

Managing Source Code on CropForge

*A guide to begin using the CropForge
collaborative software development site
for source code management*

IRRI

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CONTENTS

1. Introduction.....	3
2. Creating an account on CropForge.....	4
3. Becoming a team member of a project on CropForge.....	7
4. Creating a new project on CropForge.....	8
5. Installing CVS/SVN client software on your computer.....	10
5.1. TortoiseCVS.....	10
5.2. Subclipse.....	11
6. Installing the PuTTY SSH client on your computer.....	17
7. Generating authentication keys with PuTTY.....	18
8. Uploading your public key to CropForge.....	21
9. Manual loading of the private authentication key.....	23
10. Automatic loading of the private authentication key.....	24

1. Introduction

CropForge (<http://cropforge.org>) is a web-based collaborative software development platform based on the GForge system (<http://gforge.org>). CropForge hosts software development projects that provide functionalities similar to SourceForge (<http://sourceforge.net>). This manual addresses the initial setup and procedures that are required for contributing source code to a project's source code repository.

Most projects on CropForge are open and the functionalities are also available to non-registered users. If you only want to view the communication that is going on in a project (mailing list, discussion forum, tracker) or if you want to download released software or inspect the source code, you do not have to register on CropForge or become a team member in one of the projects.

If you want to contribute to the communication in a project (mailing list, discussion forum, tracker), you should get an account on CropForge, and, depending on the type of contributions, you may also want to become a team member of the project.

You only need to install CVS/SVN and SSH client software and use authentication keys if you are a developer in a project and need to contribute source code to a project's source code repository.

2. Creating an account on CropForge

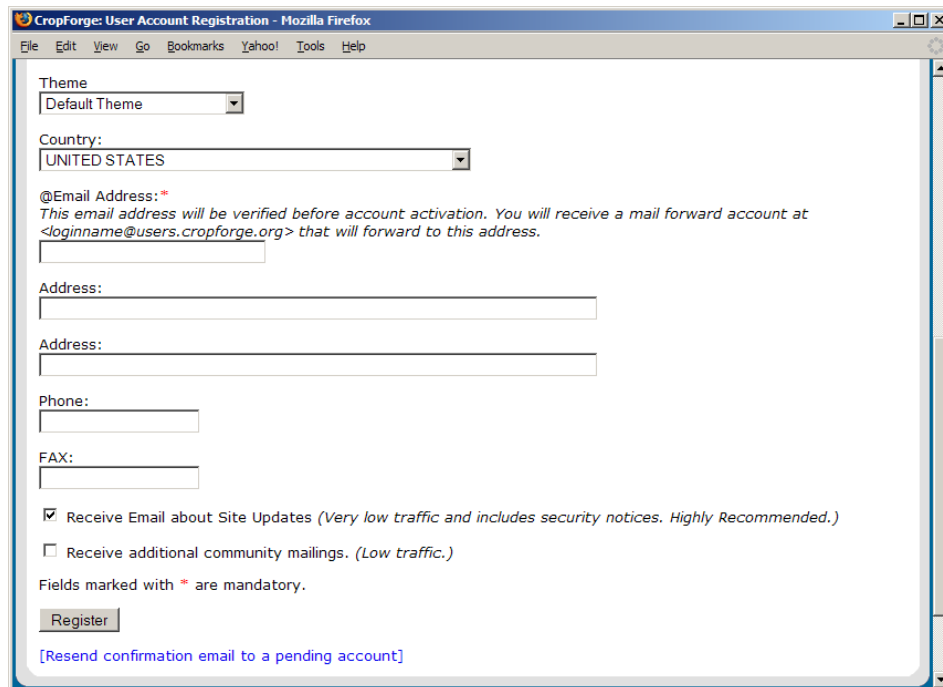
Users can create their own account on CropForge by following the link [New Account](#) in the upper-right corner of the CropForge home page.



The account creation page has mandatory fields to be filled in, that is, Login Name, Password, First Name, Last Name, and email address. The Login Name must be a single word in lowercase letters.

A screenshot of the 'CropForge: User Account Registration' page in a Mozilla Firefox browser window. The browser's address bar shows 'CropForge: User Account Registration - Mozilla Firefox'. The page has the same blue header and orange tabs as the home page. The main content area is a registration form with the following fields: 'Login Name (do not use uppercase letters):*' with a text input; 'Password (min. 6 chars):*' with a text input; 'Password (repeat):*' with a text input; 'Title:' with a text input; 'First Name:*' with a text input; 'Last Name:*' with a text input; 'Language Choice:' with a dropdown menu showing 'English'; 'Timezone:' with a dropdown menu showing 'GMT'; and 'Theme' with a dropdown menu showing 'Default Theme'.

Select your appropriate time zone and country. It is recommended that you use the default language choice (English) and theme. The system has not been tested with other languages and themes and may not behave as intended if other options are selected. You must enter a working email address since it will be authenticated as part of the account creation process.

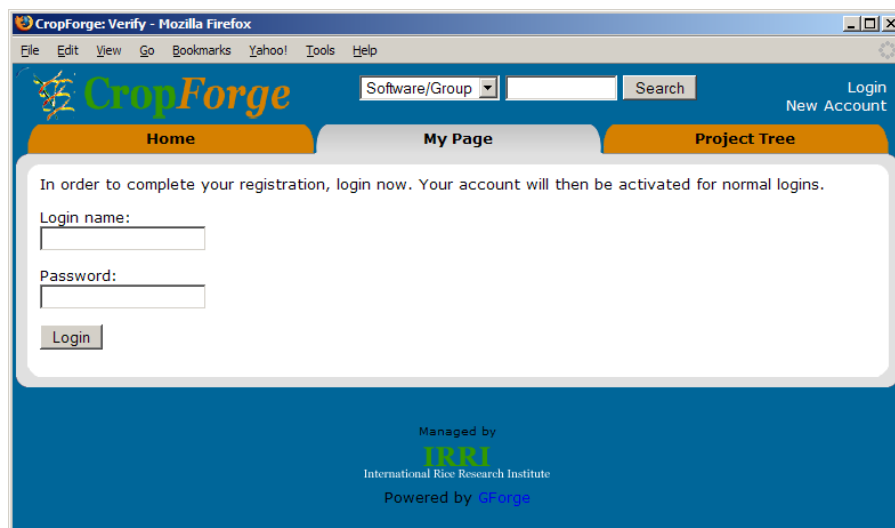


The screenshot shows the 'CropForge: User Account Registration' page. It features a form with the following fields and options:

- Theme:** A dropdown menu with 'Default Theme' selected.
- Country:** A dropdown menu with 'UNITED STATES' selected.
- @Email Address: *** A text input field. A note below it states: 'This email address will be verified before account activation. You will receive a mail forward account at <loginname@users.cropforge.org> that will forward to this address.'
- Address:** A text input field.
- Address:** A second text input field.
- Phone:** A text input field.
- FAX:** A text input field.
- Checkboxes:**
 - ☒ Receive Email about Site Updates (Very low traffic and includes security notices. Highly Recommended.)
 - ☐ Receive additional community mailings. (Low traffic.)
- Fields marked with * are mandatory.**
- Register** button.
- [\[Resend confirmation email to a pending account\]](#)

You may leave the non-mandatory fields empty since their content will not be used by the system. After completing the form, click on the **Register** button.

A confirmation email will be sent to your email account. This email will contain a link to a page that will ask for your user name and password, thereby completing your registration on CropForge.



The screenshot shows the 'CropForge: Verify' page. It features a login form with the following elements:

- Navigation:** 'Home', 'My Page', and 'Project Tree' buttons.
- Search:** A search bar with a dropdown menu for 'Software/Group' and a 'Search' button.
- Links:** 'Login' and 'New Account' links.
- Message:** 'In order to complete your registration, login now. Your account will then be activated for normal logins.'
- Form:** Fields for 'Login name:' and 'Password:' with a 'Login' button.
- Footer:** 'Managed by IRRI International Rice Research Institute' and 'Powered by CForge'.

You are now logged into the system. You can follow the link [Account Maintenance](#) to change the information that you have supplied during the account creation, for example, password, email address.



Select the tab **Project Tree** in order to get to a register of the projects hosted on CropForge. Projects are grouped into categories, with the major categories being the Generation Challenge Programme (GCP) and the International Crop Information System (ICIS).

