

Cygwin Tutorial
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PART 1: Introduction

This is a tutorial for installing the Cygwin Terminal and Unix environment on a Windows computer.

What is Cygwin?

Cygwin is a free and open source software that provides a Unix/Linux-like environment running under Windows. It provides an API emulation layer, which is a collection of powerful tools that give a Windows user some of the functionality found in Unix/Linux, such as a terminal, a shell, and command line coreutils.

Prerequisites:

1. Make sure that you are using a version of Windows supported by Cygwin (Windows 7 / Windows 8), and that you have sufficient disk space and available time for the installation:
 - a. (Recommended) Custom installation: 1-3 GB, 30 min - 1.5 hour
 - b. Full installation: 30 GB, 2-5 hours
2. If your Windows login name contains a space character, consider changing it or creating a separate login user for use with Cygwin. The Cygwin installer names your home directory according to your Windows login name. It is usually possible to work around problems caused by directory or file names that contain spaces, but they will be a constant irritation; it's better to avoid them.

Note: A minimal installation may be upgraded easily at a later time by following the same procedure as for initial installation. Packages that have previously been installed will not be changed unless newer versions have become available and you choose to install them.

Where to download Cygwin?

To install Cygwin, head to the official site of [Cygwin](#) and download the executable depending on your system preference (32-bit or 64-bit). You can check this by selecting Start, then right-clicking on Computer and selecting Properties. In Properties, under System, your OS version is listed (32-bit vs. 64-bit).

Cygwin

Get that *Linux* feeling - on Windows

This is the home of the Cygwin project

Install Cygwin

Community
Reporting Problems
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Newsgroups

1. From the Cygwin page linked above, Click on the “Install Cygwin” link
2. Download the Cygwin installer (setup-x86.exe for 32-bit or setup-x86_64.exe for 64-bit), which is a small application that allows you to choose:
 - the Cygwin root directory (where Cygwin will be installed on your system)
 - which of the many Cygwin mirrors you will use while downloading
 - which optional Cygwin packages should be installed

Installing and Updating Cygwin Packages

Installing and Updating Cygwin for 32-bit versions of Windows

Run [setup-x86.exe](#) any time you want to update or install a Cygwin package for 32-bit windows. The [signature](#) for [setup-x86.exe](#) can be used to verify the validity of this binary using [this](#) public key.

Installing and Updating Cygwin for 64-bit versions of Windows

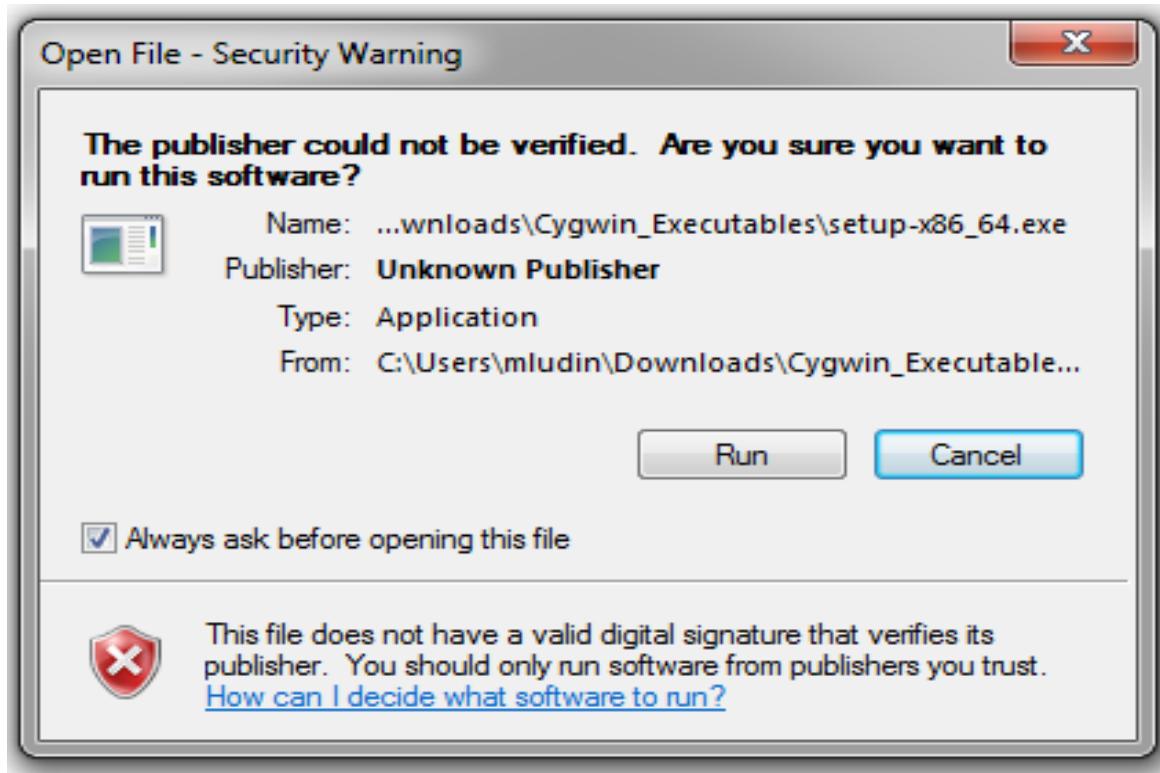
Run [setup-x86_64.exe](#) any time you want to update or install a Cygwin package for 64-bit windows. The [signature](#) for [setup-x86_64.exe](#) can be used to verify the validity of this binary using [this](#) public key.

How to Install Cygwin?

