High Performance Computing Lab

Assignment No. 1

Installation of Cygwin

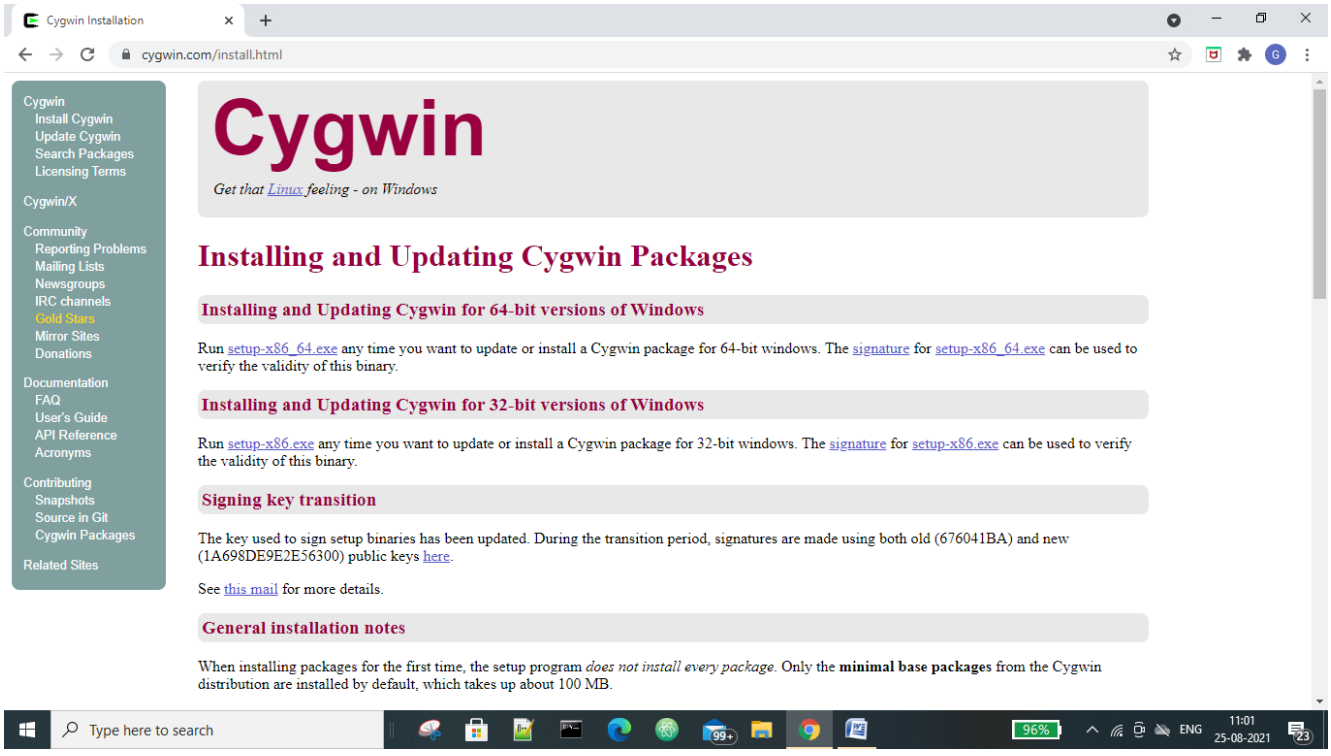
PRN: 2018BTECS00069

Name: Gouri Mahadev Sutar

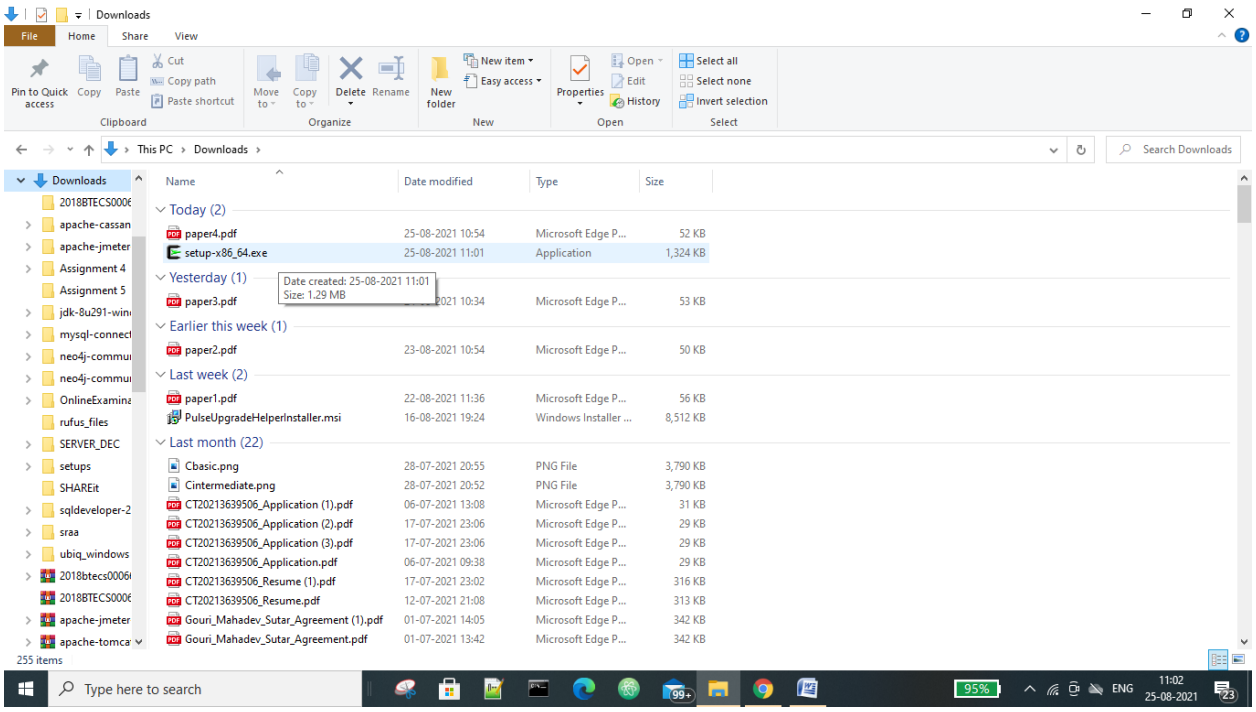
Batch: B4

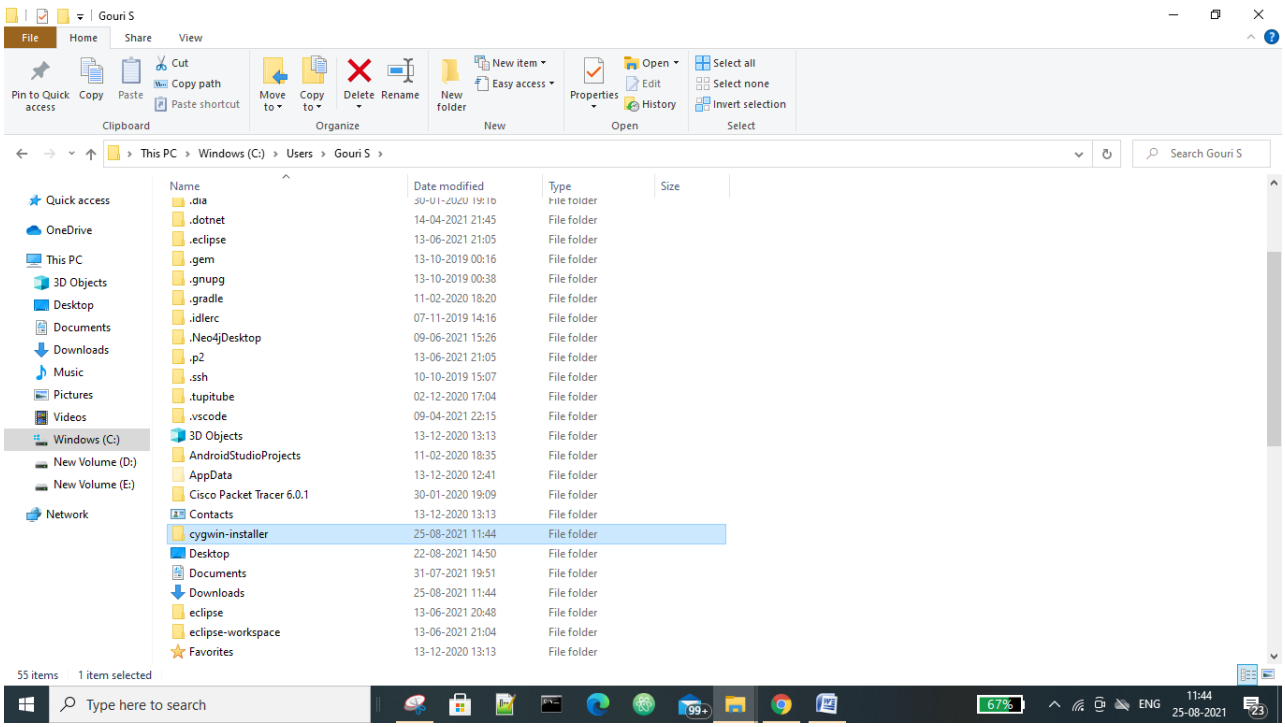
Problem Statement 1: Cygwin and GCC compiler

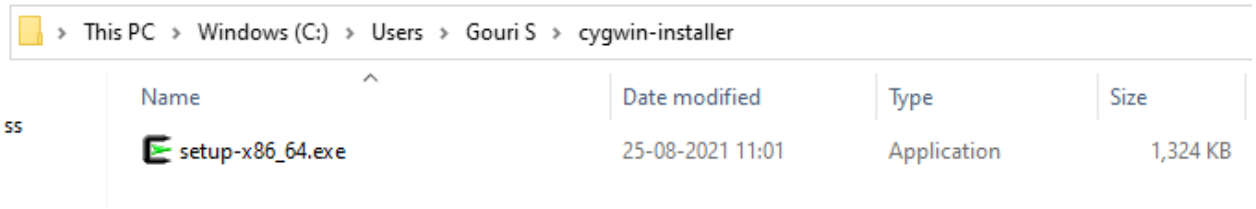
