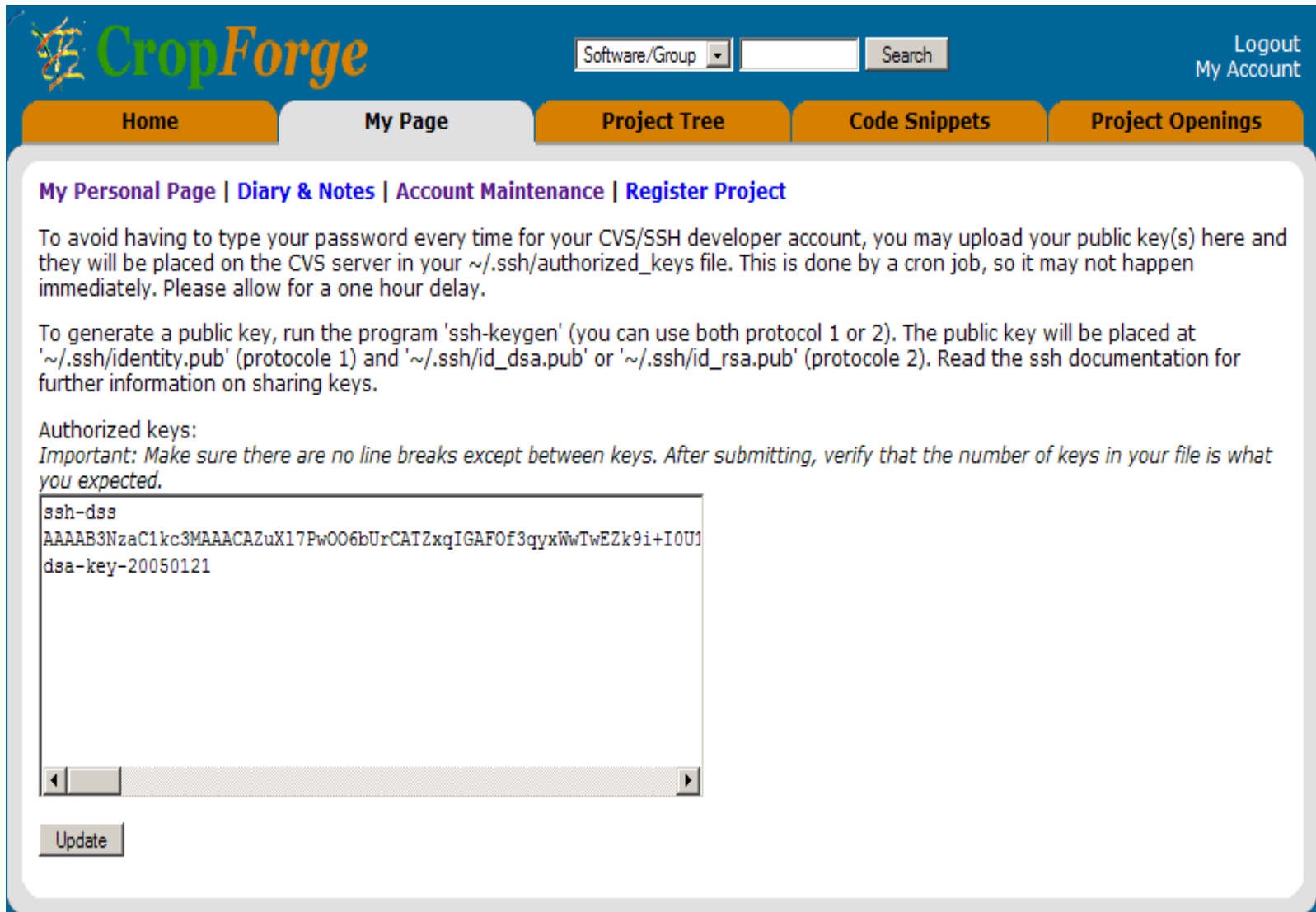
## Shell Account Information

Shell box:  
SSH Shared Authorized Keys: 1 [\[Edit Keys\]](#)

Update

Reset Changes

# CropForge SSH access public key uploading



The screenshot shows the CropForge web interface. At the top left is the CropForge logo. To its right is a search bar with a dropdown menu labeled 'Software/Group' and a 'Search' button. Further right are links for 'Logout' and 'My Account'. Below the logo is a navigation bar with buttons for 'Home', 'My Page', 'Project Tree', 'Code Snippets', and 'Project Openings'. The main content area is titled 'My Personal Page | Diary & Notes | Account Maintenance | Register Project'. It contains two paragraphs of text explaining how to upload a public key for SSH access. Below the text is a text area containing a sample public key. At the bottom of the text area is an 'Update' button.

**CropForge** Software/Group  Search Logout My Account

Home My Page Project Tree Code Snippets Project Openings

[My Personal Page](#) | [Diary & Notes](#) | [Account Maintenance](#) | [Register Project](#)

To avoid having to type your password every time for your CVS/SSH developer account, you may upload your public key(s) here and they will be placed on the CVS server in your `~/ssh/authorized_keys` file. This is done by a cron job, so it may not happen immediately. Please allow for a one hour delay.

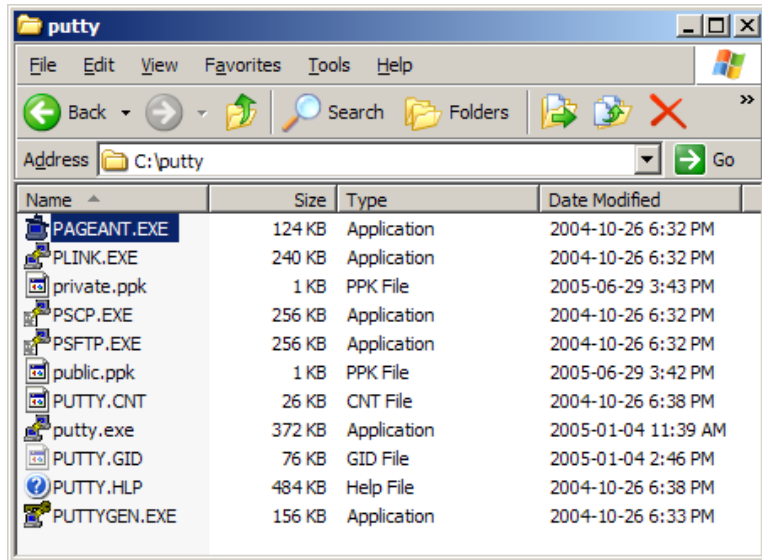
To generate a public key, run the program 'ssh-keygen' (you can use both protocol 1 or 2). The public key will be placed at '`~/ssh/identity.pub`' (protocole 1) and '`~/ssh/id_dsa.pub`' or '`~/ssh/id_rsa.pub`' (protocole 2). Read the ssh documentation for further information on sharing keys.

Authorized keys:  
*Important: Make sure there are no line breaks except between keys. After submitting, verify that the number of keys in your file is what you expected.*