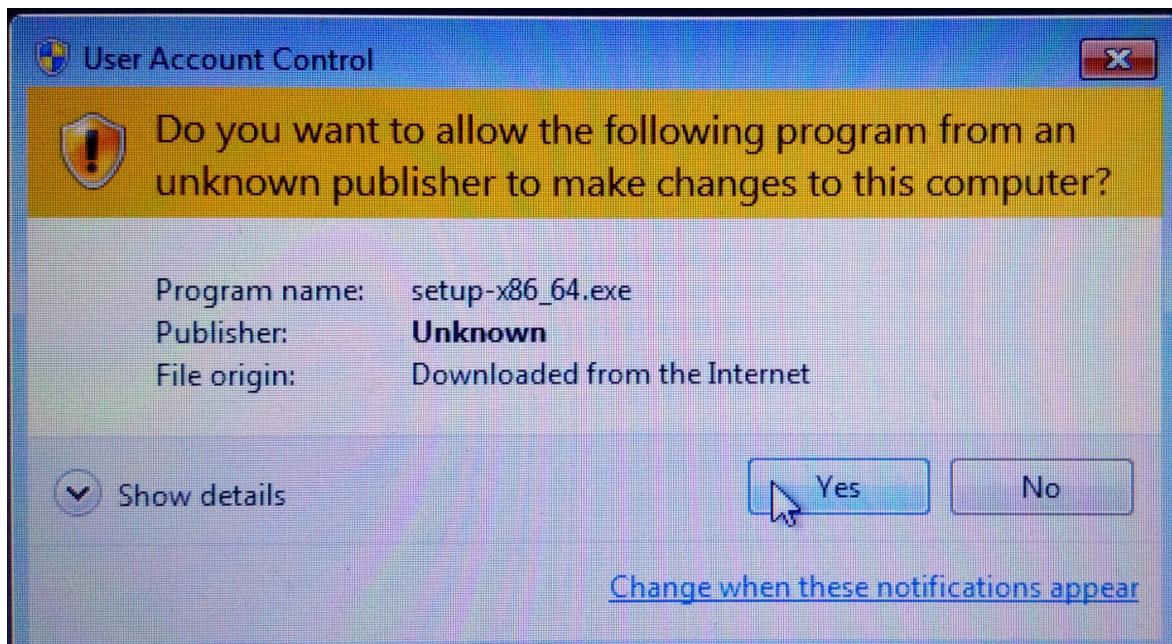
Step 1: Once you have downloaded the Cygwin installer, launch the installer as the Administrator (**Right-click -> Run as administrator**).



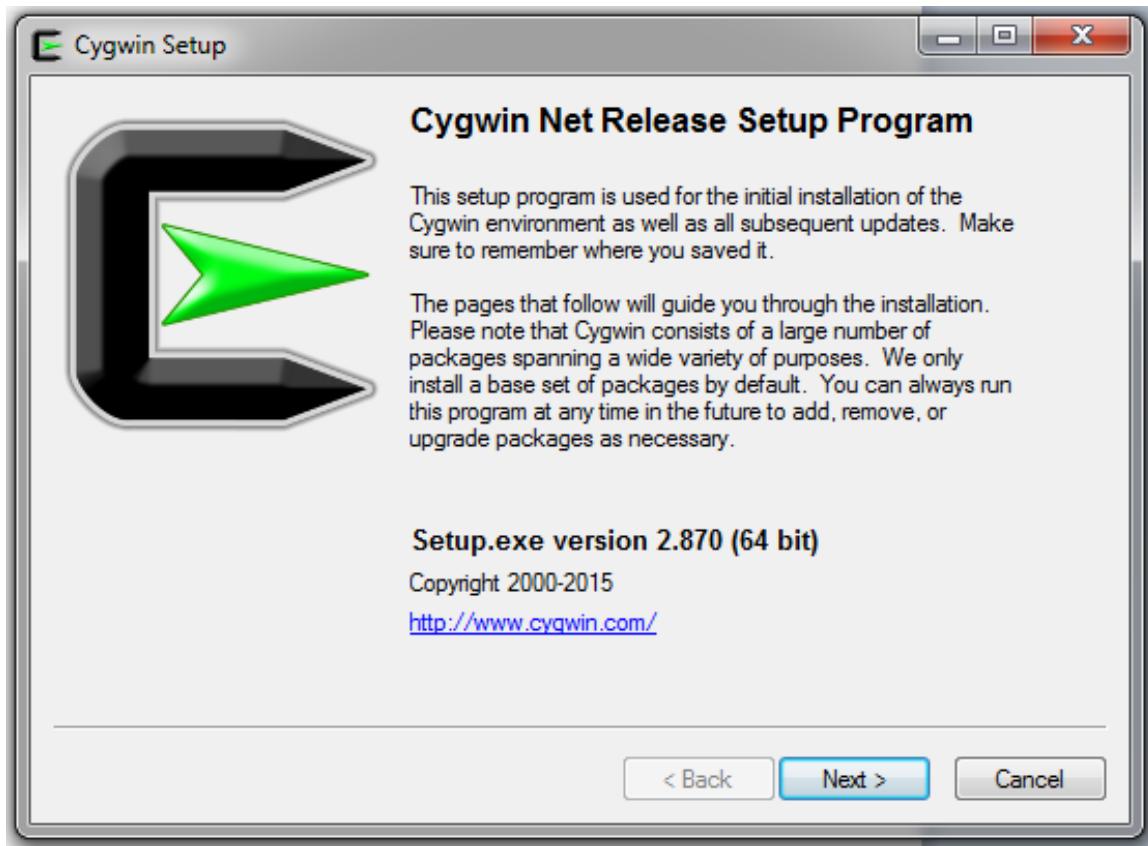
Step 2: Click Run.