1. Download cygwin from https://cygwin.com/install.html



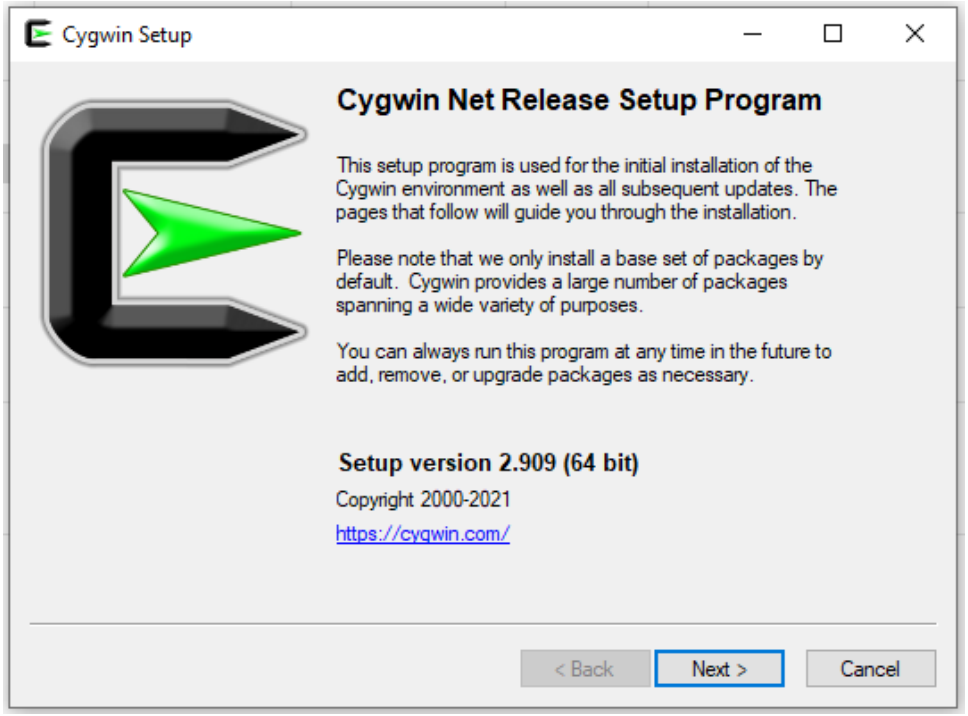
2. Open 'File Explorer' and create a folder in your home directory (c:\Users\<username>) called 'cygwin-installer'. Next, move the cygwin install executable to the 'cygwin-installer' folder and run the installer executable:



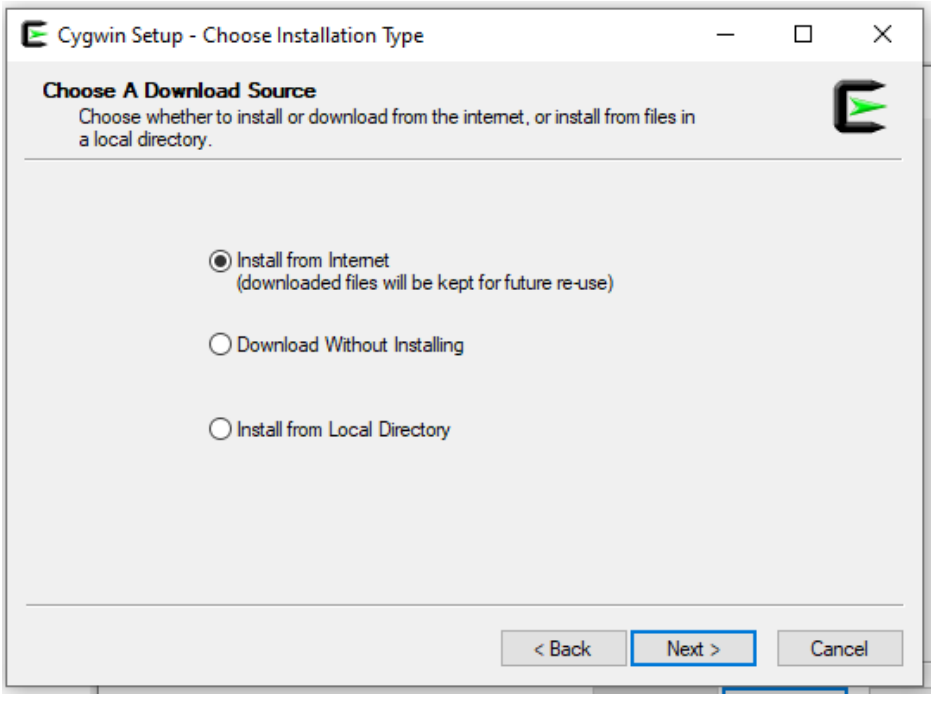




3. Cygwin Net Release Setup Program
   click 'Next'

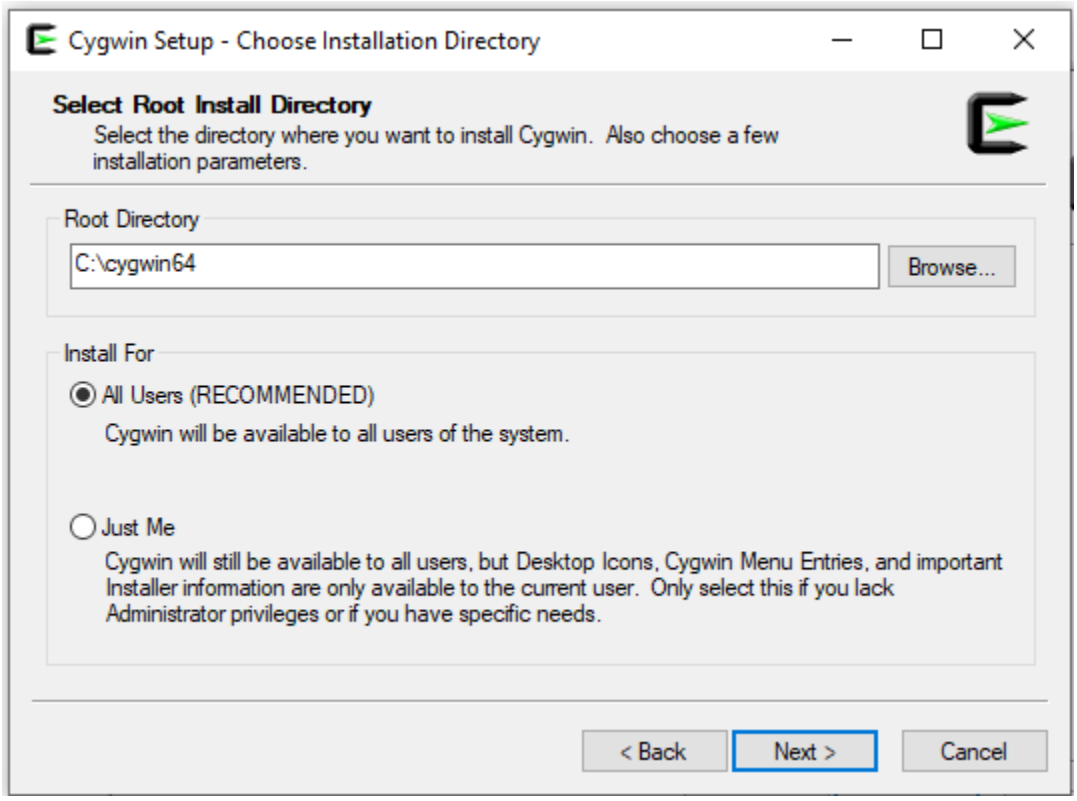


4. Choose a Download Source
   Select 'Install from Internet', click 'Next'



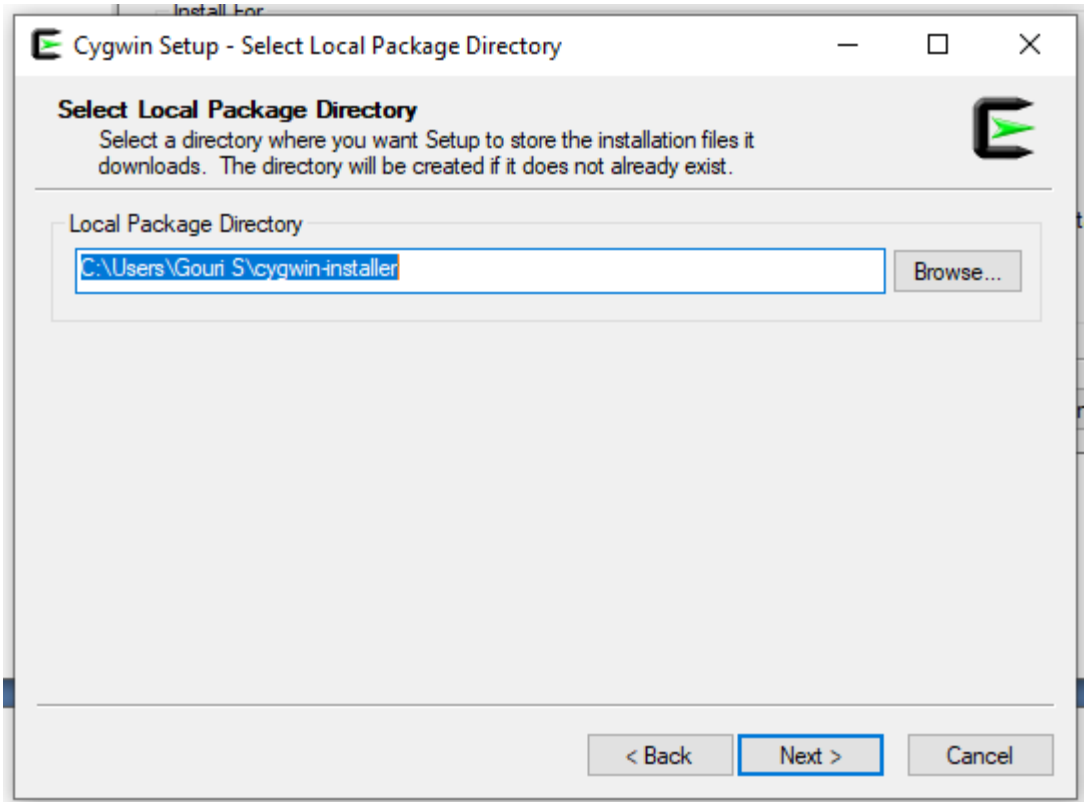
5. Select Root Install Directory