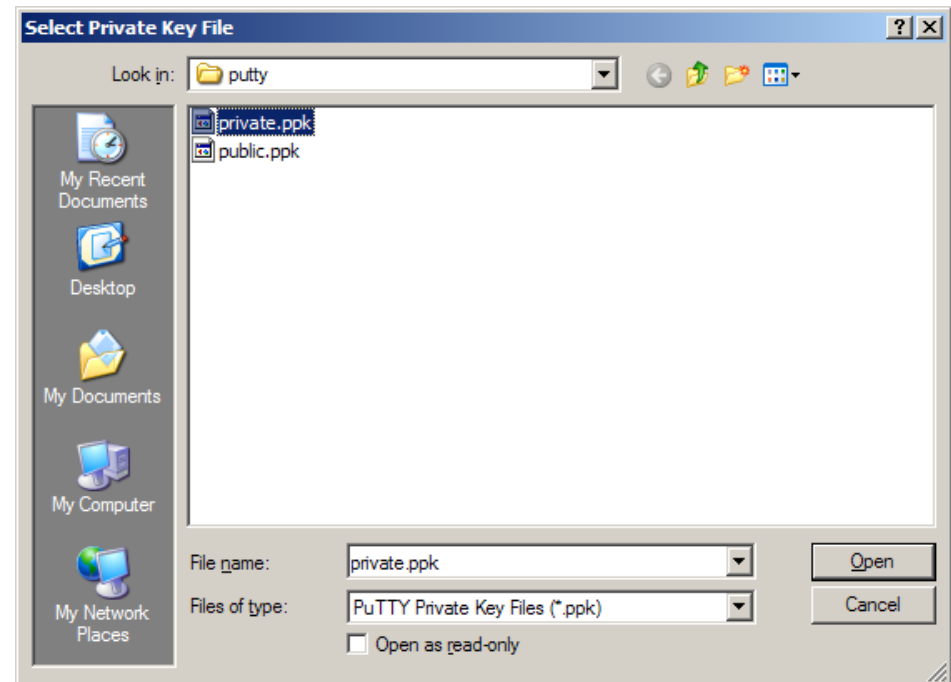
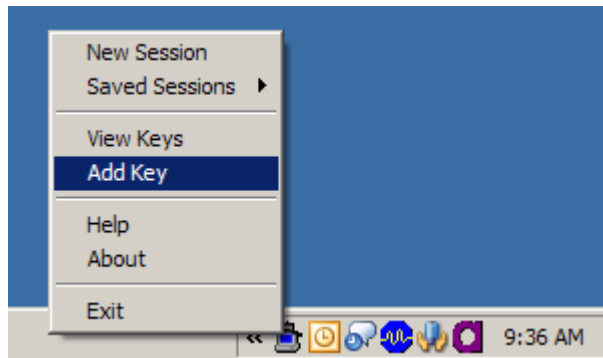
```
ssh-dss
AAAAB3NzaC1kc3MAAACAZuX17Pw006bUrCATZxqIGAF0f3qyxWwTwEZk9i+IOU1
dsa-key-20050121
```

Update

# PAGENT – PuTTY authentication agent private key loading



repeat after every  
reboot/login



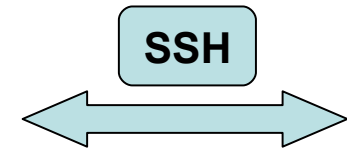
# SSH access to CropForge

Secure Shell or SSH is both a computer program and an associated network protocol designed for logging into and executing commands on a networked computer.

The screenshot shows the CropForge web interface. At the top, there is a navigation bar with tabs for Home, My Page, Project Tree, Admin, and Reporting. Below this is a secondary navigation bar with tabs for Summary, Admin, Forums, Tracker, Lists, Tasks, Docs, Surveys, News, SCM, and Files. The main content area is titled "Admin" and contains a table listing files in the current directory: [GForge-CVS:gcpdash] / gcp\_dashboard\_config. The table has columns for File, Rev., Age, Author, and Last log entry. The file listed is README, with revision 1.1, updated 3 weeks ago by msenger, and a log message of "\*\*\* empty log message \*\*\*".

File	Rev.	Age	Author	Last log entry
Parent Directory				
Attic/ [show]				
META-INF/				
docs/				
images/				
README	1.1	3 weeks	msenger	*** empty log message ***

CVS server  
public key



CVS client  
private key



```
.p<13u0iXp<13u0_%p<I03E^XH[E  
%P<U1%P<U0YE0Xp<U0%P<U0%XP<'i  
i%P<U1%P<U0%P<U0%P<U0%XP<'i  
]''ba Aa00A<U0Ae00]X''ba Aa00E<E0$  
:S0e9pyyyAU<i0i00 vyy0000uyyj Xj  
E0YE0f<0cf%00-0BB9E0]e0v0e0Byy<00  
BF90r00kyxM000LApXM0f]0 |0<M00- e0
```

# Source Code Version Control

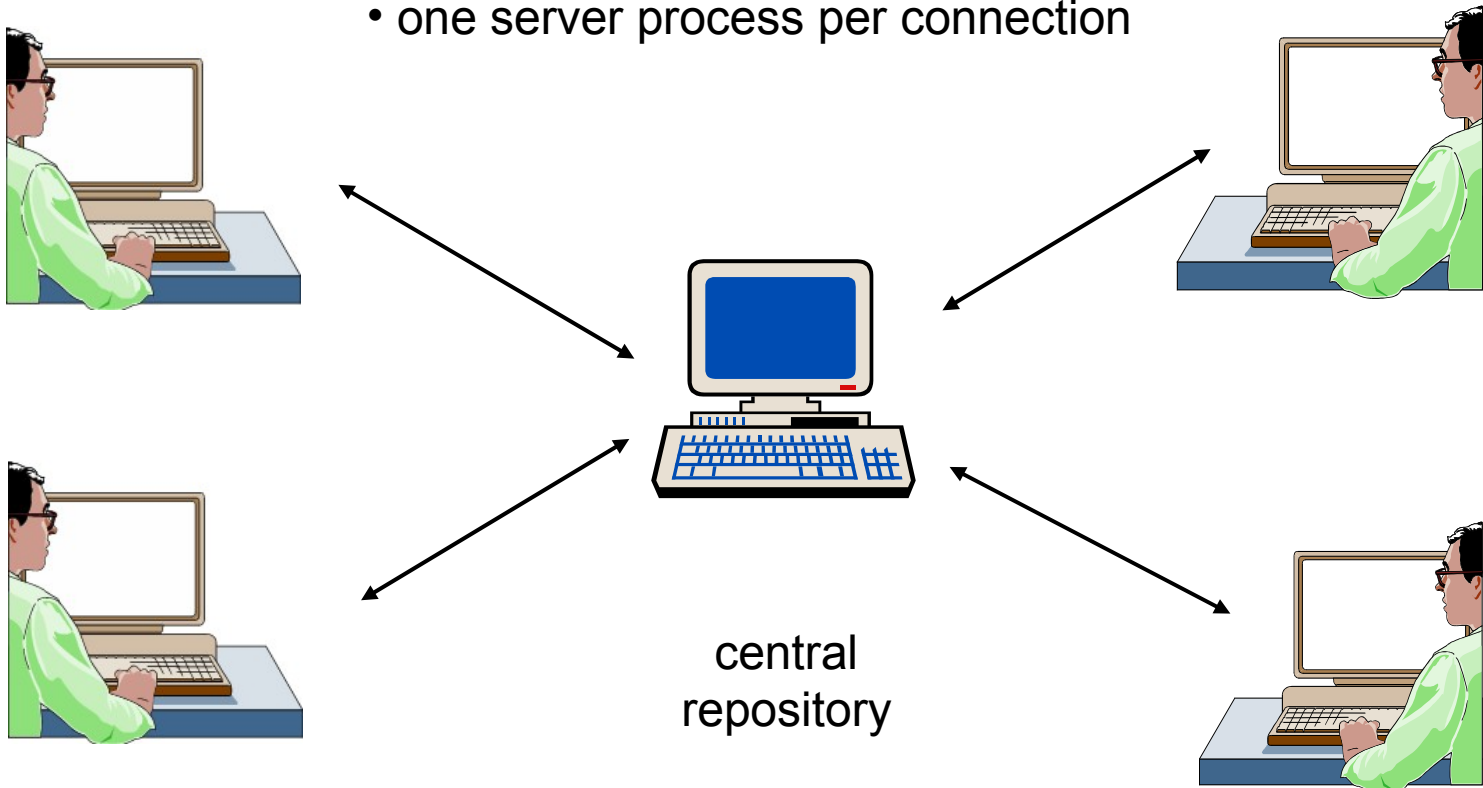
- Distributed team of developers
- Review of changes
- Keep all versions
- Support different versions