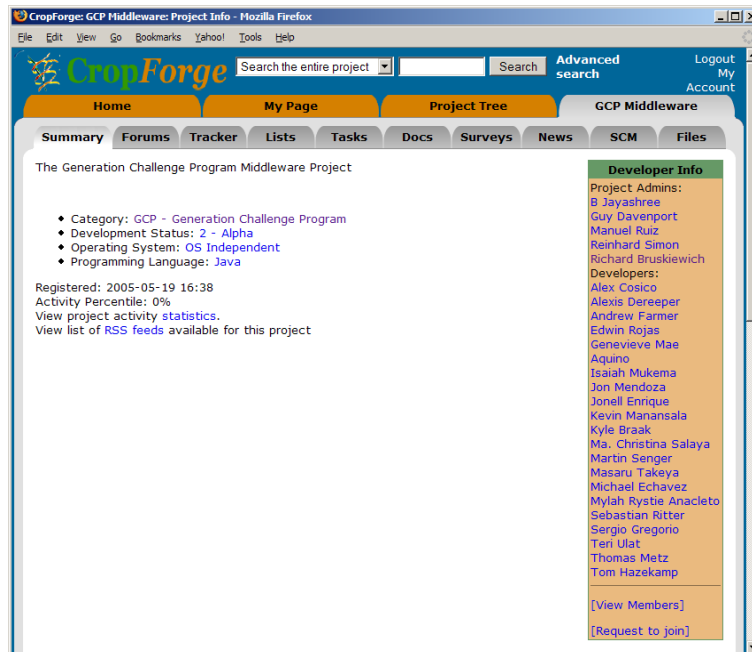
The project **CropForge** contains training materials on using the CropForge system, including this manual.



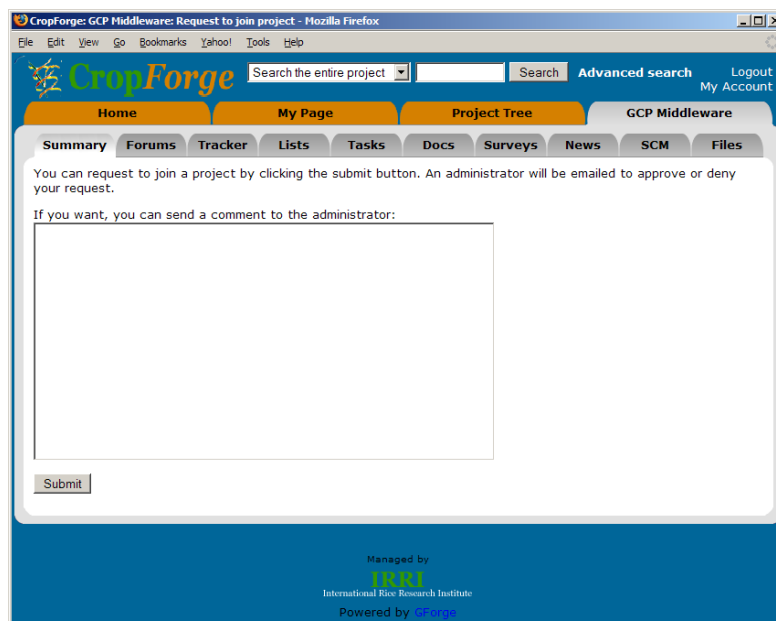
Use the **Logout** and **Login** links in the upper-right corner when you want to leave or enter the system as a registered user.

3. Becoming a team member of a project on CropForge

If you want to become a team member in an existing project on CropForge, you need to contact the project administrator and request to join.



Above is a screen shot of the home page of the **GCP Middleware** project. In the right-hand column, you can see a list with the project administrator(s) and the project team member(s). There is also a link [Request to join](#), which will take you to a page with a request form to be filled out and submitted. The project administrator(s) will receive an email with your request. It is up to the project administrator to accept or deny your request.



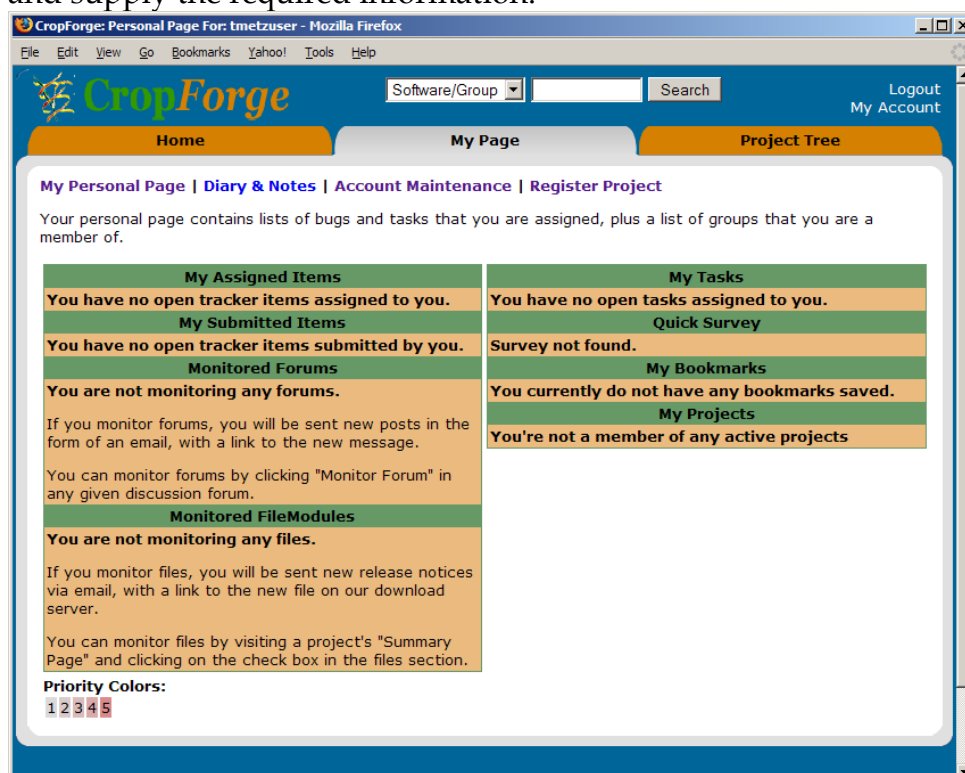
Depending on your activities in the project, the project administrator will give you a set of permissions (or roles). The default roles are Administrator, Senior Developer, Junior Developer, Documentation Writer, Support Technician, and Project User. To submit source code to a project's source code repository, you must be a developer or an administrator in that project.

4. Creating a new project on CropForge

New project registration is not an automatic process. Approval from the CropForge site administrators is needed. CropForge is not a general hosting facility, but has been established to host projects that are part of the Generation Challenge Programme (GCP-<http://generationcp.org>), the International Crop Information System (ICIS-<http://www.icis.cgiar.org>), the CGIAR (<http://www.cgiar.org>), or otherwise related to crop research.

If you would like to establish a new project, you are recommended to get in touch with one of the site administrators (Guy Davenport, CIMMYT; Richard Bruskiewich, IRRI; Reinhard Simon, CIP; Thomas Metz, IRRI) to discuss your needs.

Instead of creating a new project, you may want to join an existing project and upload your source code as a new module in that project. The formal project request is made through a form that can be reached after login from your personal home page, using the **MyPage** tab. Follow the link [Register Project](#), and supply the required information.



- **Project full name**
This is a descriptive name of your project with a 40-character limit. It can be changed at a later stage. Please note the project naming conventions for the GCP and the ICIS project.
- **Project Purpose and Summarization**
Use the same text as for the Project Public Description below.
- **License**
This is a descriptive name of your project with a 40-character limit. It can be changed at a later stage. Please note the project naming conventions for the GCP and ICIS projects.
- **Project Public Description**
This is a descriptive name of your project with a 40-character limit. It can be changed at a later stage. Please note the project naming conventions for the GCP and ICIS projects.
- **Project Unix Name**
The project needs a name that serves as a user name on the CropForge server. Such a Unix name has several restrictions:
 - It cannot be the same as the Unix name of another project
 - Length must be between 3 and 15 characters
 - It must be in lowercase
 - It must consist only of characters, numbers, and dashes
 - It must be a valid Unix username

Note: The Unix Project name cannot be changed at a later stage.
- **SCM**
This option allows you to use either the CVS or SVN source control system.
Note: Once the project has been created, the source control system cannot be changed.