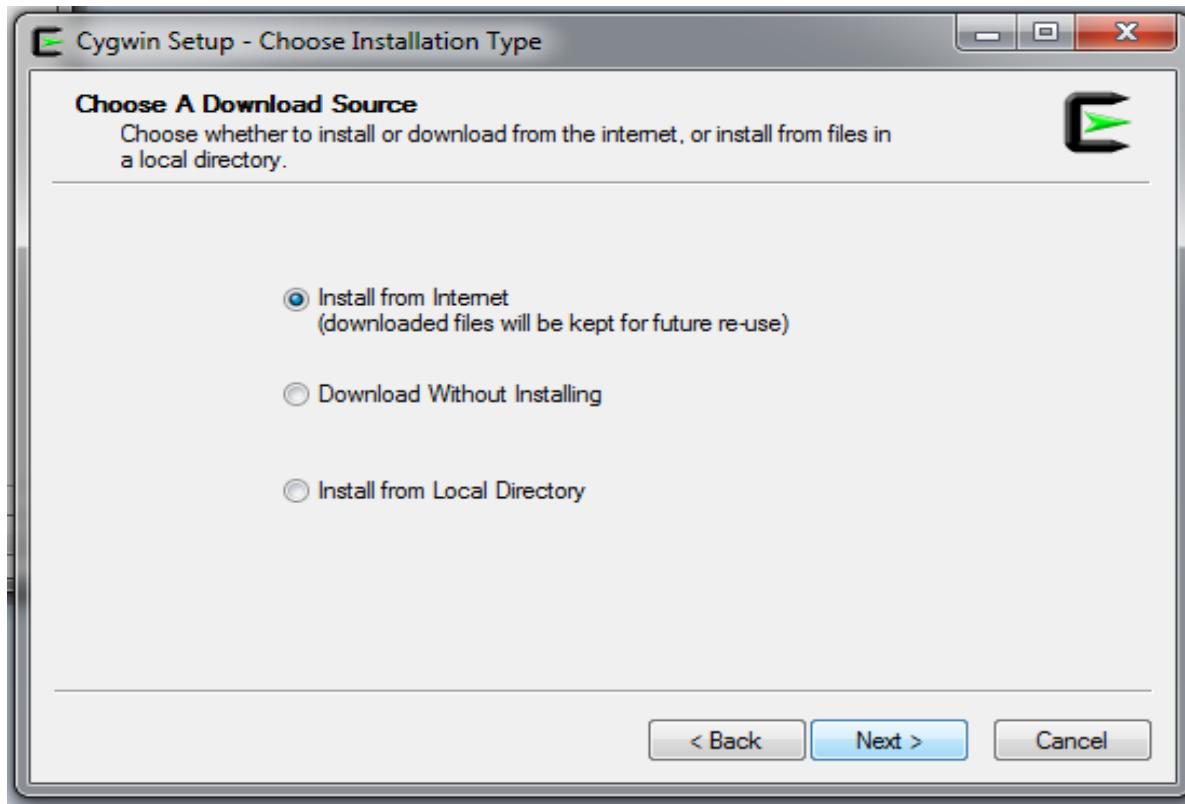
Step 3: Click Yes.



Step 4: A window titled **Cygwin Net Release Setup Program** appears. Click **Next** to get started.

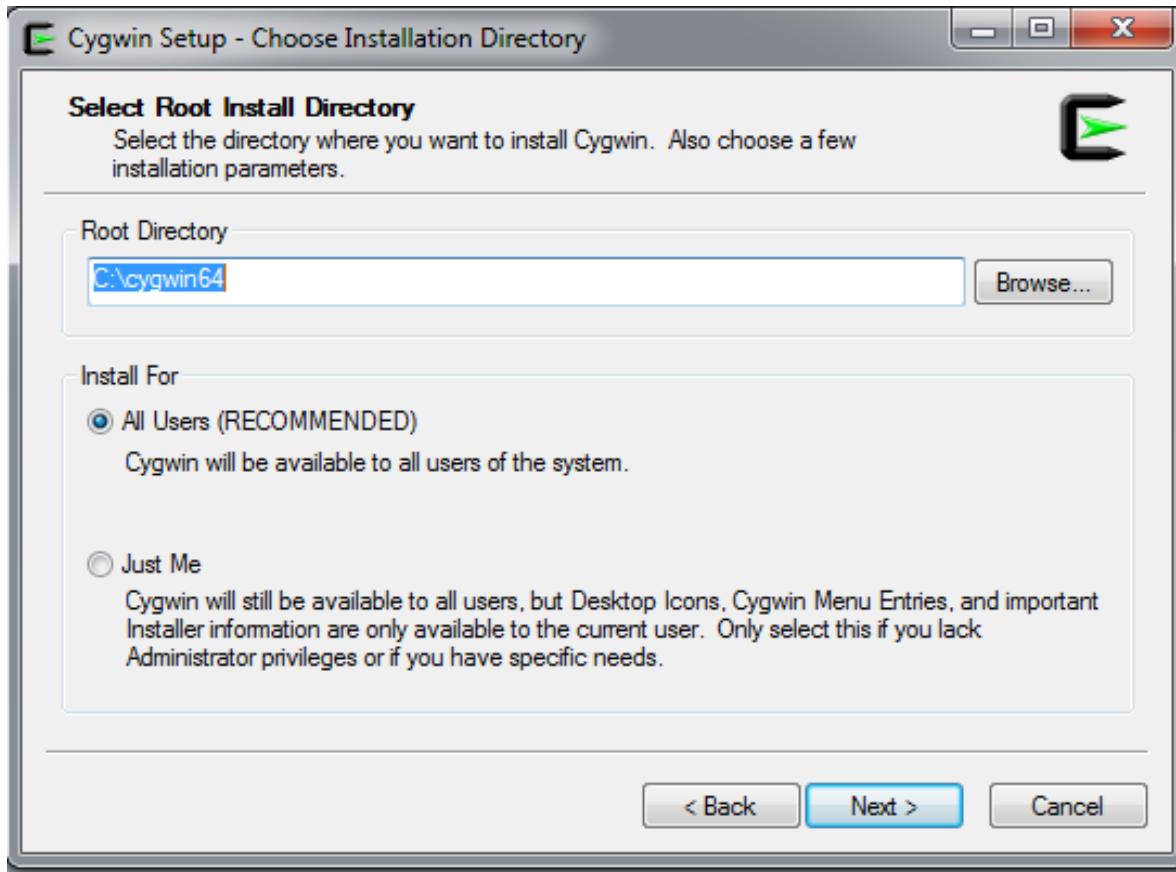


Step 5: Choose A Download Source: Accept the default ("Install from Internet") and click **Next**.