# CVS usage model

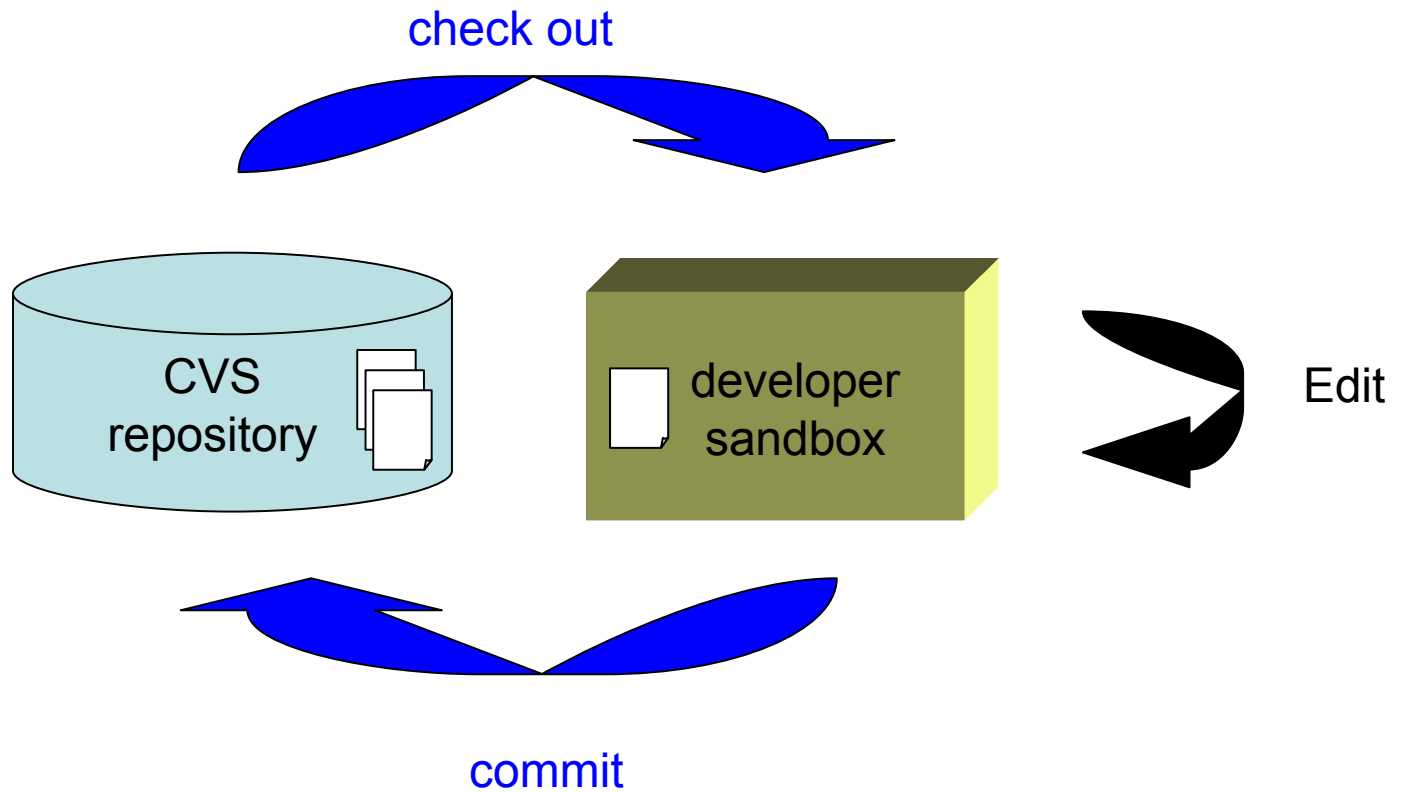
- check out
  - makes private copy in the working directory
  - multiple copies and multiple versions in different locations are possible
- modify
- update
  - brings working copy up-to-date with repository
- commit
  - moves changes in private copy to repository

# CVS client-server architecture

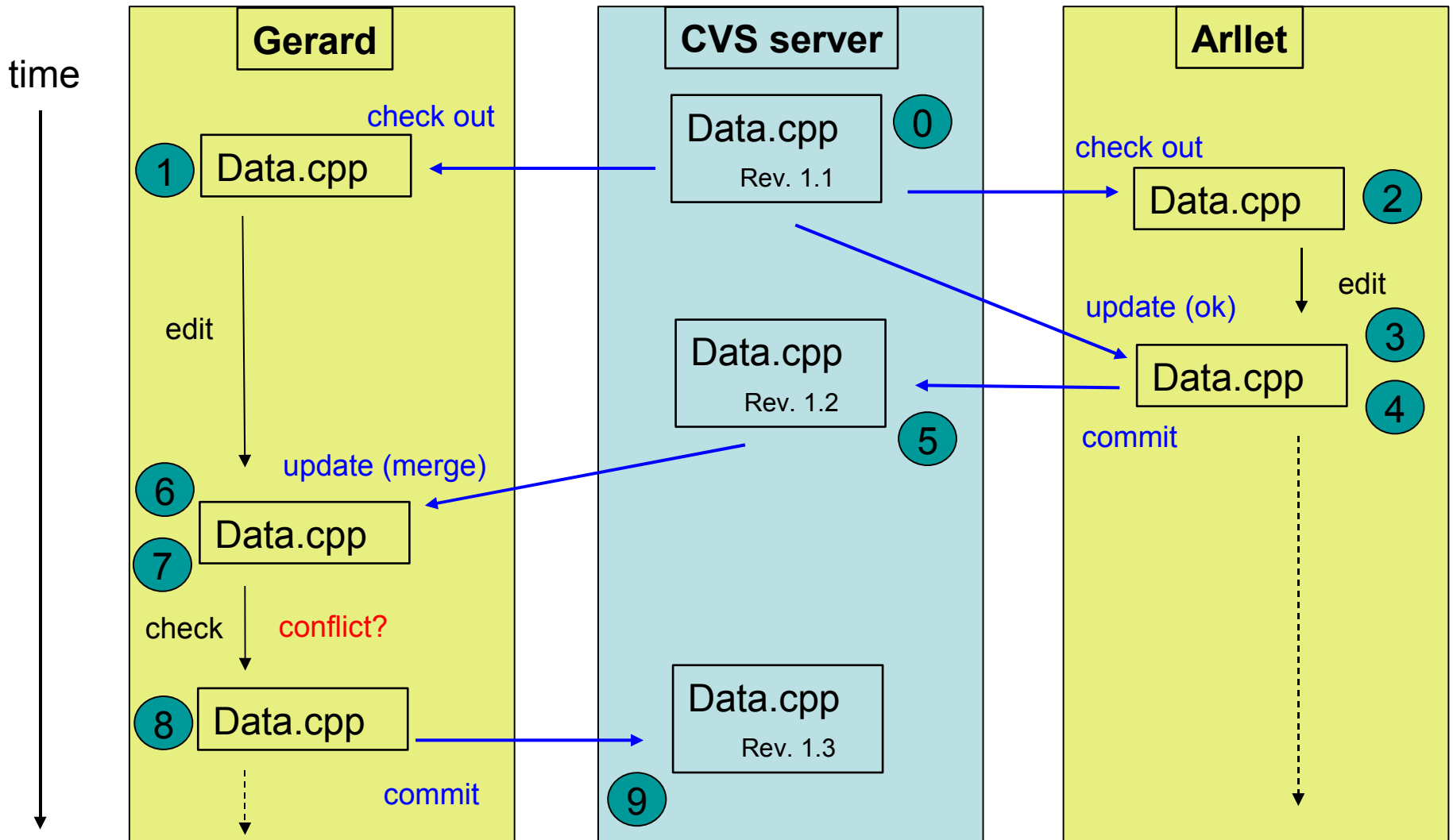
- separate server
- no shared file systems
- one server process per connection