After submitting the project request, a site administrator needs to approve the project, and a mail notification is sent to the user.

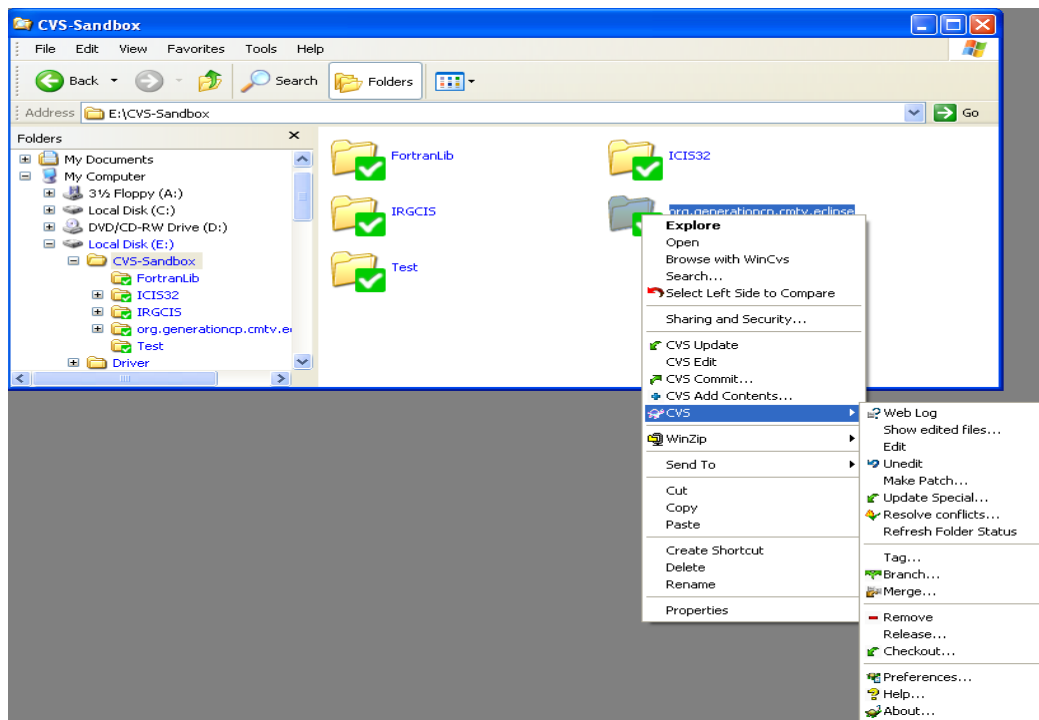
5. Installing CVS/SVN client software on your computer

This section deals only with client software under the MS Windows operating system. A number of different clients are available, but we focus on those that are currently used by CropForge users. A number of projects, mainly those for stand-alone clients, use CVS as their source management system. Java programmers generally prefer to use the SVN system, since it allows easier refactoring of the source code.

5.1. TortoiseCVS

TortoiseCVS is a free CVS client for Windows that can be downloaded from <http://www.tortoisecvs.org/> Stable (for deployment) - TortoiseCVS-1.8.26.exe - 5.84 MB - 15th May 2006.

If you have an older version of TortoiseCVS installed, you should remove it first, before installing the later version. Just double-click the installer and follow the default settings. You will have to reboot your PC to complete the setup. It doesn't function as a separate program but as an extension to the Windows Explorer that can be accessed by right-clicking.



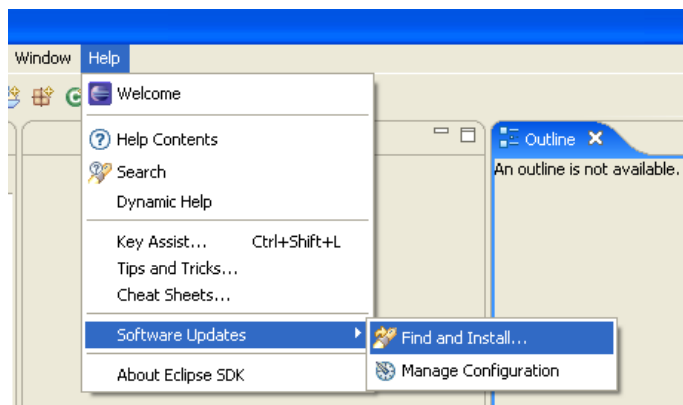
5.2. Subclipse

If you are using Eclipse as your development environment, you can install Subclipse (<http://subclipse.tigris.org/>). It is an Eclipse plug-in that adds Subversion (SVN) integration to the Eclipse IDE. Subclipse is downloaded, installed, and updated from within Eclipse.

The following installation description is taken from the Subclipse web site (<http://subclipse.tigris.org/install.html>). The screenshots are taken using Eclipse SDK version 3.1.2.

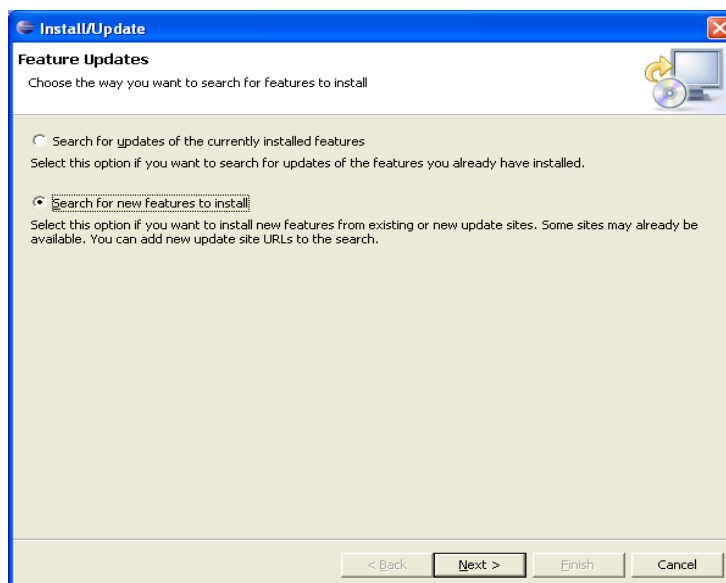
Step 1:

Begin the installation from the Eclipse **Help** menu item.



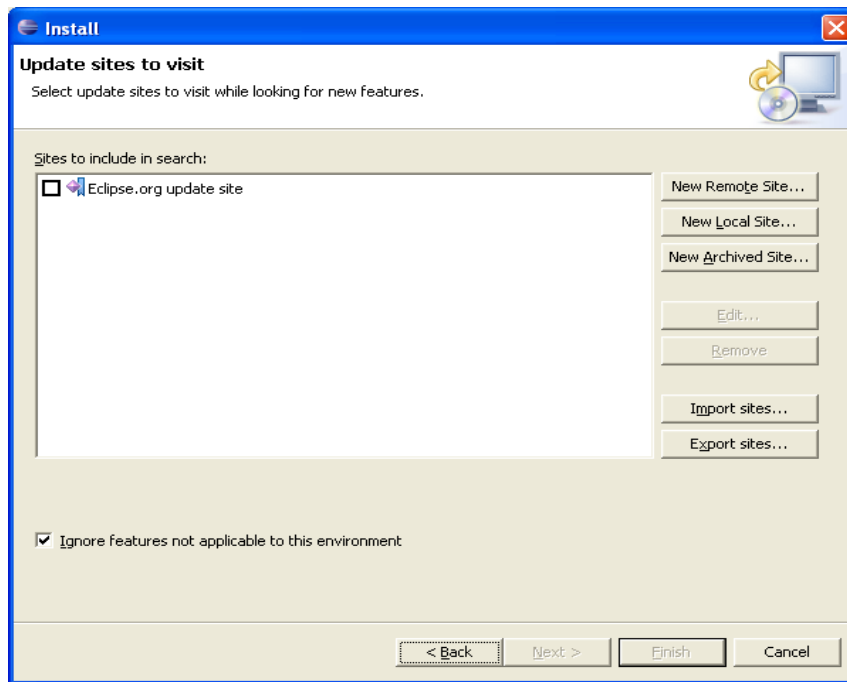
Step 2:

This screenshot shows the Install/Update screen as it initially comes up. In this case, you will need to change the radio button to indicate that this is a new install.