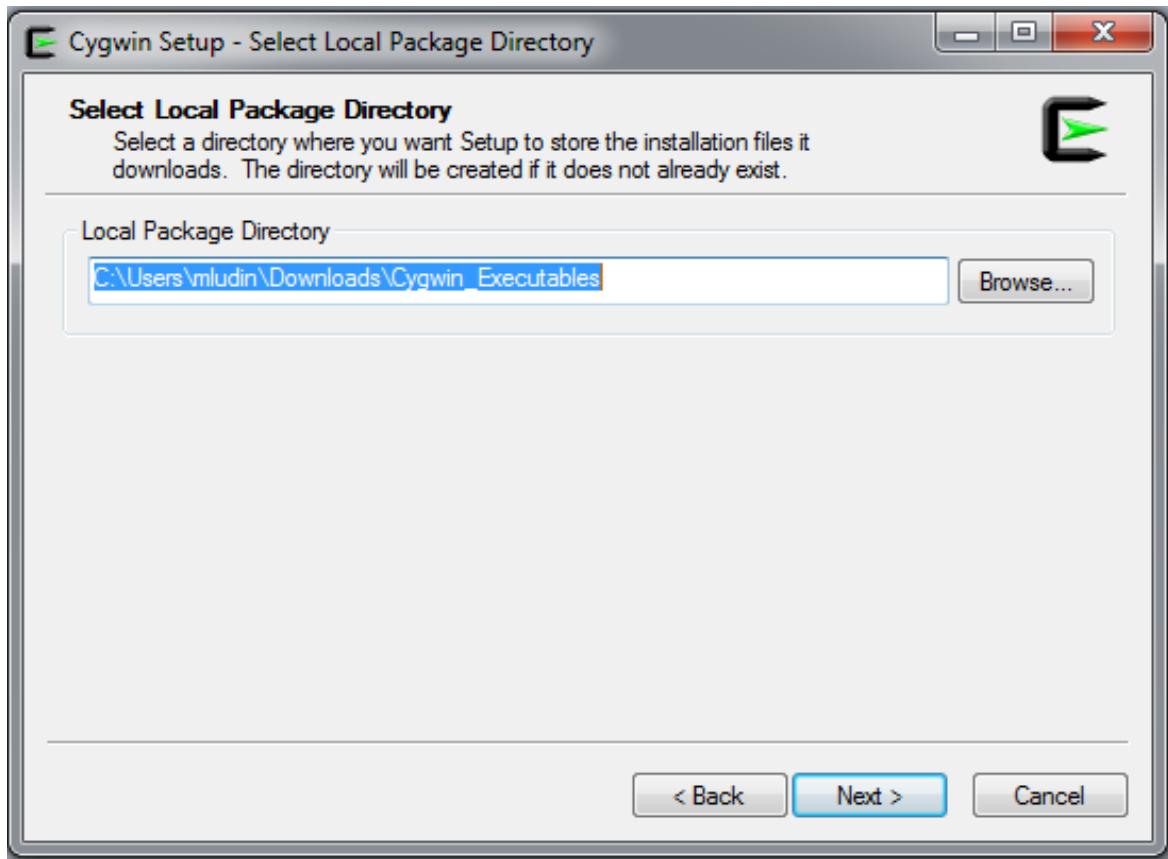
Choosing the default, "Install from Internet" causes the files you will choose in a later step to be downloaded first and then validated and installed. The other choices allow you to perform this procedure in two steps.

Step 6: Select Root Install Directory: Accept the defaults ("C:\cygwin" or "C:\cygwin64", All Users) and click Next.

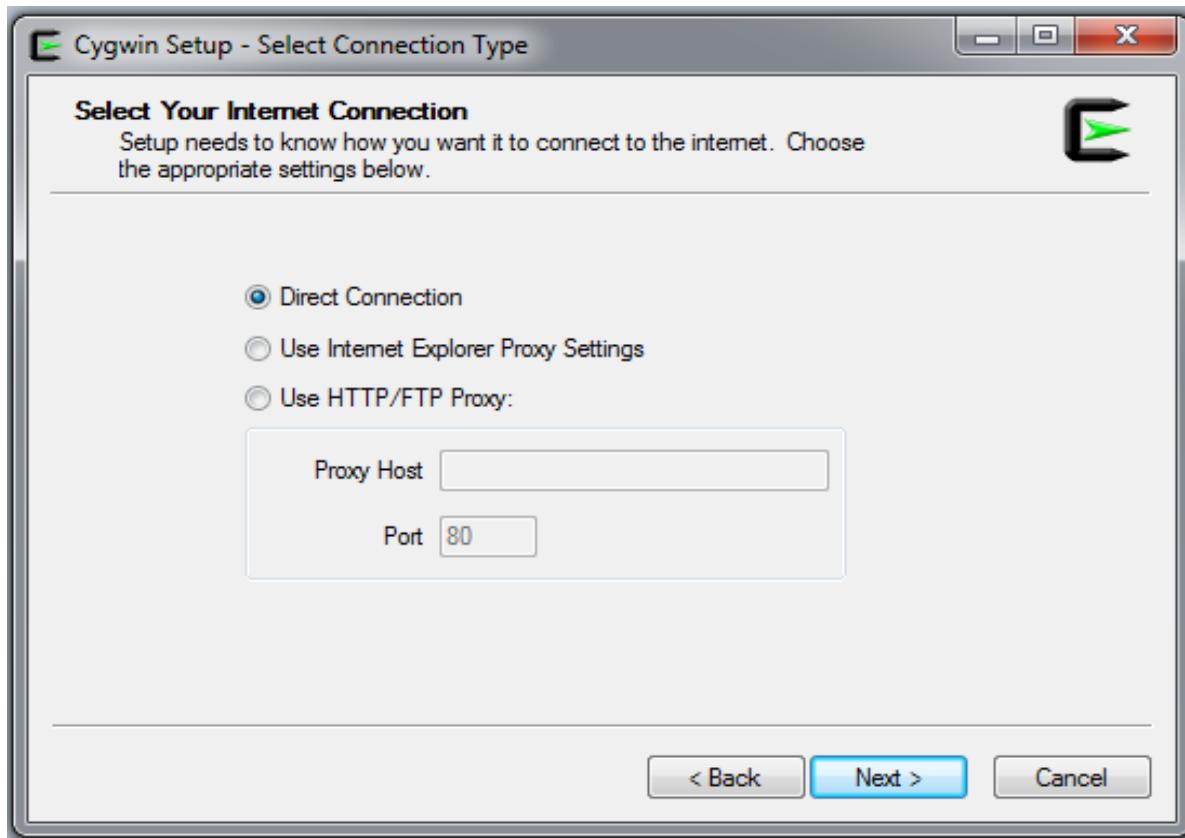


Note: The default root directory for Cygwin applications is **C:\cygwin** or **C:\cygwin64**. If you want to use a different name, do not include spaces. All files installed by the Cygwin installer go into this directory; to uninstall Cygwin at a later date, simply remove this directory and all of its contents.