- Choose the 'Root Directory' you want to install cygwin to, for example: c:\cygwin
- 'Install for', leave 'All Users' selected (unless you specifically want to do otherwise)
- Click 'Next'



6. Select Local Package Directory

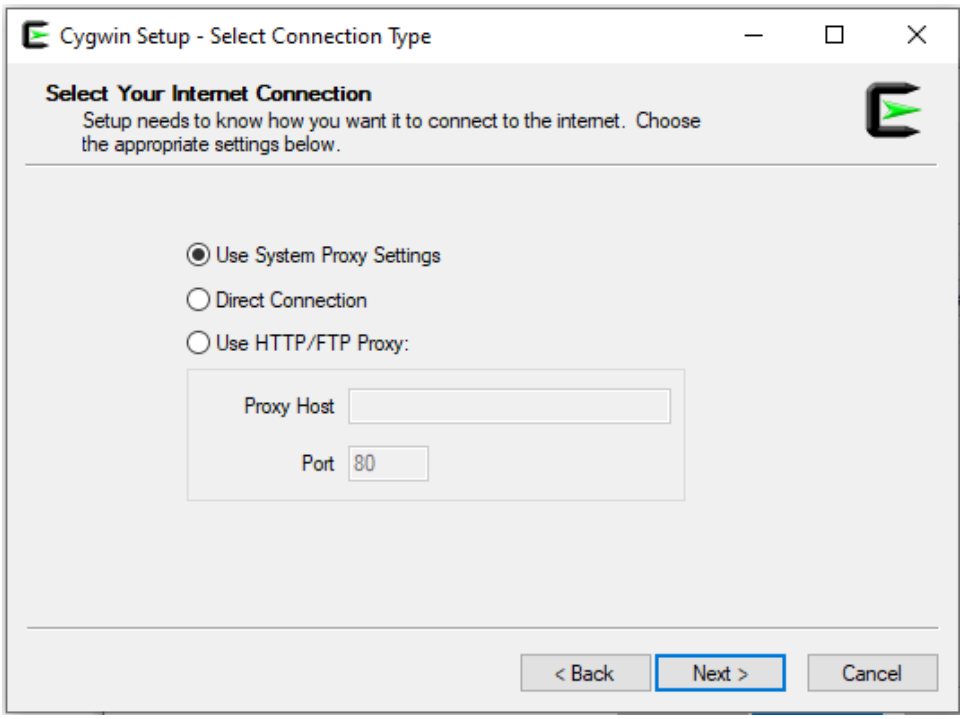
- The 'cygwin-installer' folder should be selected
- Click 'Next'