Step 3:

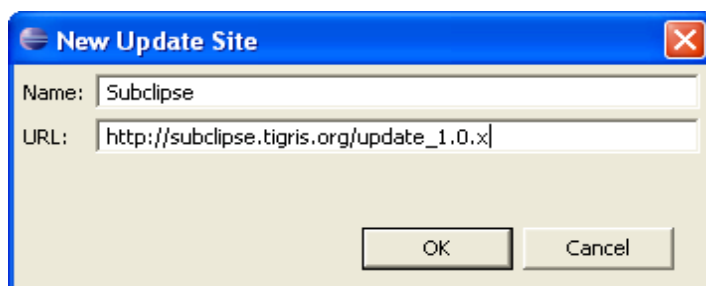
This screen will vary depending on the features you have installed already. You may want to click on the **New Remote Site** button. If you are behind a proxy and the Eclipse install mechanism does not work, then you can download a zipped version of the update site and then click the **New Local Site** button instead.



Step 4:

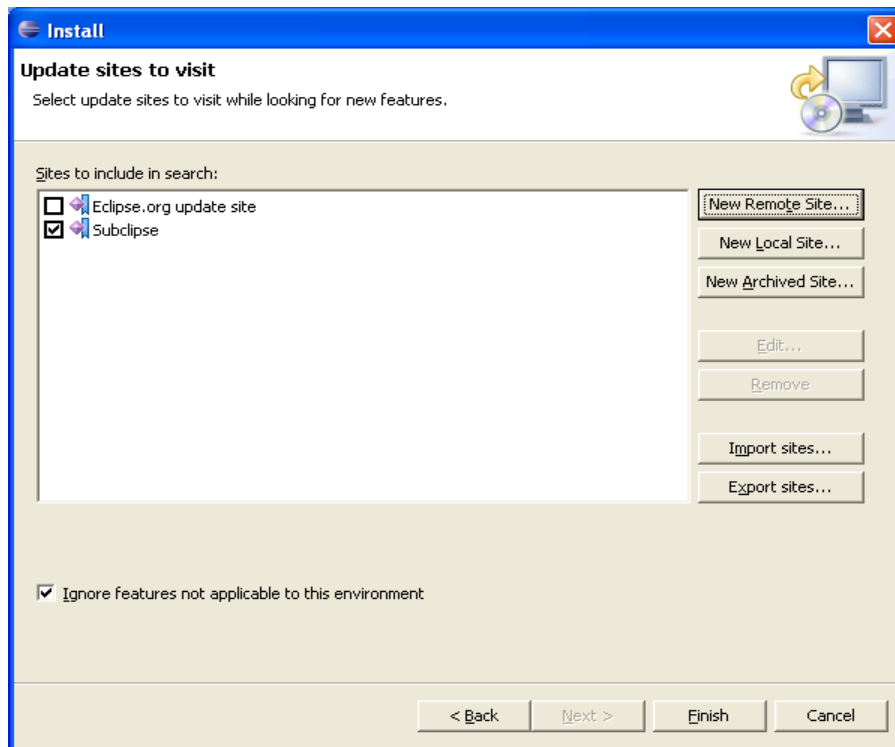
This screen is showing the New Remote Site dialog, filled in with the correct information to install Subclipse.

Name: Subclipse
URL: http://subclipse.tigris.org/update_1.0.x



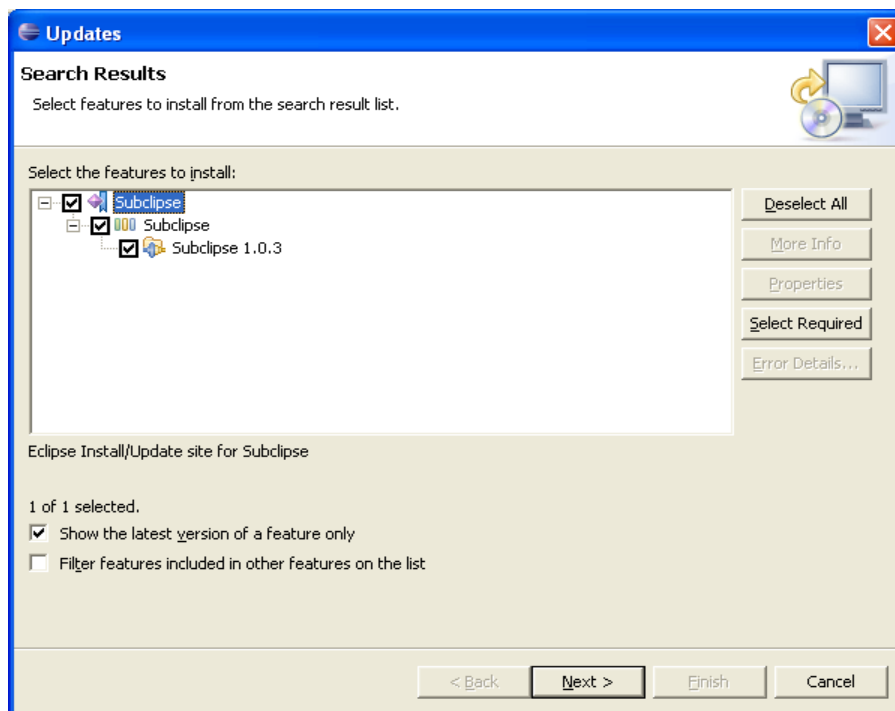
Step 5:

When you first come back to this screen, the site you added will NOT be selected. Be sure to select it before clicking **Finish**.



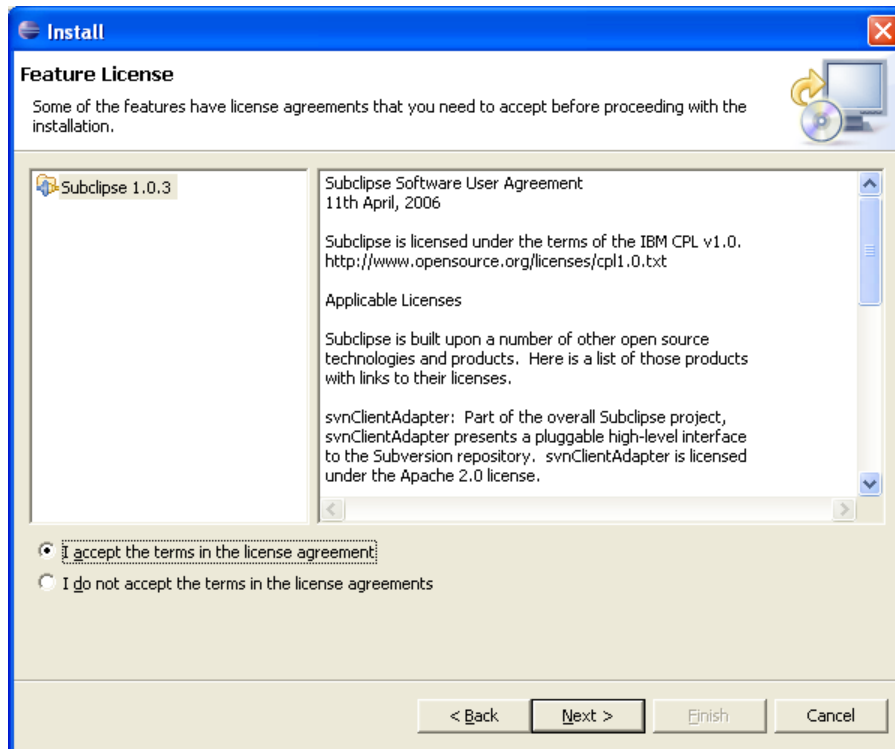
Step 6:

This next screen shows all of the features that are available to install.