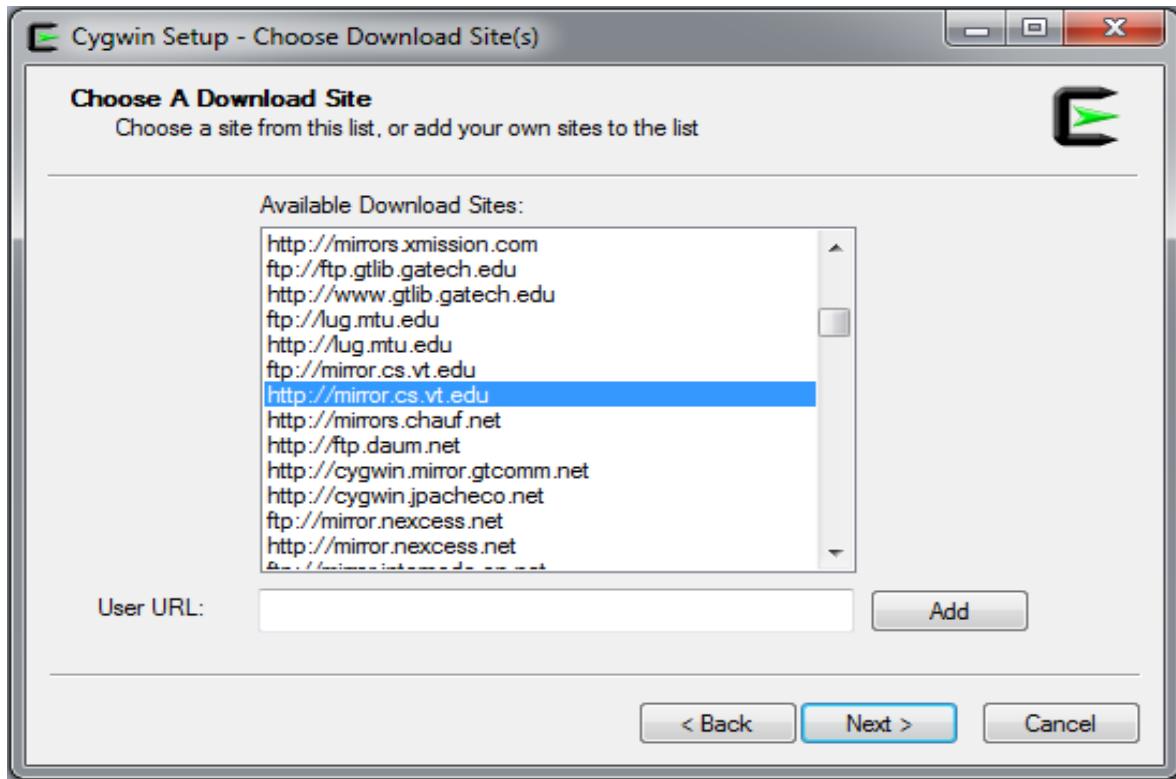
Step 7: Select Local Package Directory: Accept the default (**C:\Users\<yourusername>\Desktop**) or change it to any temporary directory of your choice.



Step 8: Select Your Internet Connection: The default should be correct for most users. Change it only if you encounter problems.



Step 9: Choose A Download Site: Select a nearby mirror site from which to download the Cygwin packages. Speeds may vary considerably from site to site.



Now, the installer will download a list of available packages from the site you have chosen. Normally, this takes only a few seconds; if there is a lengthy pause, you may wish to start over and choose a different mirror site. **I suggest you chose a site near you or a .edu mirror.**

Step 10: For the petascale institute & this internship I suggest you install the latest version of the following packages:

- **Archive:**
 - **atool**
 - **bsdtar**
 - **unzip**
 - **zip**
 - **Base**
 - **all**
 - **Devel**
 - **all**
 - **Doc**
 - **Cygwin-doc**
 - **Cygwin-x-doc**
 - **Editors**
 - a. **All**
- 2. Math**