# CVS principles



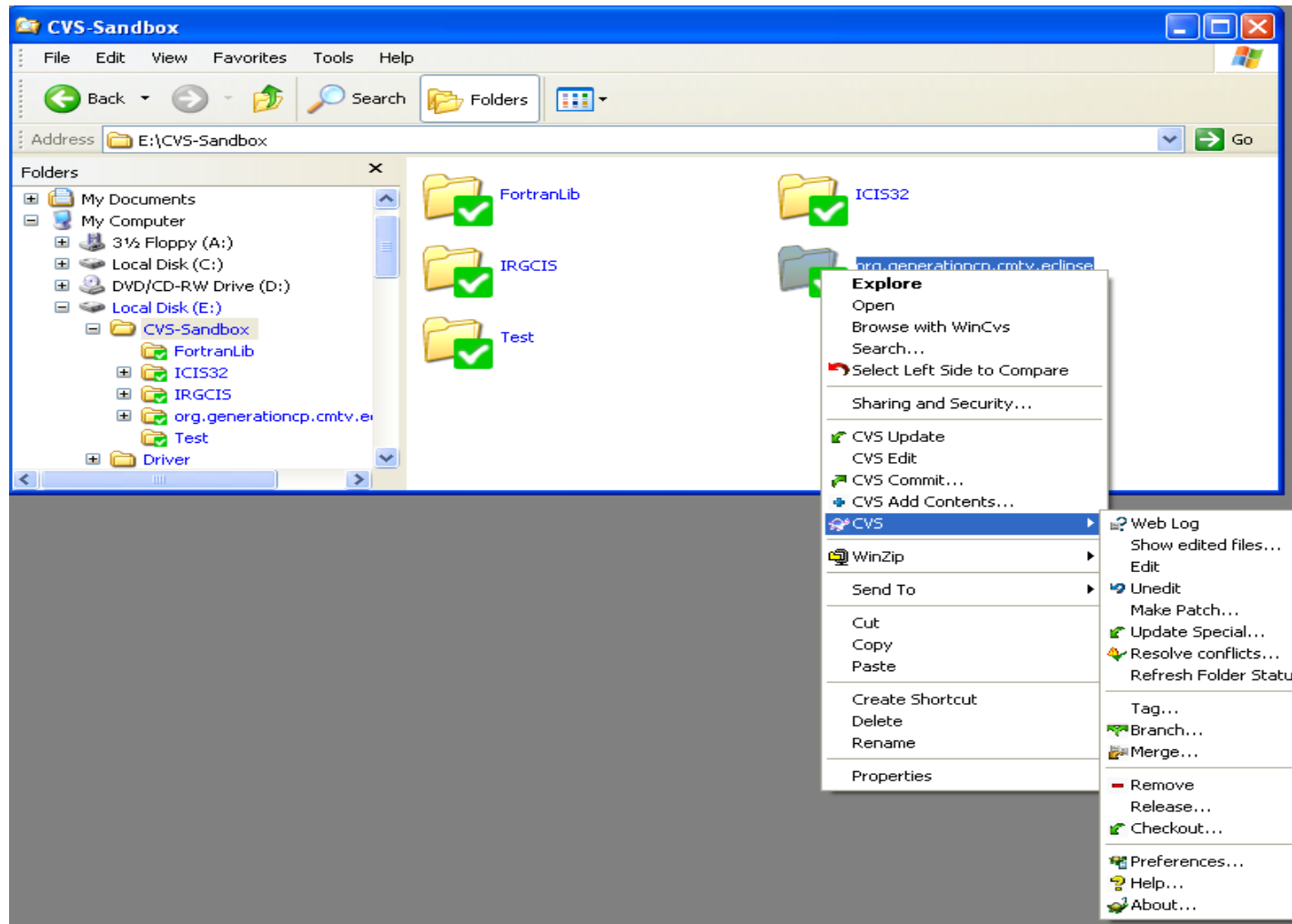
# CVS principles by example



# TortoiseCVS

- TortoiseCVS is a free CVS client for Windows. It can be downloaded from:  
<http://tortoise cvs.sourceforge.net/>
- It is not a separate program but an extension to the Windows Explorer that can be accessed via mouse right-click.

# TortoiseCVS GUI



# Creating a CVS Repository

- Before you begin using CVS, you need to know where your repository is. Each CropForge project already has a source code repository.



The screenshot shows the CropForge web interface. At the top, there is a search bar with the text "Search the entire project" and a "Search" button. To the right, there are links for "Login" and "New Account". Below the search bar, there are four navigation tabs: "Home", "My Page", "Project Tree", and "ICIS Delphi Interface". The "Project Tree" tab is currently selected. Below the tabs, there is a "Summary" section with a "SCM" sub-section. The "SCM" section contains two main parts: "Anonymous CVS Access" and "Developer CVS Access via SSH".

**Anonymous CVS Access**

This project's CVS repository can be checked out through anonymous (pserver) CVS with the following instruction set. The module you wish to check out must be specified as the *modulename*. When prompted for a password for *anonymous*, simply press the Enter key.

```
cvs -d :pserver:anonymous@cvs.cropforge.org:/cvsroot/icisdelphi login
cvs -d :pserver:anonymous@cvs.cropforge.org:/cvsroot/icisdelphi checkout
modulename
```

**Developer CVS Access via SSH**

Only project developers can access the CVS tree via this method. SSH must be installed on your client machine. Substitute *modulename* and *developername* with the proper values. Enter your site password when prompted.

```
export CVS_RSH=ssh
cvs -d :ext:developername@cvs.cropforge.org:/cvsroot/icisdelphi checkout
modulename
```

**Repository History**

Maria Corina Habito	19	89
Beth Sison	73	3
Roniela Herrera	6	65
<b>Total:</b>	<b>98</b>	<b>157</b>

**Browse the CVS Tree**

Browsing the CVS tree gives you a great view into the current status of this project's code. You may also view the complete histories of any file in the repository.

[\[Browse CVS Repository\]](#)

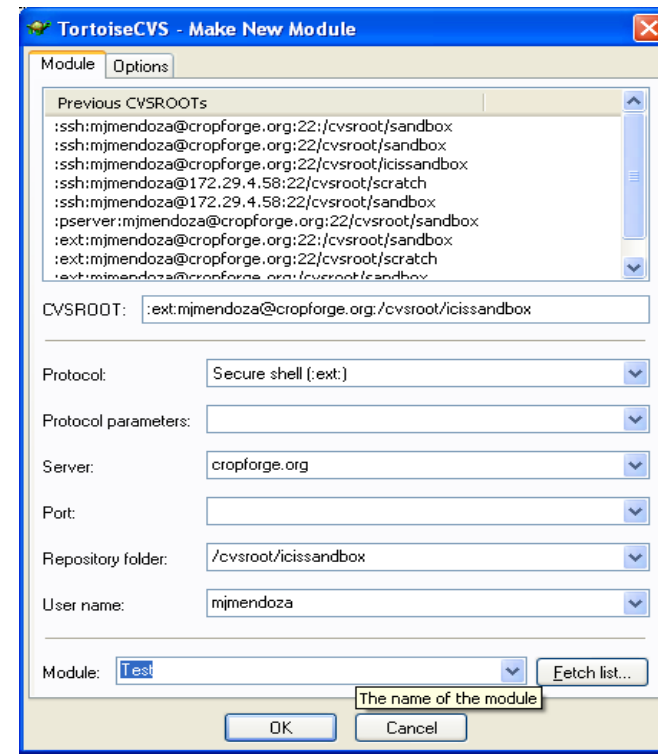
# Creating a New Module

- You have your source code files in a folder on your local hard drive and want to *import* the files into the CropForge project CVS repository.
- In CVS terms, the folder will be called a *module*.
- Importing files involves 3 steps
  - Create a new module
  - Add source code files to your module
  - Commit the files

*Note: Importing a new module is a one time step only*

# 1st step: Create New Module

- In Explorer, right-click the folder where your source code files are
- Under the CVS submenu, select *Make New Module*
- A dialog box will appear



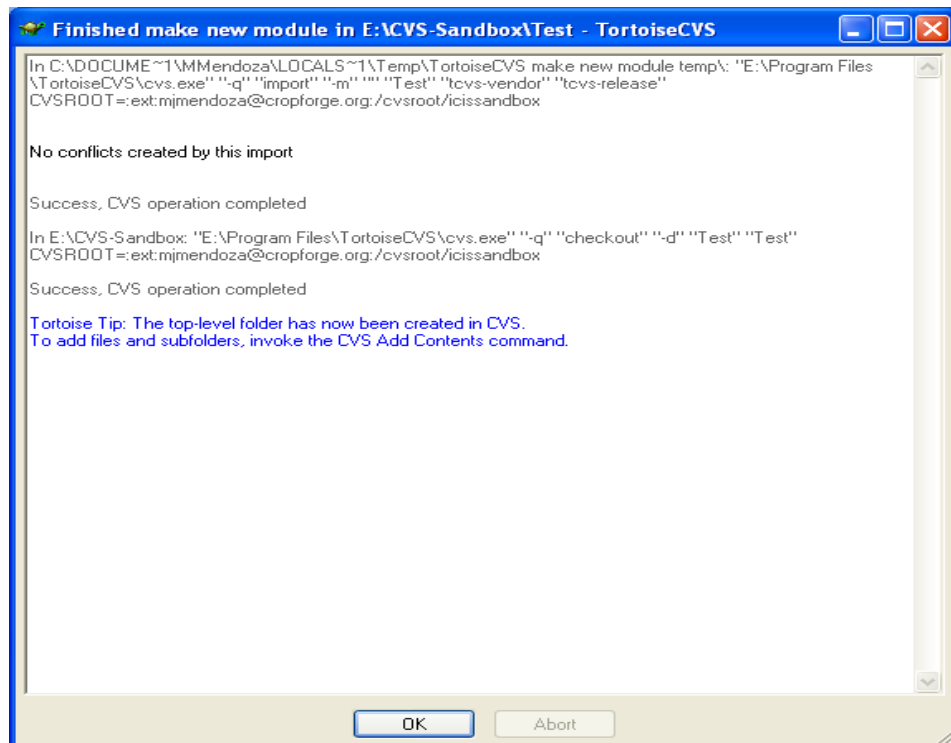
# Create New Module (cont.)