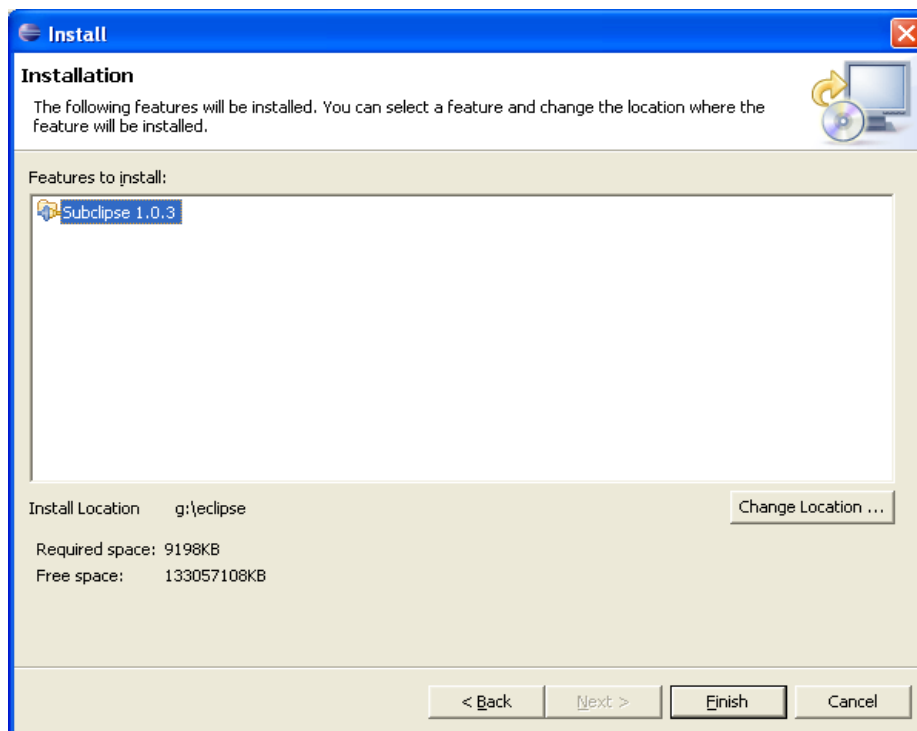
Step 7:

Click the radio button to accept the license agreement.



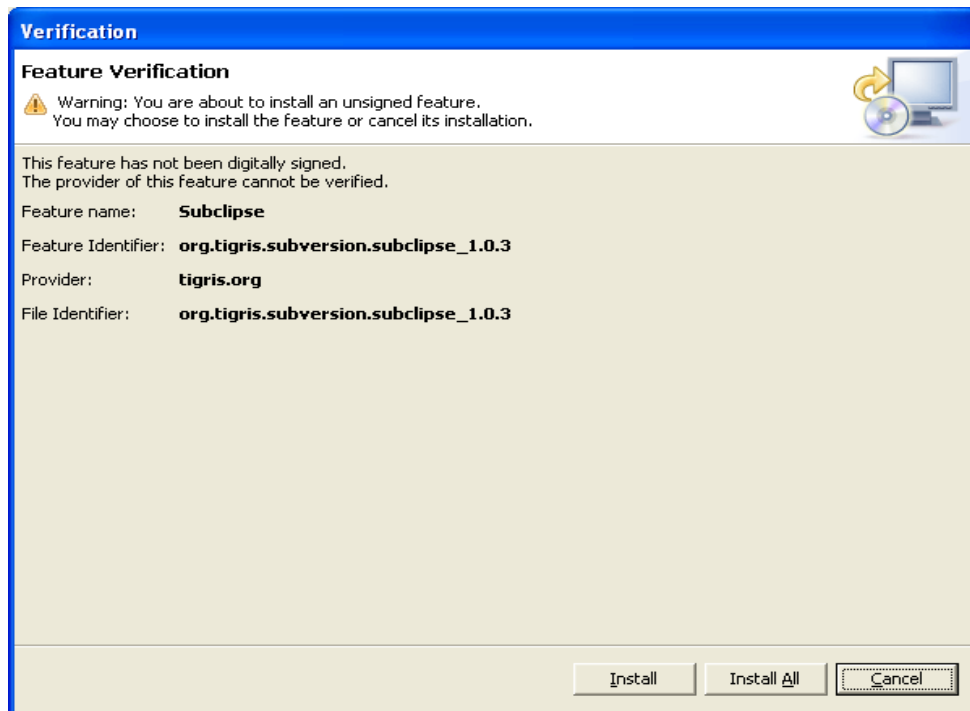
Step 8:

Confirm the install location, then click **Finish**.



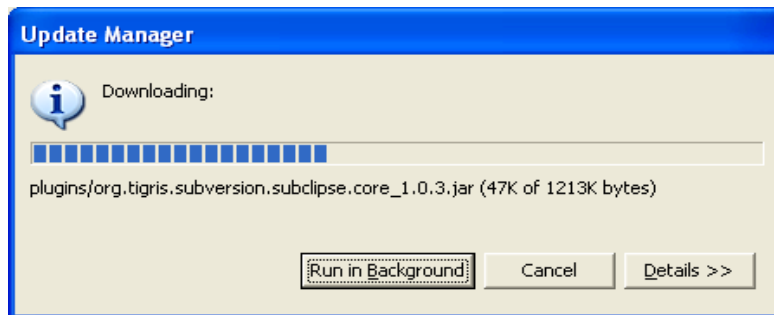
Step 9:

There is an Eclipse preference to turn off this next dialog. Neither Eclipse.org nor IBM sign their features. Simply click **Install All** to proceed.



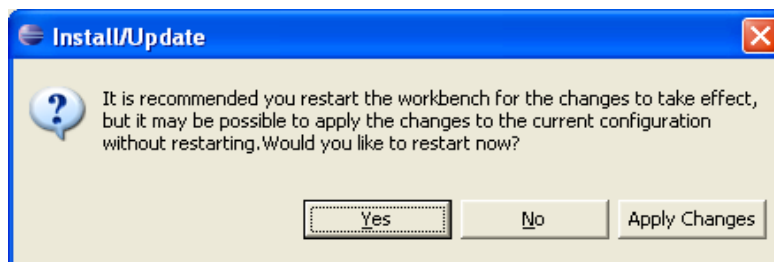
Step 10:

Just a screenshot of the in-process installation.



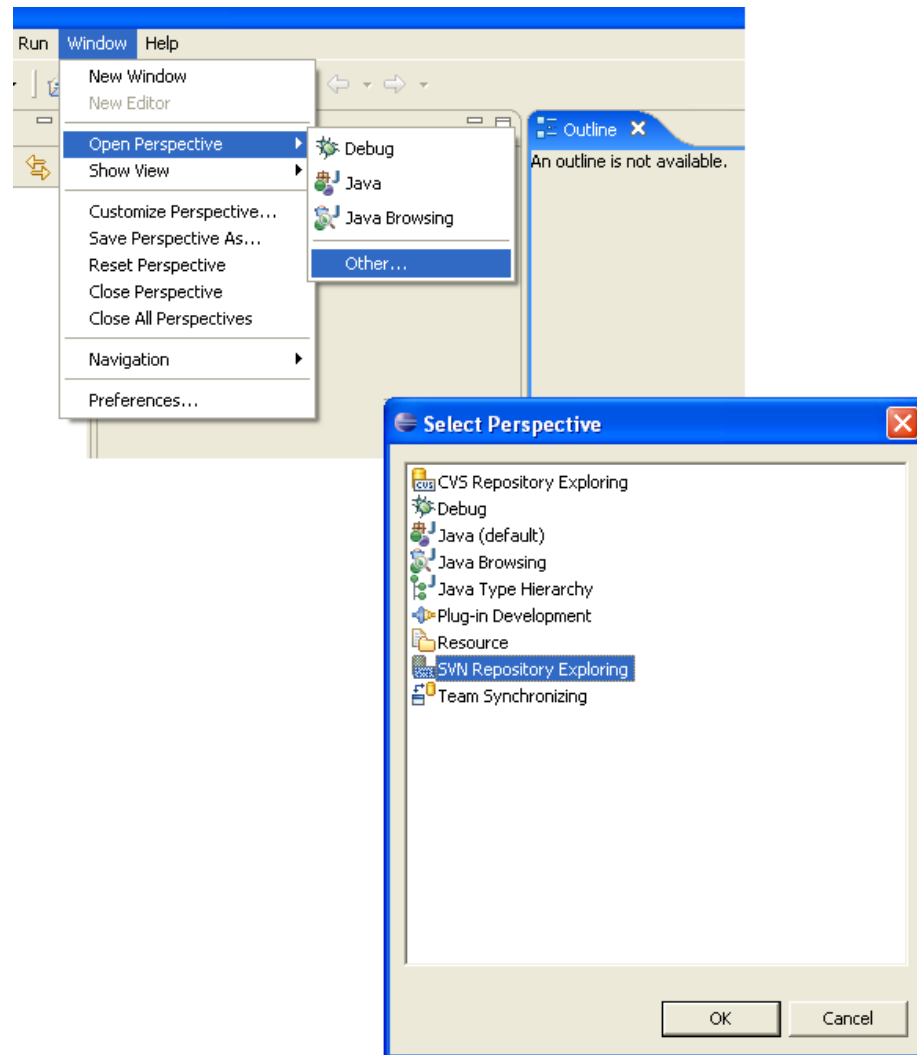
Step 11:

Eclipse needs to be restarted after installing Subclipse.