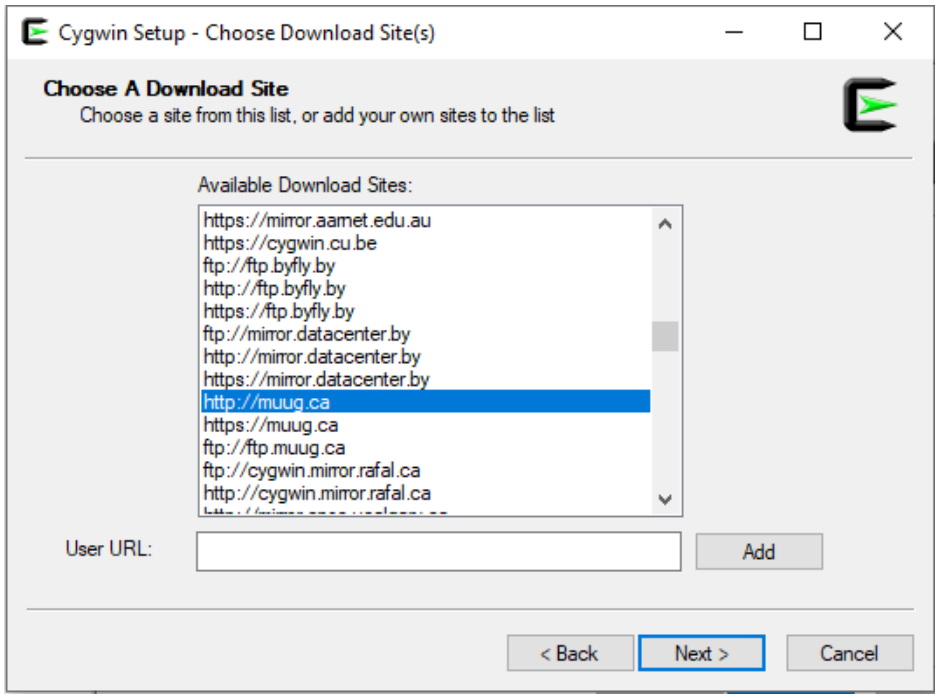
7. Select Your Internet Connection

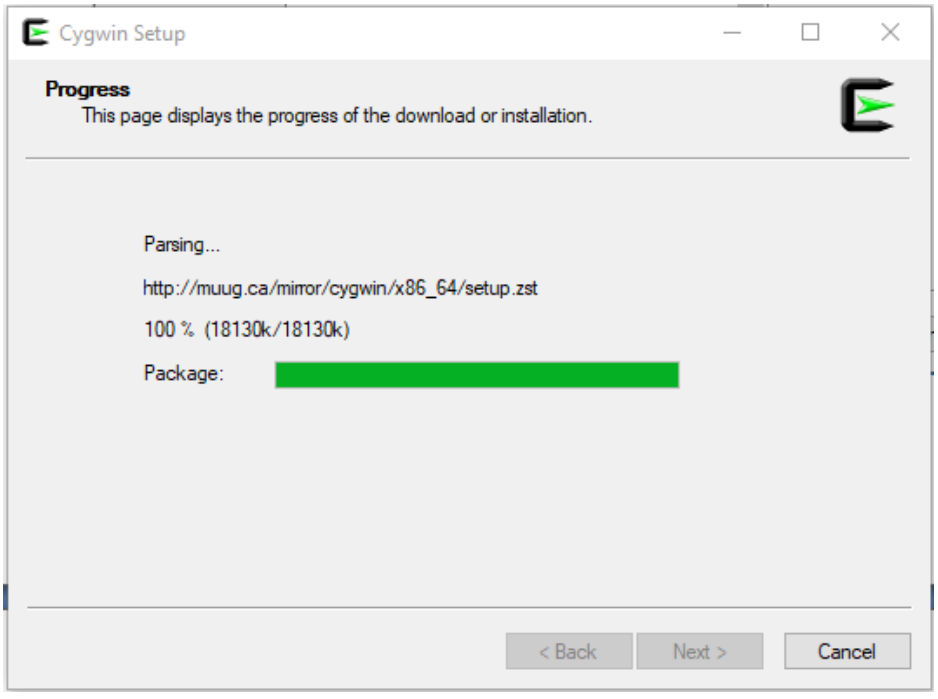
   If you're unsure, 'Use System Proxy Settings' is likely the correct choice here

   Click 'Next'



8. Choose a Download Site
    - This is the location from which you'll download the Cygwin packages. Ideally, select a mirror that is geographically close to you. If unsure, choose any mirror.
    - Click 'Next'