a. all

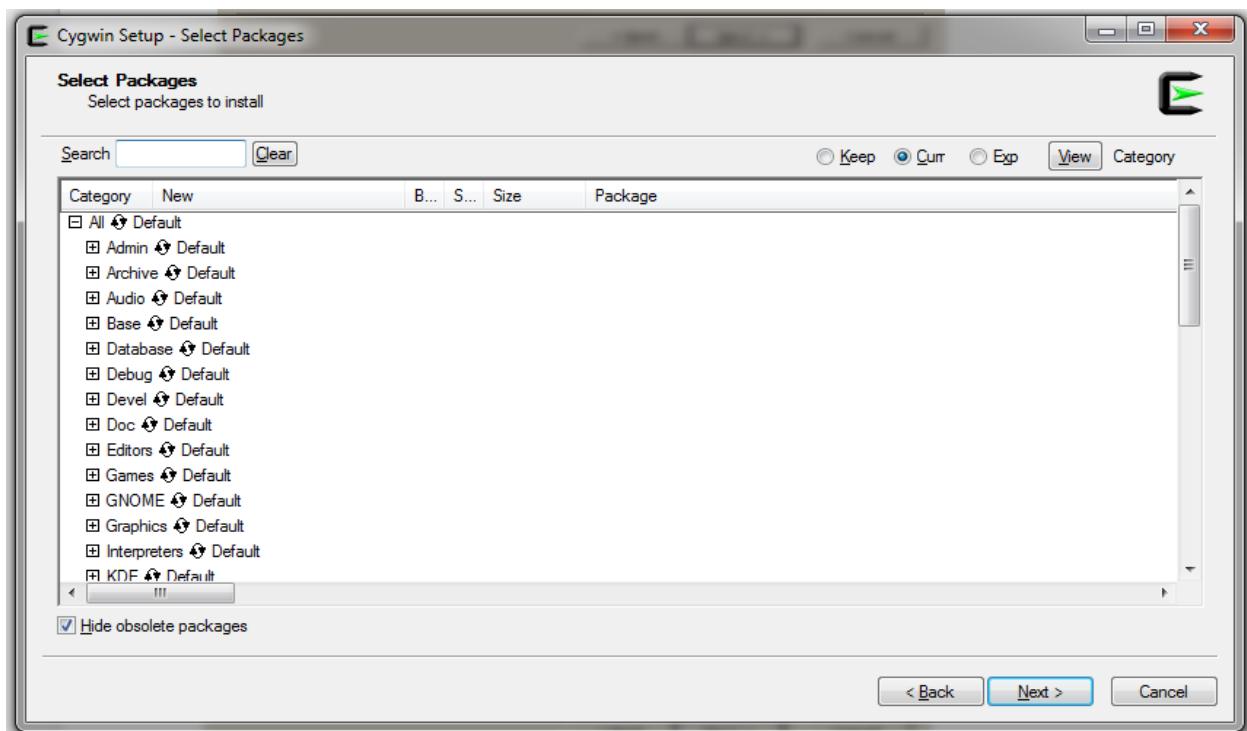
3. Net

- a. curl
- b. openssh
- c. ping
- d. rsync

4. X11

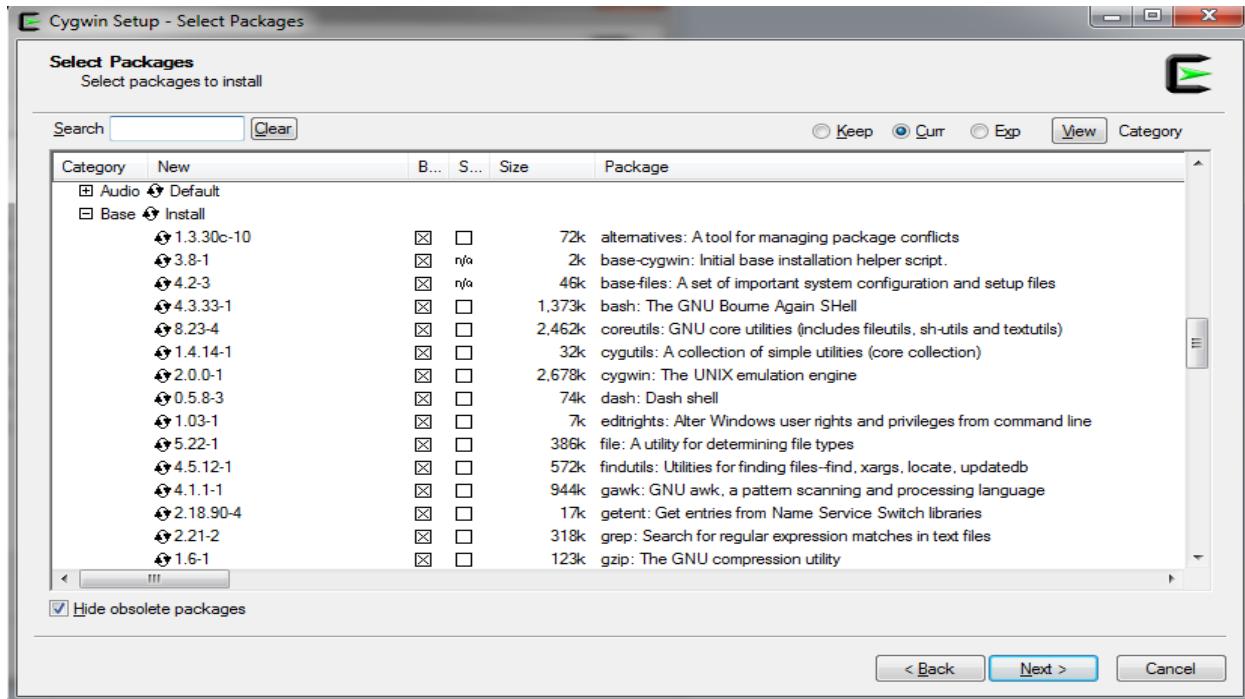
- a. all

How to Select Packages: All Unix/Linux utilities are packaged under different categories.

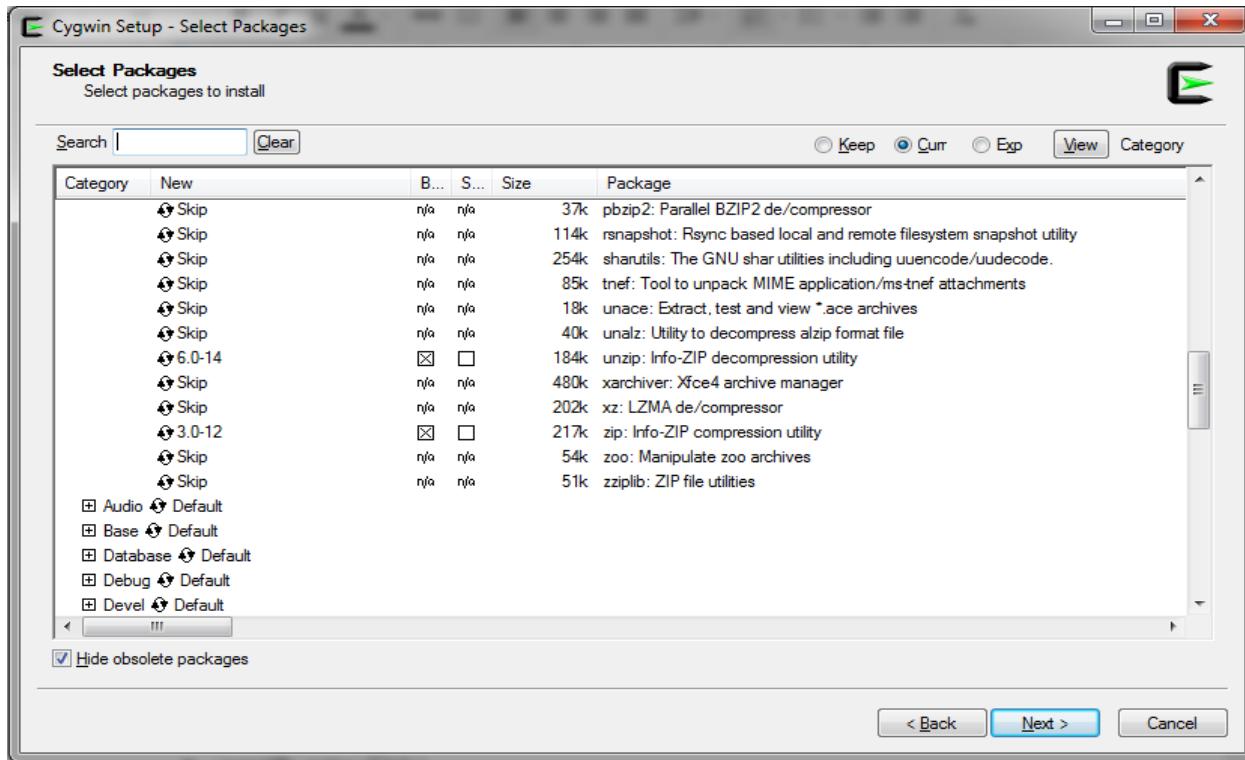


If you wish to **install a full category**, click on the rotating selector next to its name so that the indicator to its right changes from "Default" to "Install". For example, click on the rotating selector next to **Base**.