Step 12:

Finally, after restarting Eclipse, the first thing you will typically want to do is open the Subclipse Repository perspective via the **Windows->Open Perspective->Other...** menu, where you can define your repositories. Be sure to also check the online help as well as the Subclipse preferences located under **Team -> SVN**.



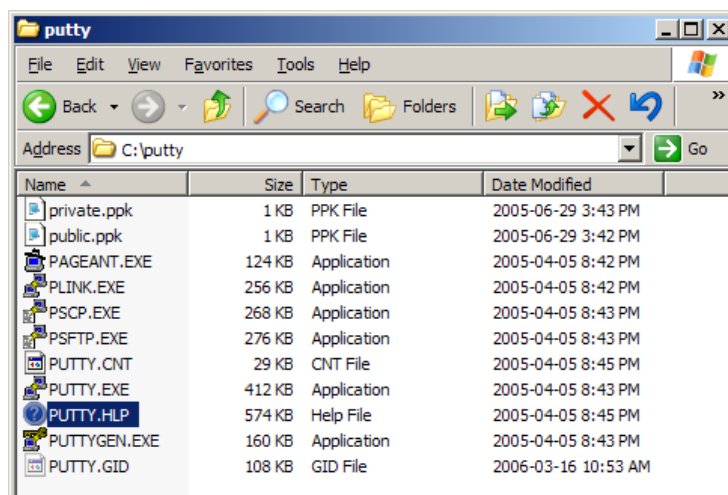
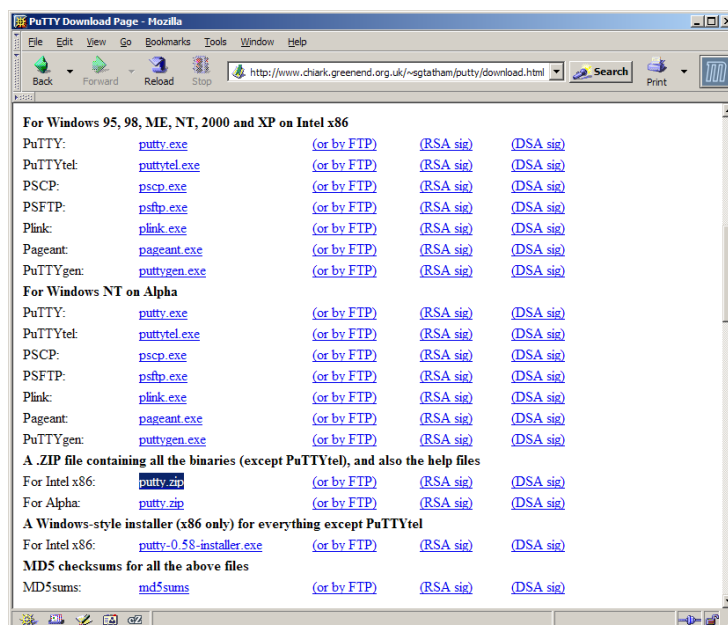
6. Installing the PuTTY SSH client on your computer

An SSH client is needed to provide secure communication between the client and the server.

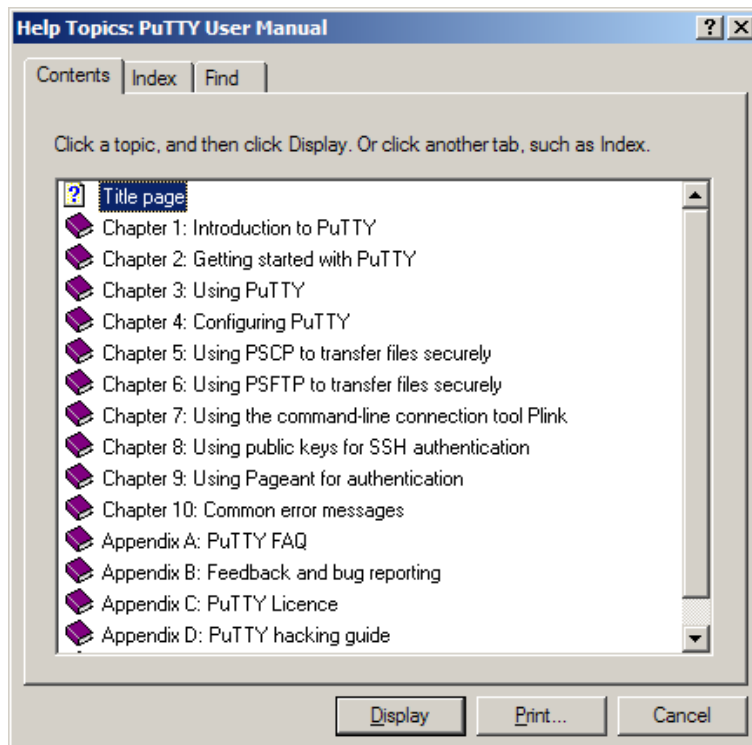
PuTTY (<http://www.chiark.greenend.org.uk/~sgtatham/putty/>) is a free Telnet/SSH client with the following components:

- 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)

Download the .ZIP package for Intel x86 and extract it to the sub-directory **c:\putty**.

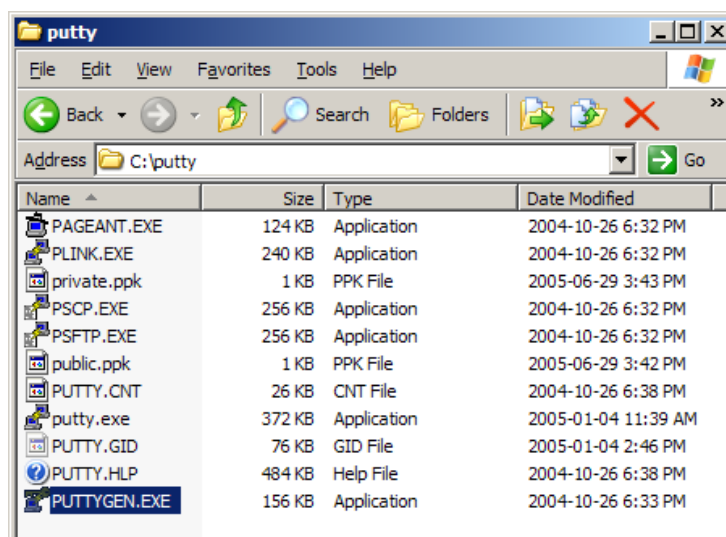


A help manual (PUTTY.HLP) is available as part of the extracted PuTTY software.