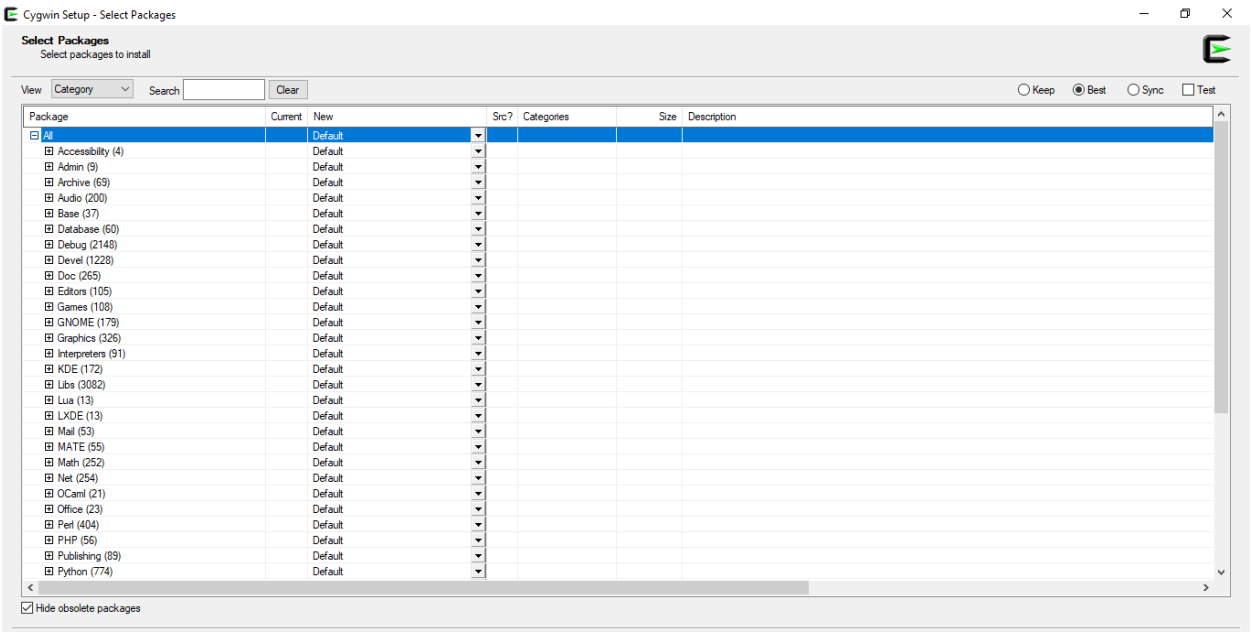




9. Select Packages

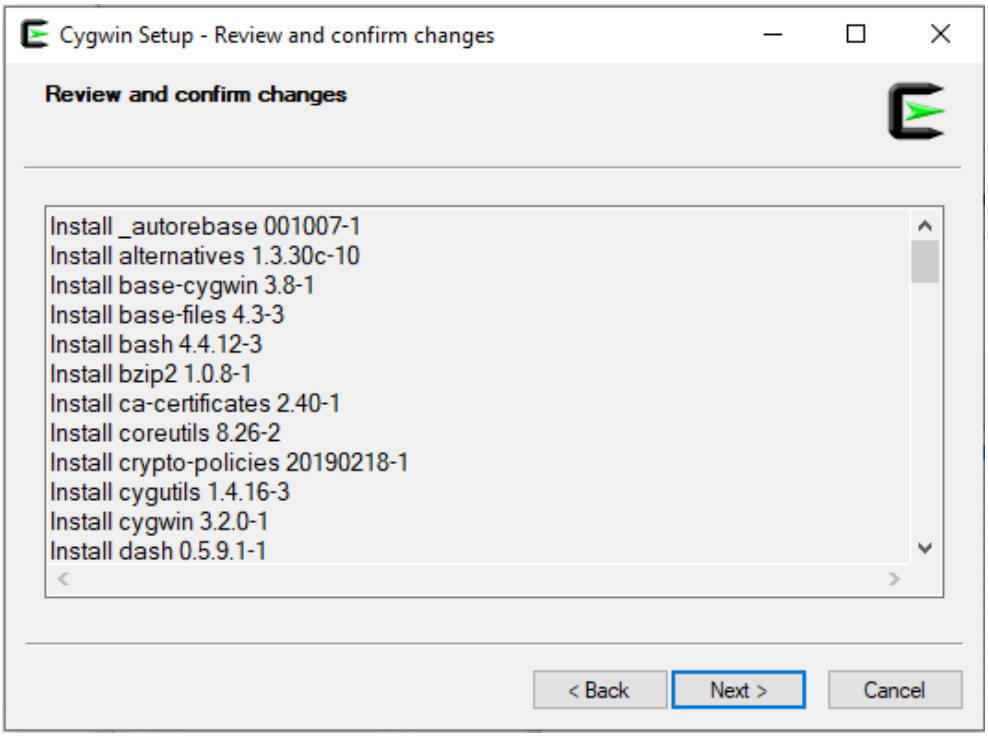
   I have selected all packages related GCC.

   Click 'Next'



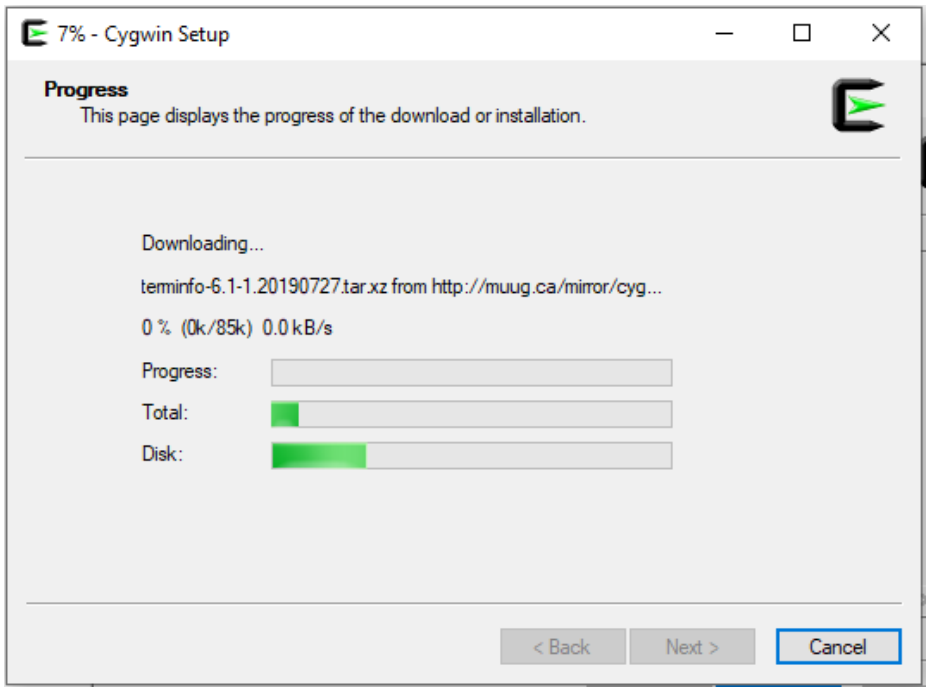
10. Review and confirm changes

    Click 'Next'



11. Progress

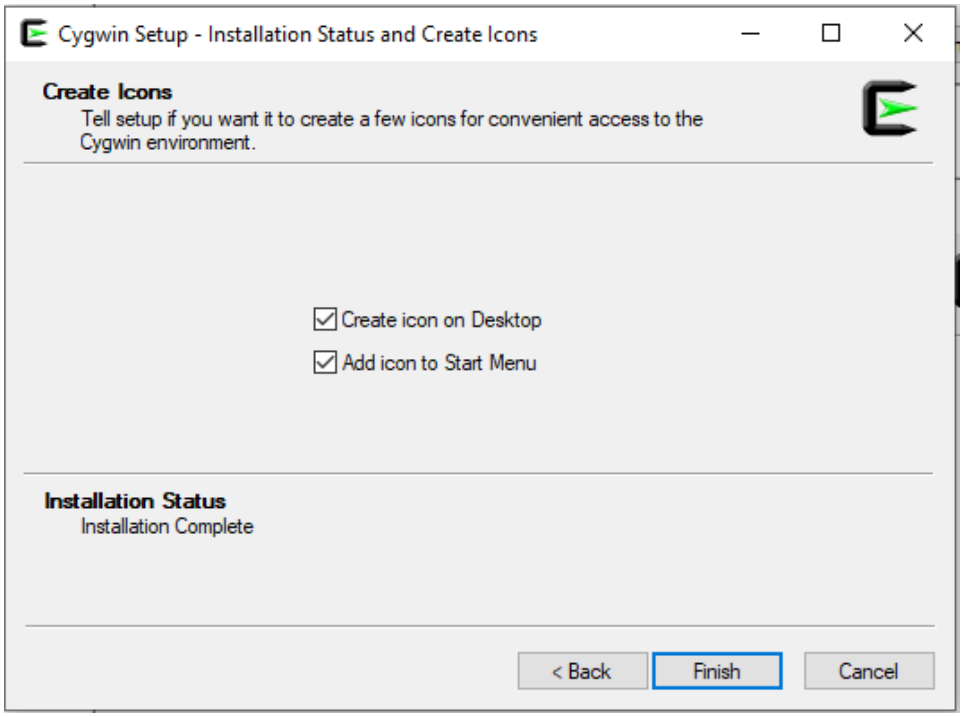
Wait for install to complete.