Enter the necessary detailed information

- **Protocol:** select **Secure shell (:ext:)**
- **Server:** enter **cropforge.org**
- **Repository folder:** enter **/cvsroot/icissandbox**, or the appropriate full path to your repository.
- **User name:** enter your username for that server
- **Module:** enter a name for this module. Typically, this would be the name of your program. It is recommended to avoid spaces and punctuation marks in module names.

# Create New Module (cont.)

- Click *Ok*. A Log windows will appear and a password dialog
- Enter your password (it may request it more than once)
- If everything is set correctly, you should see a success message and your module has been created. Click *Ok*.

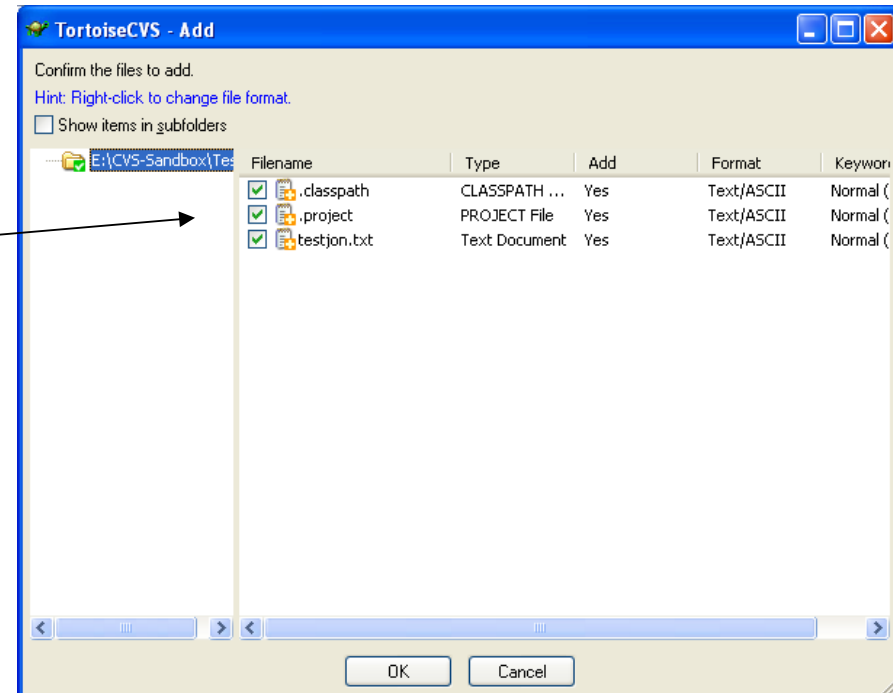


```
In C:\DOCUME~1\Mendoza\LOCALS~1\Temp\TortoiseCVS make new module temp: "E:\Program Files\nTortoiseCVS\cvs.exe" "-q" "import" "-m" "" "Test" "tcv-vendor" "tcv-release"  
CVSROOT=:ext:mjmendoza@croppforge.org:/cvsroot/icissandbox  
  
No conflicts created by this import  
  
Success, CVS operation completed  
  
In E:\CVS-Sandbox: "E:\Program Files\TortoiseCVS\cvs.exe" "-q" "checkout" "-d" "Test" "Test"  
CVSROOT=:ext:mjmendoza@croppforge.org:/cvsroot/icissandbox  
  
Success, CVS operation completed  
  
Tortoise Tip: The top-level folder has now been created in CVS.  
To add files and subfolders, invoke the CVS Add Contents command.
```

# 2nd: Adding files to your module

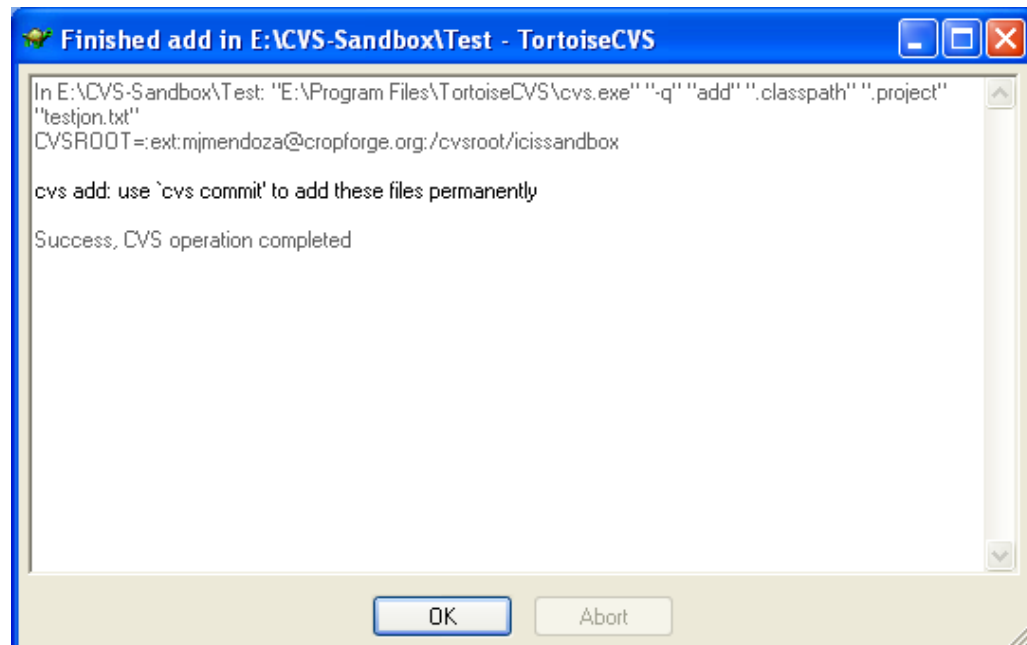
- Import all your files into the module. Right-click on the folder again and select *CVS Add Content*
- A dialog window will appear listing all the files. Go through this list carefully and uncheck any files that do not need to be revision controlled.

**Uncheck files you don't want to commit**



# Adding files to your modules (cont.)

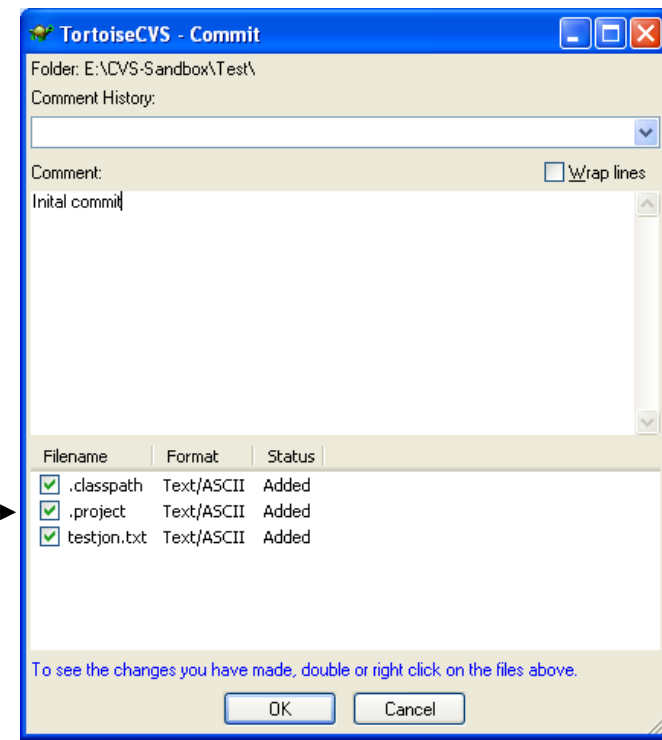
- Take care to do this during the importing step as removing files later is troublesome and will continue to take up space in your repository
- Once everything is good, click *Ok*. You will be prompted to enter your password, possibly more than once, one for each subdirectory added.