Step 11a: To see a specific list of packages under a category, click on the plus sign to the left of the category.

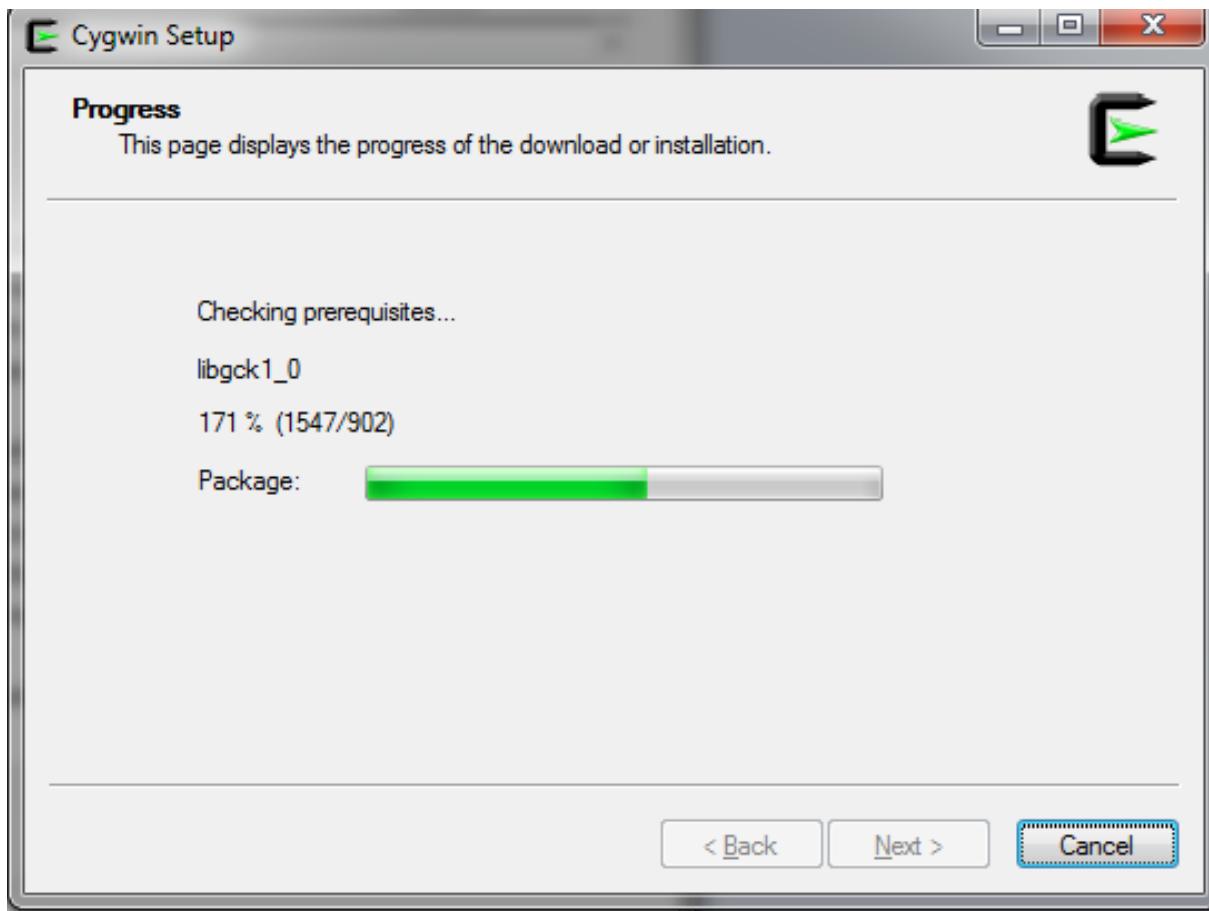


Step 11b: In the example below, the **zip** package, version 3.0-12, has been selected for installation. Note that the entry in the **Bin?** (Binary) column changes from n/a to a checked box when you select a numbered version of the package. Leave this box checked. The entry in the **Src?** (Source) column changes from n/a to an unchecked box, which you may check if you would also like to download the sources for the package.