12.Create Icons

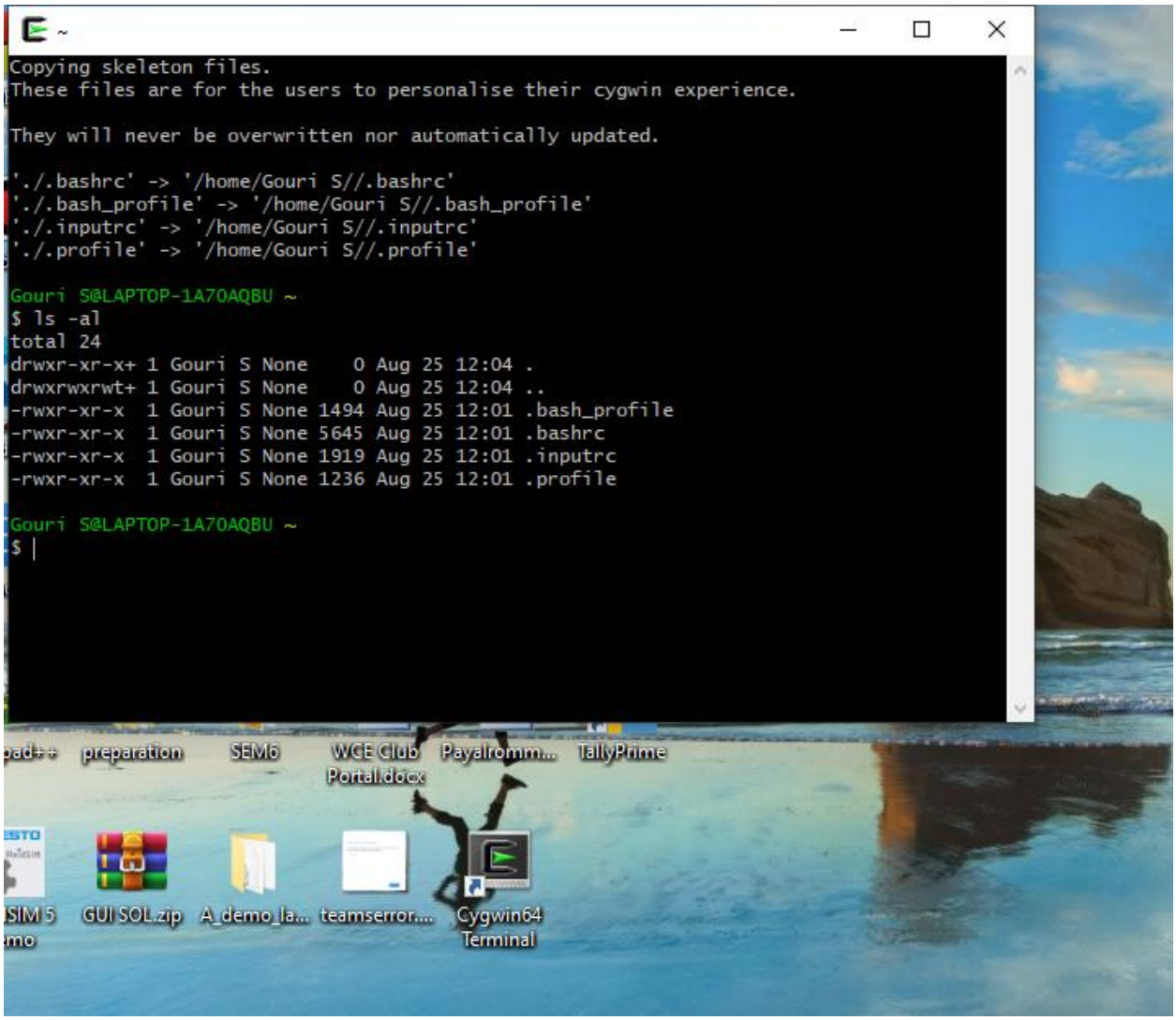
Choose 'Create icon on Desktop'

Click 'Finish'