# 3rd: Committing your first version

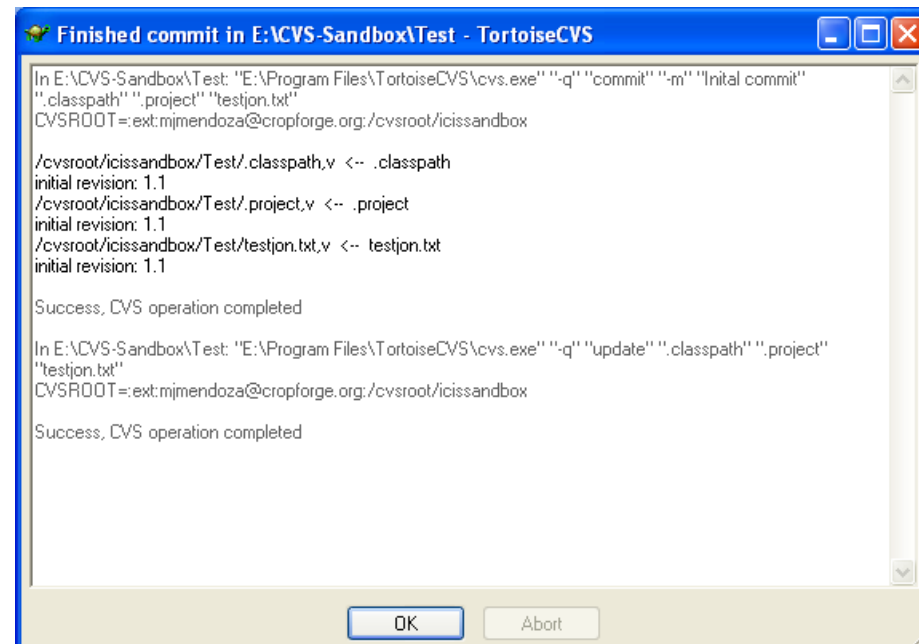
- Add all the files permanently. Again, right-click the folder where your files are. Select *CVS Commit*

**Uncheck files you  
don't want to commit**



# Committing your first version (cont.)

- Put appropriate comments, say “Initial commit” and click *Ok*
- You will be asked to enter your password (possibly more than once) and a success message will appear



```
In E:\CVS-Sandbox\Test: "E:\Program Files\TortoiseCVS\cvs.exe" "-q" "commit" "-m" "Initial commit"
".classpath" ".project" "testjcn.txt"
CVSROOT=:ext:mjmendoza@cropforge.org:/cvsroot/icissandbox

/cvsroot/icissandbox/Test/.classpath,v <- .classpath
initial revision: 1.1
/cvsroot/icissandbox/Test/.project,v <- .project
initial revision: 1.1
/cvsroot/icissandbox/Test/testjcn.txt,v <- testjcn.txt
initial revision: 1.1

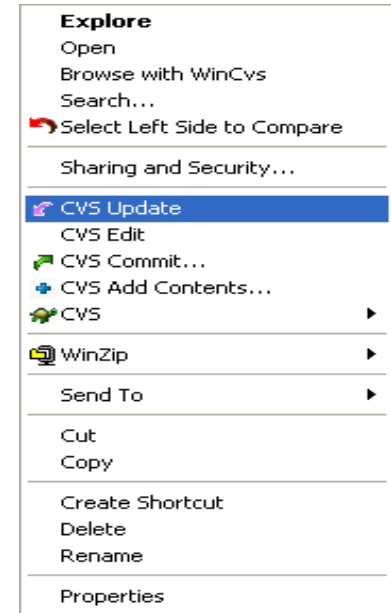
Success, CVS operation completed

In E:\CVS-Sandbox\Test: "E:\Program Files\TortoiseCVS\cvs.exe" "-q" "update" ".classpath" ".project"
"testjcn.txt"
CVSROOT=:ext:mjmendoza@cropforge.org:/cvsroot/icissandbox

Success, CVS operation completed
```

# CVS Updates and Commits

- CVS update integrates changes made by others in the remote repository into your local copy
- CVS commit is the reverse, where your changes to the source code in your local copy are integrated into the remote repository



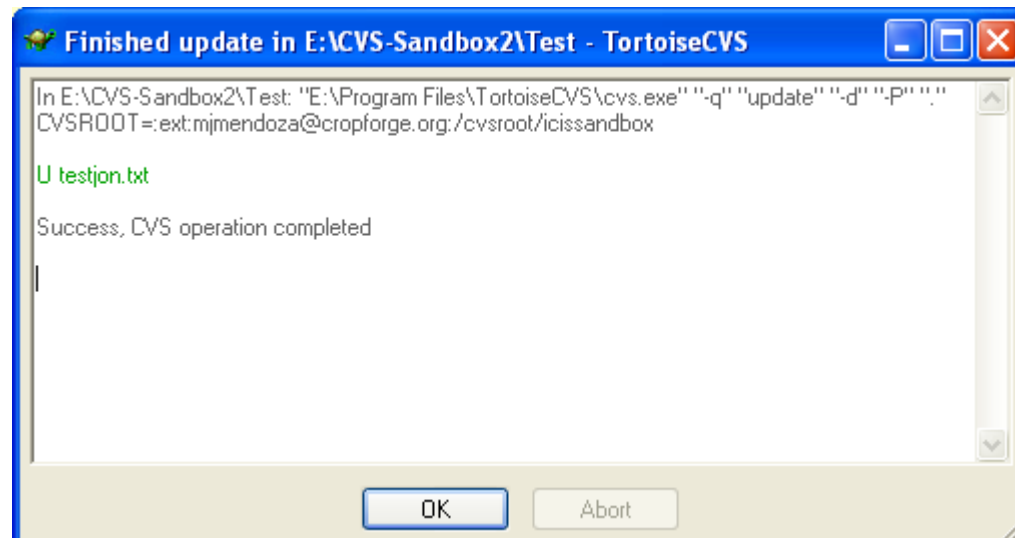
# CVS Update Scenarios

- Typically, you will encounter these scenarios when you do an *update*:
  - Files that match between your local copy and the repository (i.e. no changes have occurred)
  - Files that you have changed but not yet *committed*. These will appear with a flag **M** and will not be uploaded to the repository until you do a commit (Right-click to do CVS Commit)



# CVS Update Scenarios (cont.)

- Files that have been changed in the repository but your local copy is out of date. In this case, these files (marked **U**) will be merged into your local copy. Missing files in you local copy will also be downloaded from the remote repository.



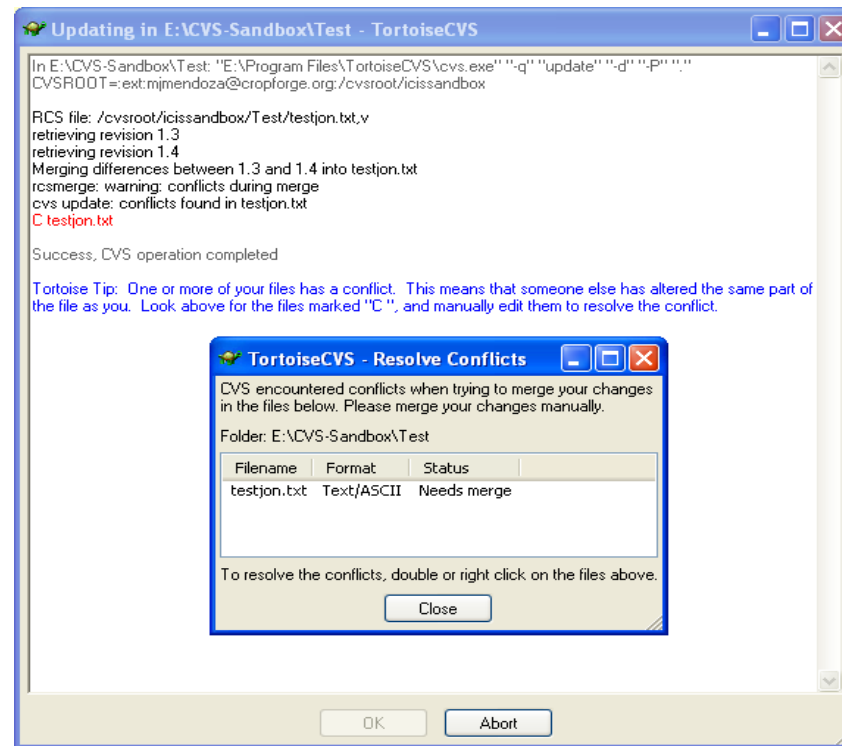
```
In E:\CVS-Sandbox2\Test: "E:\Program Files\TortoiseCVS\cvs.exe" "-q" "update" "-d" "-P" ""
CVSROOT=:ext:mjmendoza@cropforge.org:/cvsroot/icissandbox

U test\jn.txt

Success, CVS operation completed
```

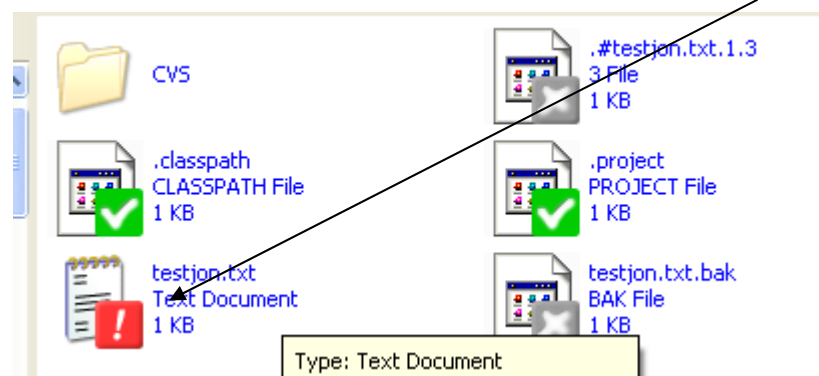
# CVS Update Scenarios (cont.)