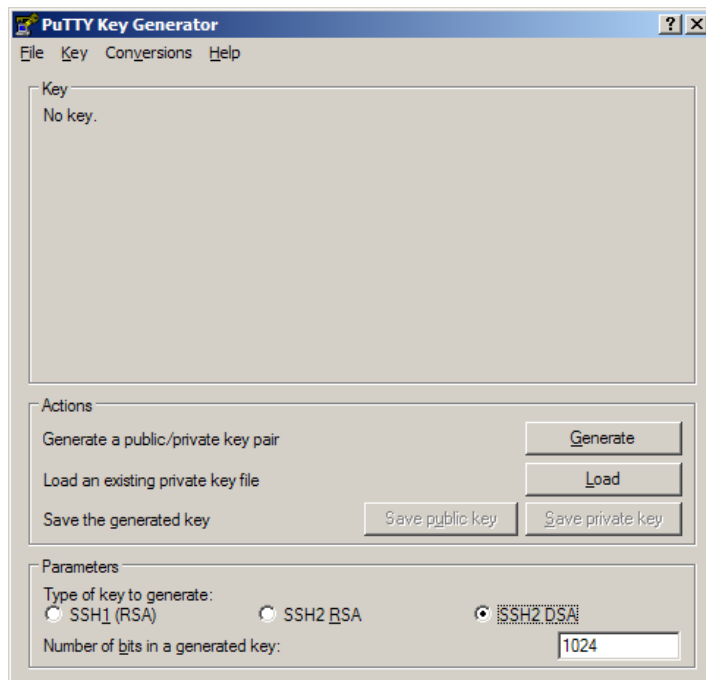


7. Generating authentication keys with PuTTY

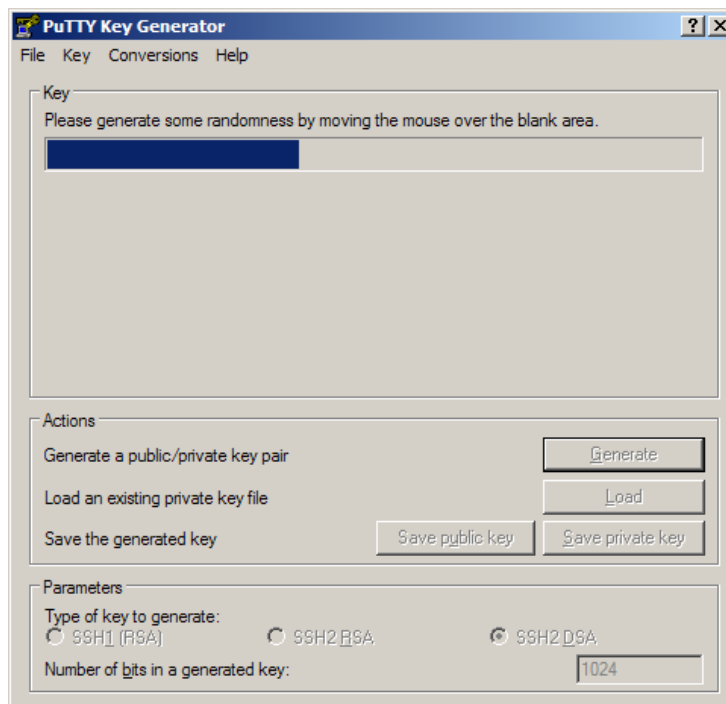
You will need to generate a pair of authentication/encryption keys, which will be used to communicate with the CropForge server. The private key will remain on your computer and the public key needs to be uploaded to the CropForge server.



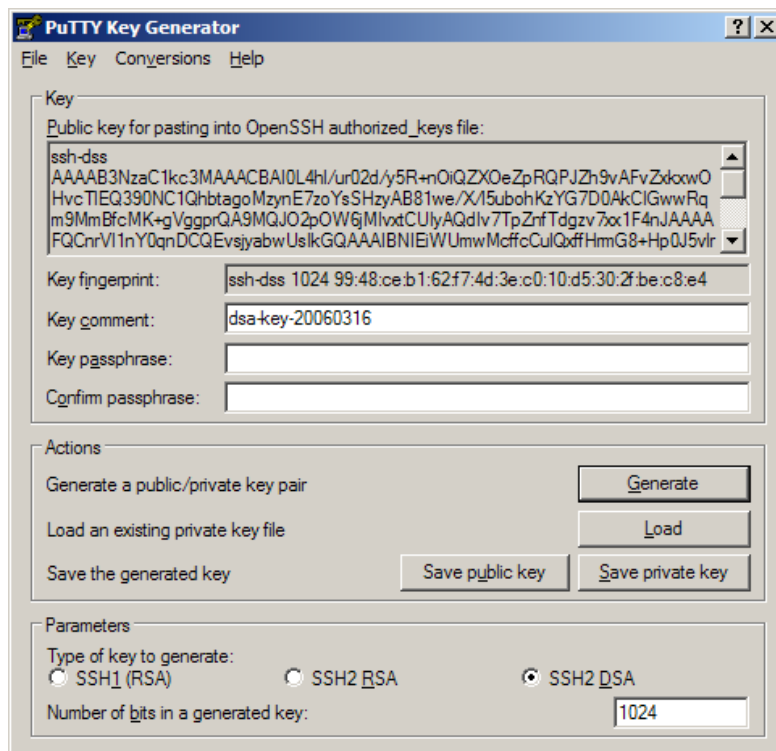
The program PUTTYGEN.EXE is a key generator. Select **SSH2 DSA** as type of key and click on the **Generate** button.



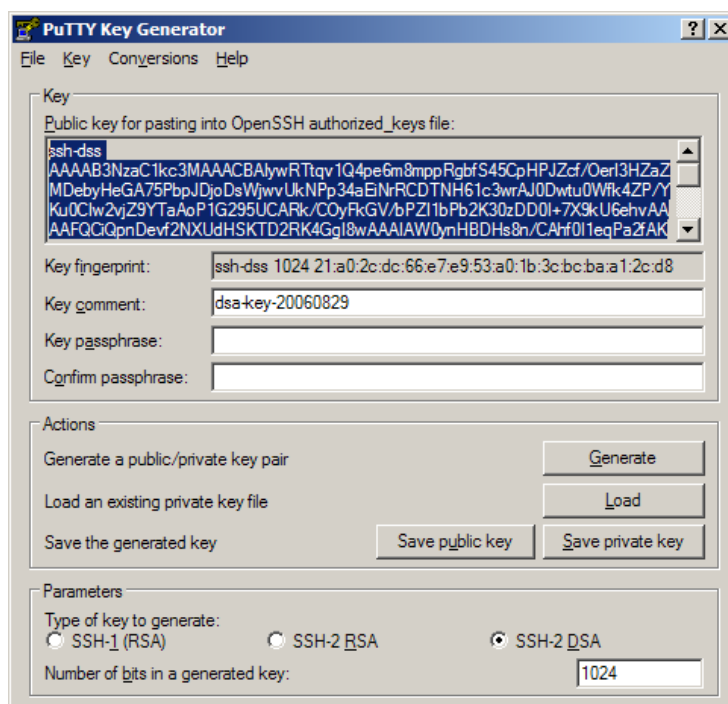
As part of the key generating process, the mouse needs to be moved over the blank area in order to generate some randomness.



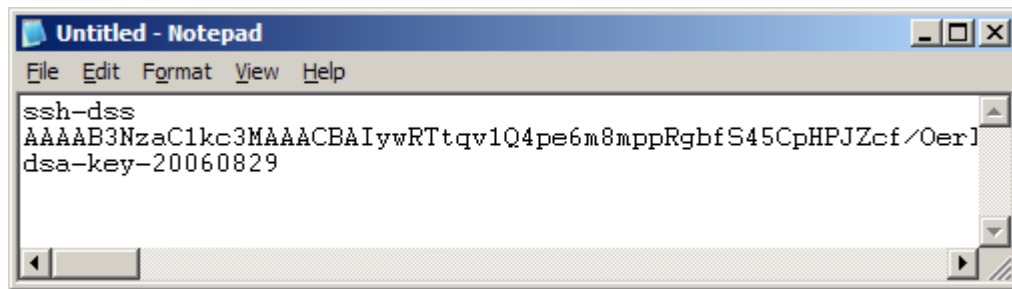
Once the keys have been generated, save the private key into the **c:\putty** directory using the **Save private key** button. You can specify a passphrase for the private key. The passphrase secures your private key on computers that are shared. If you use a passphrase, you have to supply it every time you load your private key.



From the public key box, copy and paste the public key into the NotePad editor.



Edit the public key so that the entire key appears on a single line. Save the public key in **c:\putty**.



8. Uploading your public key to CropForge

The public key as generated and formatted in the previous section needs to be uploaded to the CropForge Server.

Login to CropForge, select the **My Page** tab, and follow the [Account Maintenance](#) link.