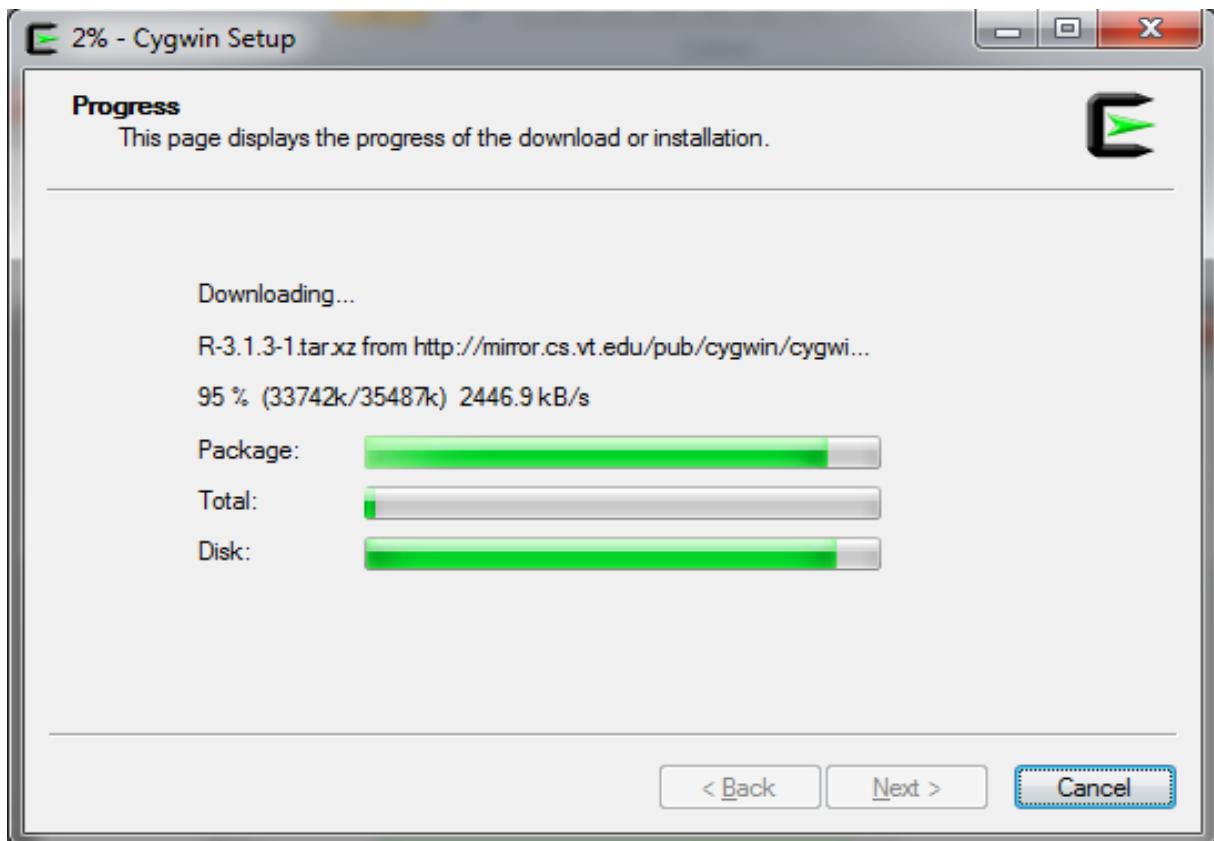


Step 12: Once you select all the necessary packages, then click **Next**.

Step 13: The setup may show a window with a warning ("Resolving Dependencies") and a list of additional packages required by those you have already selected. At the bottom of the window, be sure that "**Select required packages (RECOMMENDED)**" is checked, then click **Next**.

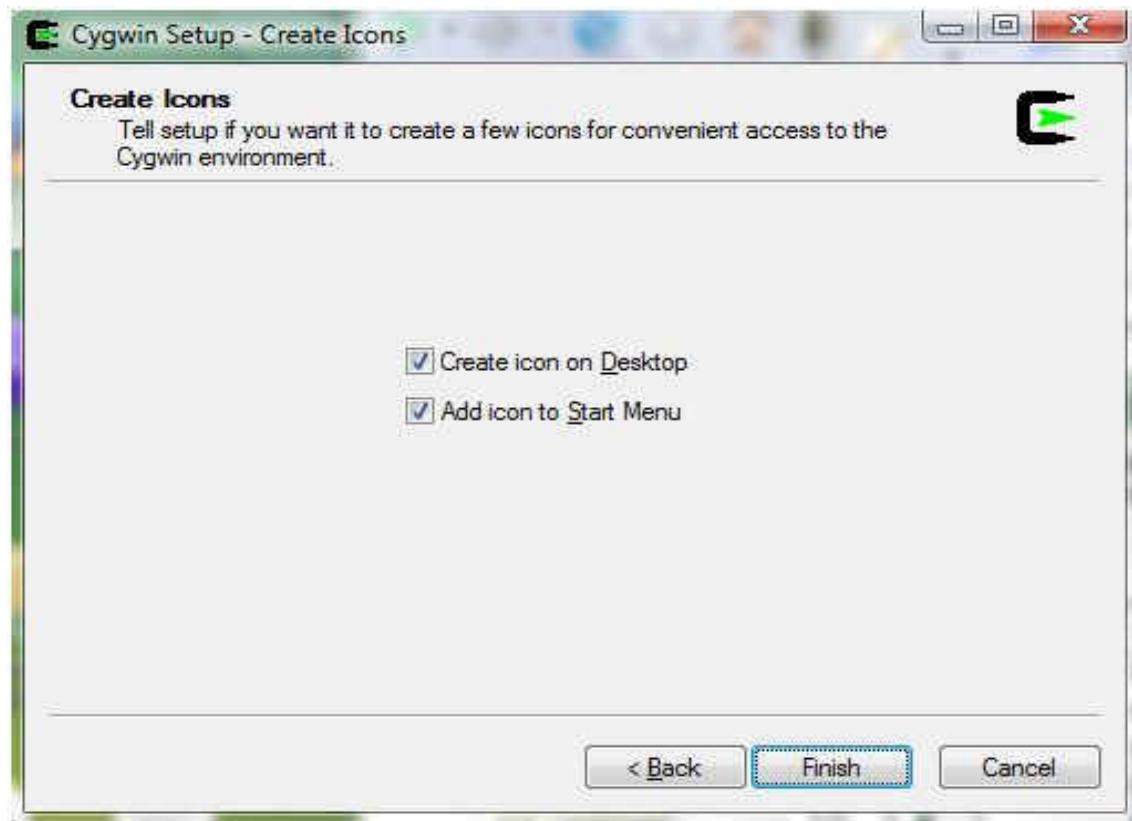


Step 14: The downloading process begins once the packages have been selected. The installer indicates its progress.



Be patient; the downloading and installation process may take an hour or more (depending not only on the speed of your Internet connection, but also on the load on the Cygwin mirror site from which you are downloading).

Step 15. Create Icons: Unless these icons already exist from a previous Cygwin installation, make sure the boxes are checked and click **Finish**.



That's all!! Congratulations! You have successfully set up Cygwin.

You may always run Cygwin setup again to obtain additional or updated packages without reinstalling packages that remain current; if you do this, be sure to shut down any running Cygwin applications first.

Step 16: To launch Cygwin Terminal, click on its icon either from **Start Menu** or **Desktop**



After the installation is complete, you may delete the .tar.gz package files. If you have chosen a full installation, these files may occupy over a gigabyte, but they will no longer be needed once their contents have been installed. If you plan to install Cygwin on another PC, however, you may be able to save time by copying the local package directory and the Cygwin installer to the second PC. If you want to do this, follow this tutorial to install Cygwin on the second PC, but choose "Install from Local Directory" in Step 5.

Note: Cygwin can't be used to run any Unix/Linux software or applications, unless re-compiled under Cygwin.