- A conflict. You have modified your local copy of a file and another developer has committed changes to the same file. CVS will try to merge both changes, but they may have to be reconciled by hand.

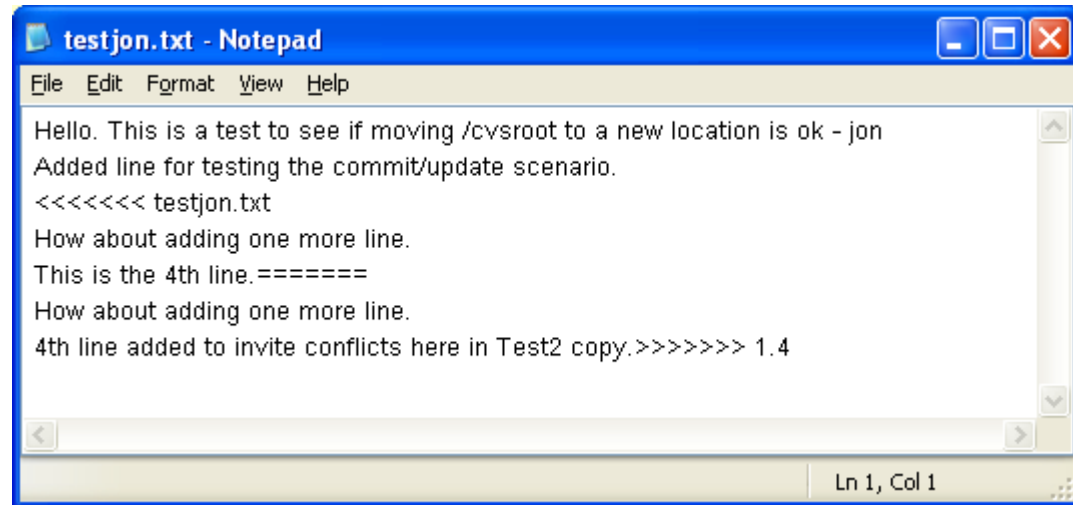


# CVS Update Scenarios (cont.)

- Open the file with the conflicting lines.

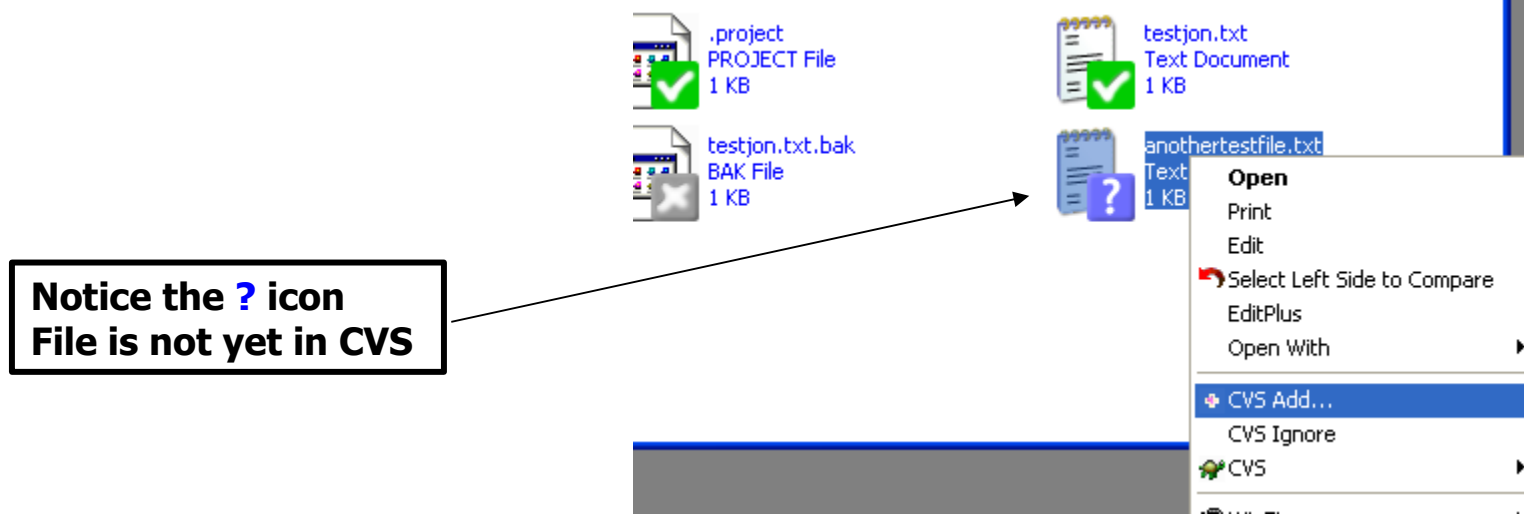


- See the content of the file and make manual changes to either one of the conflicting versions.



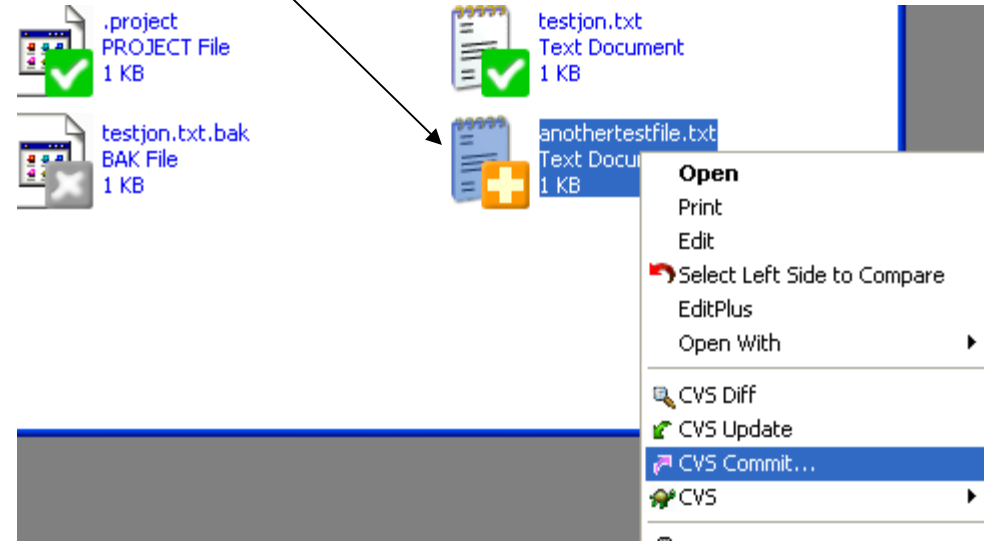
# Adding new files to CVS

- To add a new file to the CVS repository, first create the new file in your local copy.
- Then, right-click the file, select CVS Add and then CVS Commit it as usual.