A screenshot of the CropForge website's "Account Maintenance" page. The page has a blue header with the CropForge logo and navigation tabs: Home, My Page, Project Tree, Code Snippets, and Project Openings. The "My Page" tab is selected. Below the tabs, there's a sub-header "My Personal Page | Diary & Notes | Account Maintenance | Register Project". The main content area is titled "Account Maintenance" and welcomes "Thomas Metz". It lists several links: "View My Developer Profile" and "Edit My Skills Profile". Below this, there's a form with the following fields: "Member since:" (2005-01-10 16:28), "User Id:" (103), "Login Name:" (tmetz) with a "[Change Password]" link, "First Name:" (Thomas), "Last Name:" (Metz), "Language:" (English), "Timezone:" (Asia/Manila), "Theme:" (Default Theme), "Country:" (PHILIPPINES), "Email Addr:" (tmetz@cgiar.org) with a "[Change Email Addr]" link, "Address:" (IRRI), and "Phone:" (empty). The "Address:" field is split into two lines.

In the upper part of the form, you can change the user information that you have supplied during the account creation process. Most important are your password and your email address.

The lower part of the form contains a box with **Shell Account Information**. Follow the [Edit Keys](#) link.

The screenshot shows a user profile form with the following fields and sections:

- Language:** English (dropdown)
- Timezone:** Asia/Manila (dropdown)
- Theme:** Default Theme (dropdown)
- Country:** PHILIPPINES (dropdown)
- Email Addr:** t.metz@cgjar.org (text input) with a [\[Change Email Addr\]](#) link below it.
- Address:** IRRI (text input)
- Address:** (empty text input)
- Phone:** (empty text input)
- FAX:** (empty text input)
- Title:** (empty text input)

Below the form fields are two sections:

- Preferences:** A green header section containing three checkboxes:
 - ☒ 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:** A green header section containing:
 - Shell box:
 - SSH Shared Authorized Keys: 1 [\[Edit Keys\]](#)

At the bottom of the form are two buttons: **Update** and **Reset Changes**.

Copy and paste the formatted public key into the text box and click on the **Update** button.

The screenshot shows the 'My Personal Page' in CropForge. The page has a blue header with the CropForge logo and navigation links: Home, My Page, Project Tree, Code Snippets, and Project Openings. The 'My Page' tab is selected.

The main content area is titled 'My Personal Page | Diary & Notes | Account Maintenance | Register Project'. It contains the following text:

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' (protocol 1) and '~/.ssh/id_dsa.pub' or '~/.ssh/id_rsa.pub' (protocol 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.

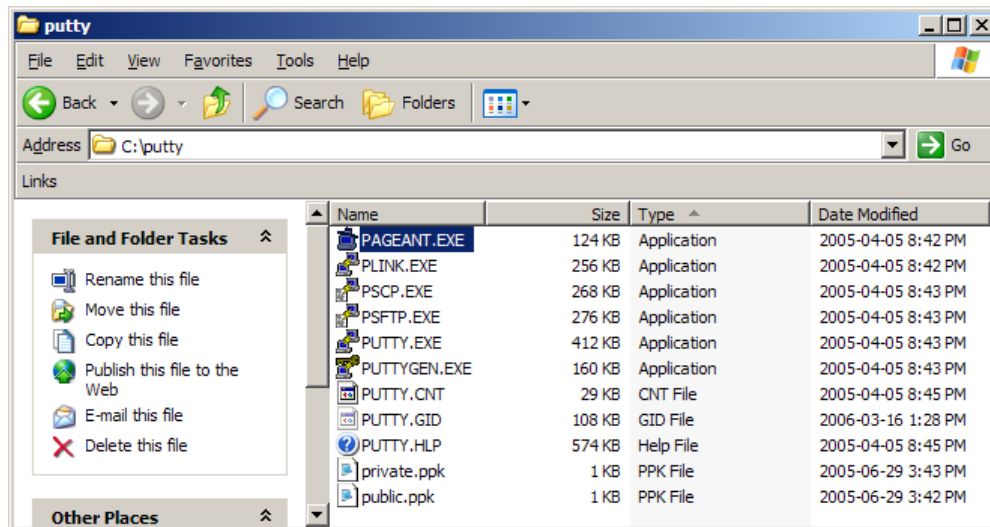
Below this text is a text box containing the following formatted public key:

```
ssh-dss
AAAAB3NzaC1kc3MAAACAZuX17PwO06bUrCATZxqIGAFOF3qyxWwTwEZk9i+IOU1
dsa-key-20050121
```

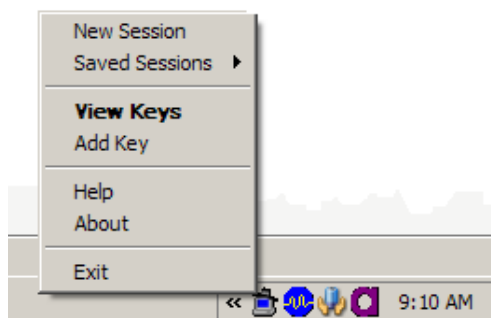
At the bottom of the text box is an **Update** button.

9. Manual loading of the private authentication key

It is assumed that the PuTTY software is being used for authentication with the CropForge server. The default PuTTY installation should have resulted in a directory **c:\putty**. The public and private keys in the example below were saved under the names **private.ppk** and **public.ppk**.



After starting the PAGENT.EXE program (PuTTY authentication agent), a corresponding icon appears in the taskbar. Right-click on the icon, select the option **Add Key**, and select the file containing your private key. In this example, the private key is stored in the file **c:\putty\private.ppk**.

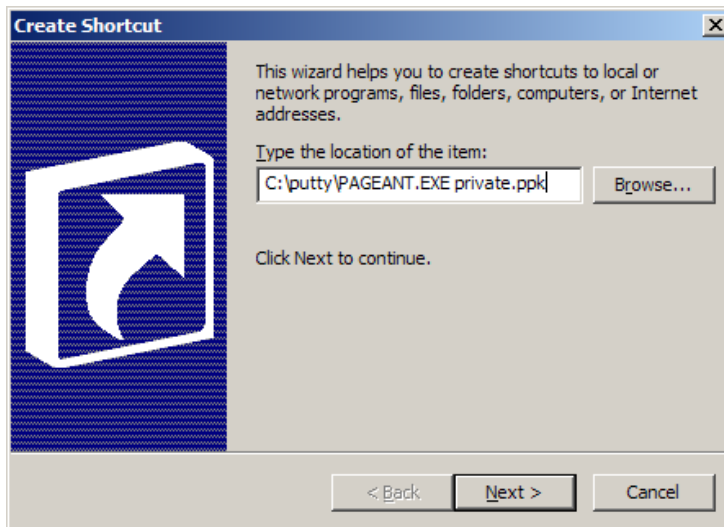
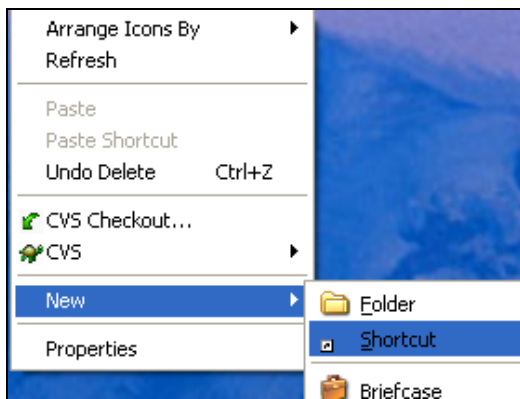


It is assumed that your public key has already been uploaded to the CropForge server. Whenever authentication between you and the CropForge server is needed, it will now be done automatically by the PAGENT software using you locally loaded private key and your public key available on the CropForge server.

10. Automatic loading of the private authentication key

To avoid the manual loading of your private key every time you login to your PC, follow these steps:

Create shortcut by right-clicking anywhere on the Desktop and enter the command **c:\putty\pageant.exe private.ppk**. Here it is assumed that PuTTY was installed in **c:\putty**, and that the private key was saved in the file **private.ppk**.



Move this shortcut to your Startup folder, which is usually located in **C:\Documents and Settings\All Users\Start Menu\Programs\Startup** in WindowsXP.



The shortcut will now be executed every time the computer is booted, loading the private key into memory.