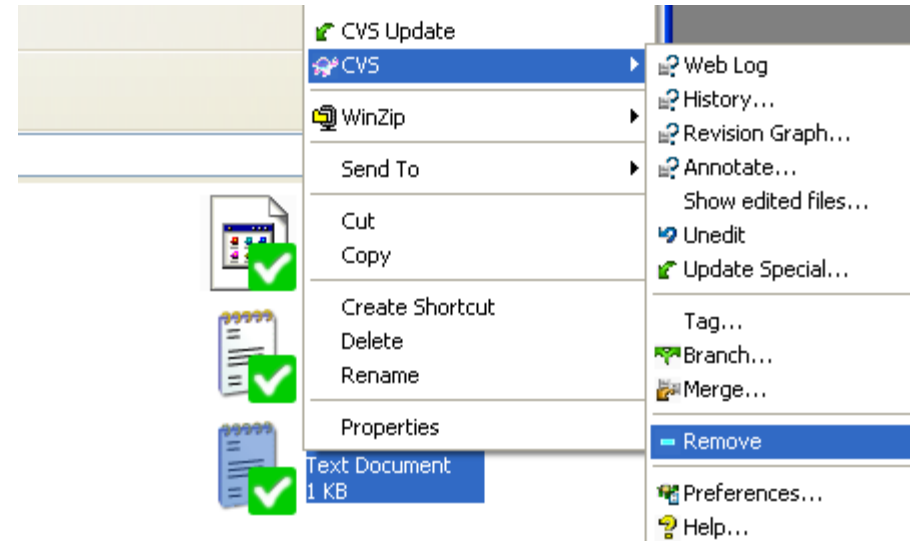
# CVS Add (cont.)

- Notice file icon after CVS Add signifying ready for CVS Commit



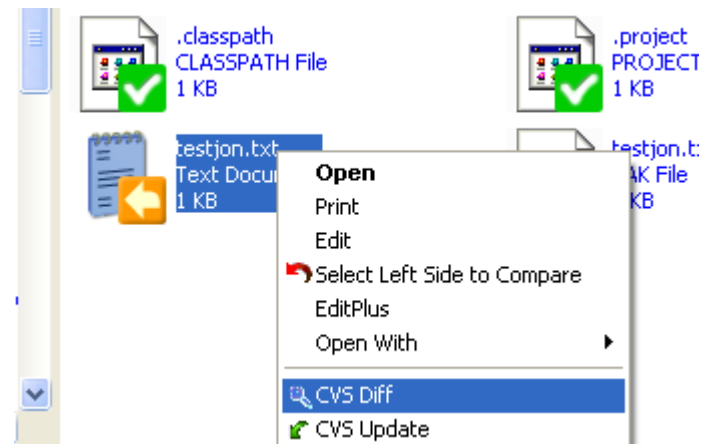
# Removing a file from CVS?

- Don't just delete a file from your local copy to remove it, since executing a CVS Update will make it re-appear.
- Right-click and select **Remove** from the CVS submenu, then commit.



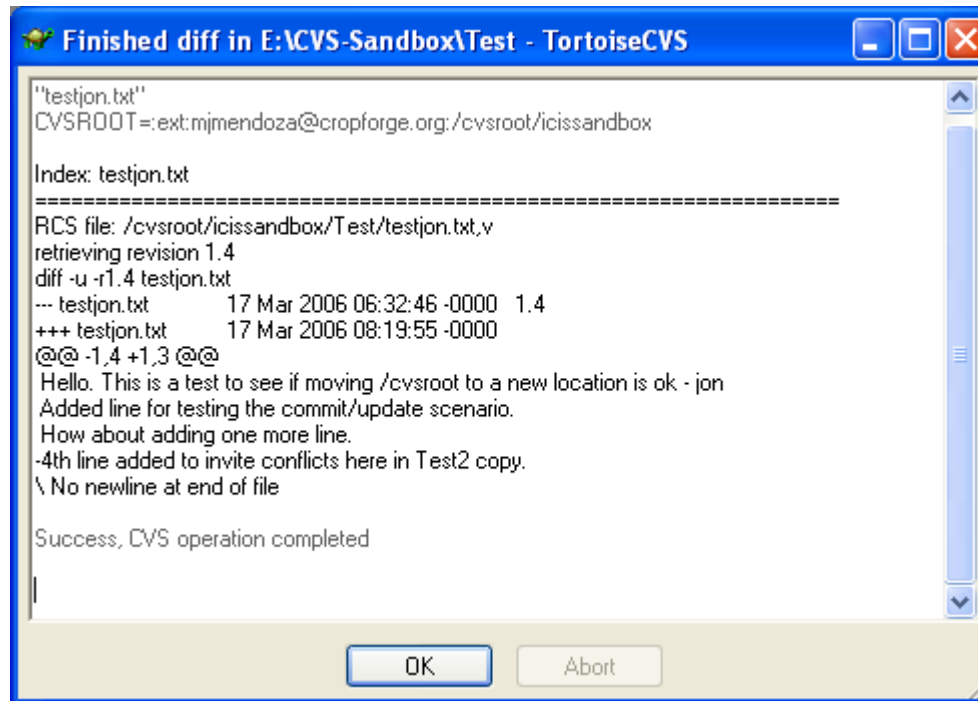
# *Compare local copy with CVS copy*

- Before you do a CVS Commit you may want to know what part of the file was modified in the CVS copy



# CVS Diff (cont.)

- You can check the difference in a dialog window



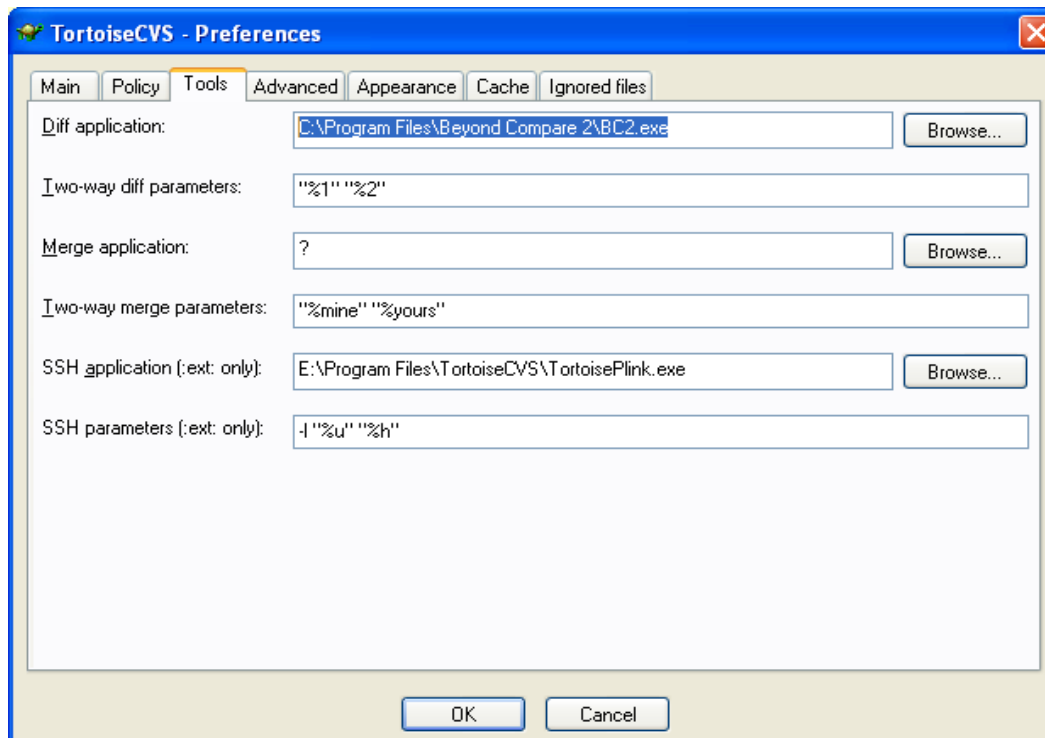
```
"testjon.txt"
CVSROOT = :ext:mjmendoza@cropforge.org:/cvsroot/icissandbox

Index: testjon.txt
-----
RCS file: /cvsroot/icissandbox/Test/testjon.txt,v
retrieving revision 1.4
diff -u -r1.4 testjon.txt
--- testjon.txt      17 Mar 2006 06:32:46 -0000  1.4
+++ testjon.txt      17 Mar 2006 08:19:55 -0000
@@ -1,4 +1,3 @@
 Hello. This is a test to see if moving /cvsroot to a new location is ok - jon
 Added line for testing the commit/update scenario.
 How about adding one more line.
 -4th line added to invite conflicts here in Test2 copy.
 \ No newline at end of file

Success, CVS operation completed
```

# CVS Diff (cont.)

- If you want to use an external diff application such as *Beyond Compare*, you may use it by entering it in the **CVS -> Preferences -> Tools -> Diff. application** section



# Reference Source

- Using Tortoise CVS for Revision Control [http://helpdesk.biomath.ucla.edu/howtos/tortoise\\_cvs](http://helpdesk.biomath.ucla.edu/howtos/tortoise_cvs)  
February 7, 2005.

# CVS advanced topics

- Tagging
- Branching
- Merging