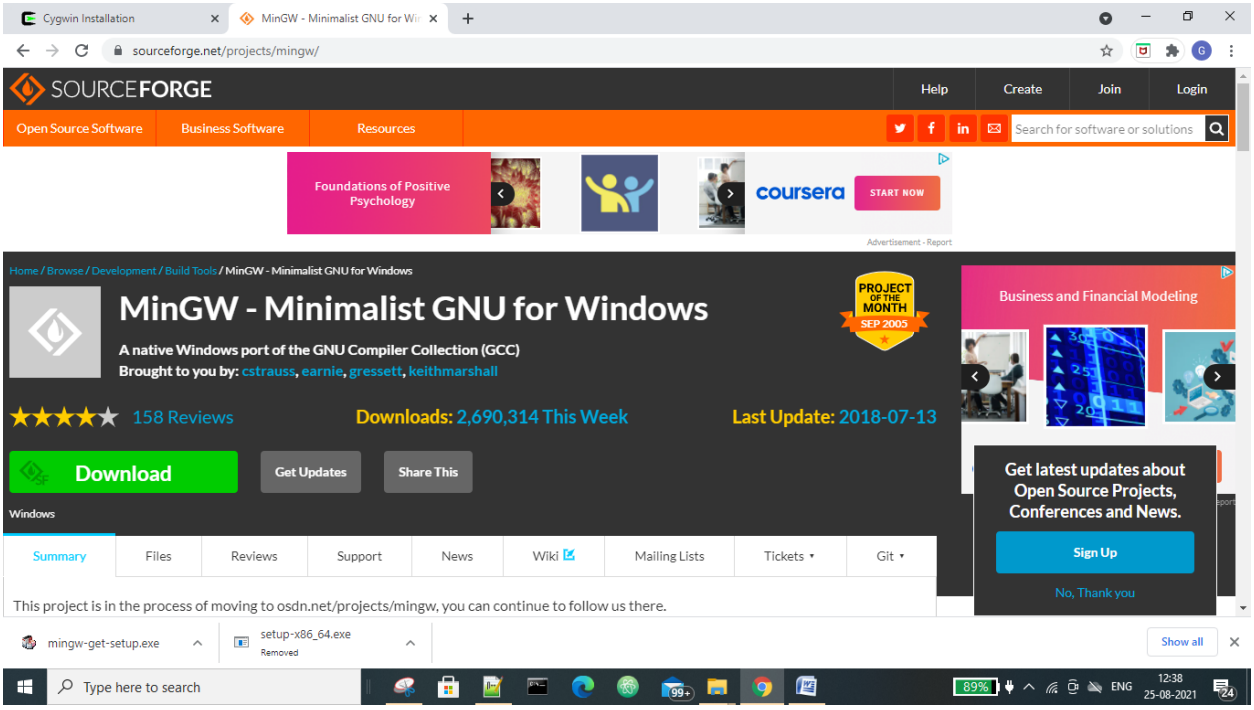


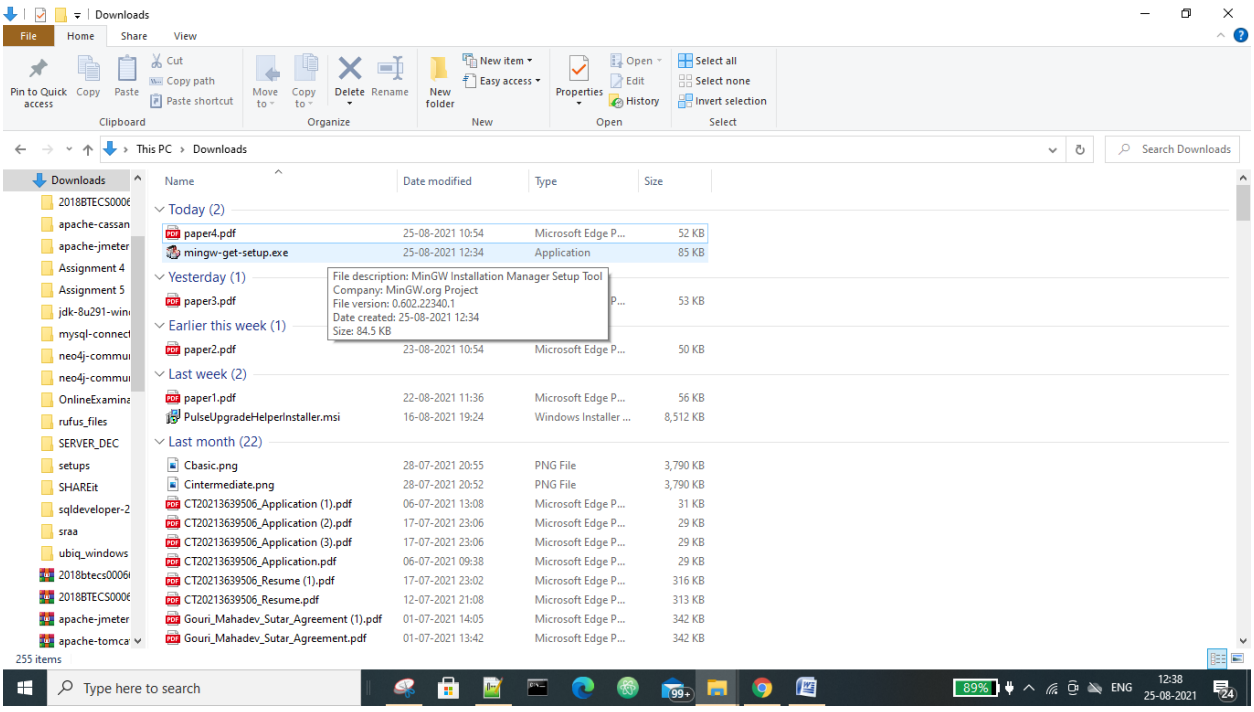
13. Confirm that Cygwin is installed

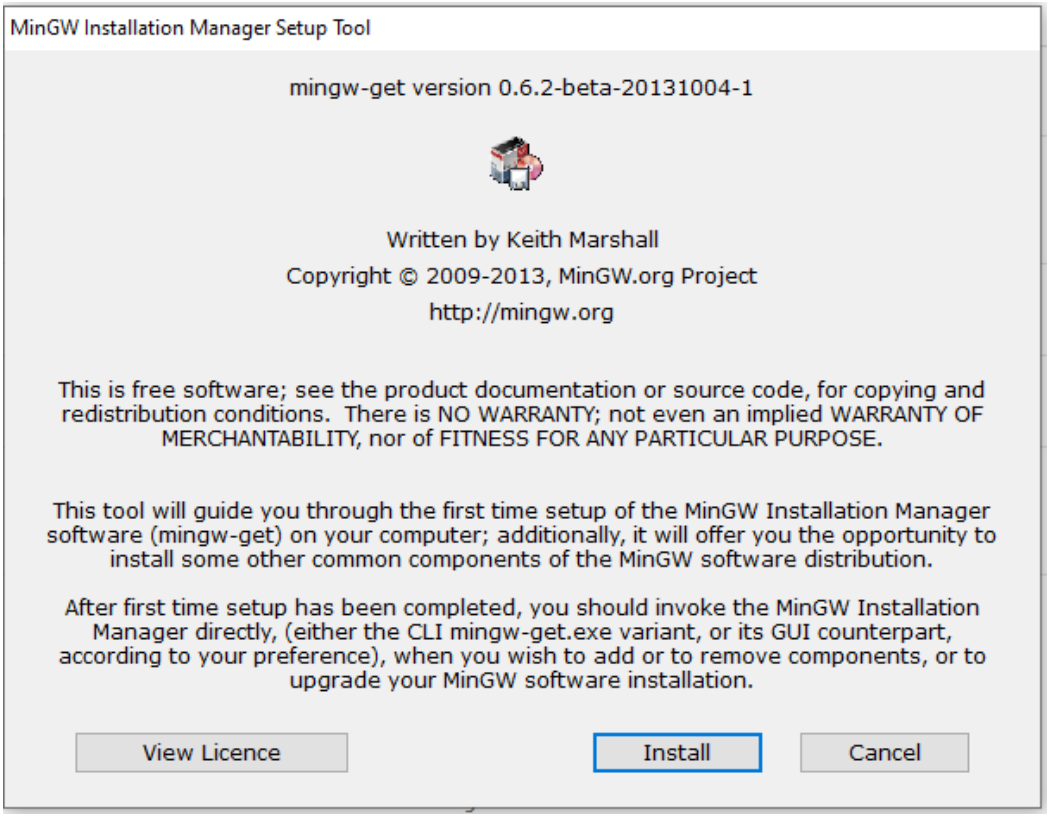
- Double click 'Cygwin Terminal' on your desktop and confirm that the terminal launches.

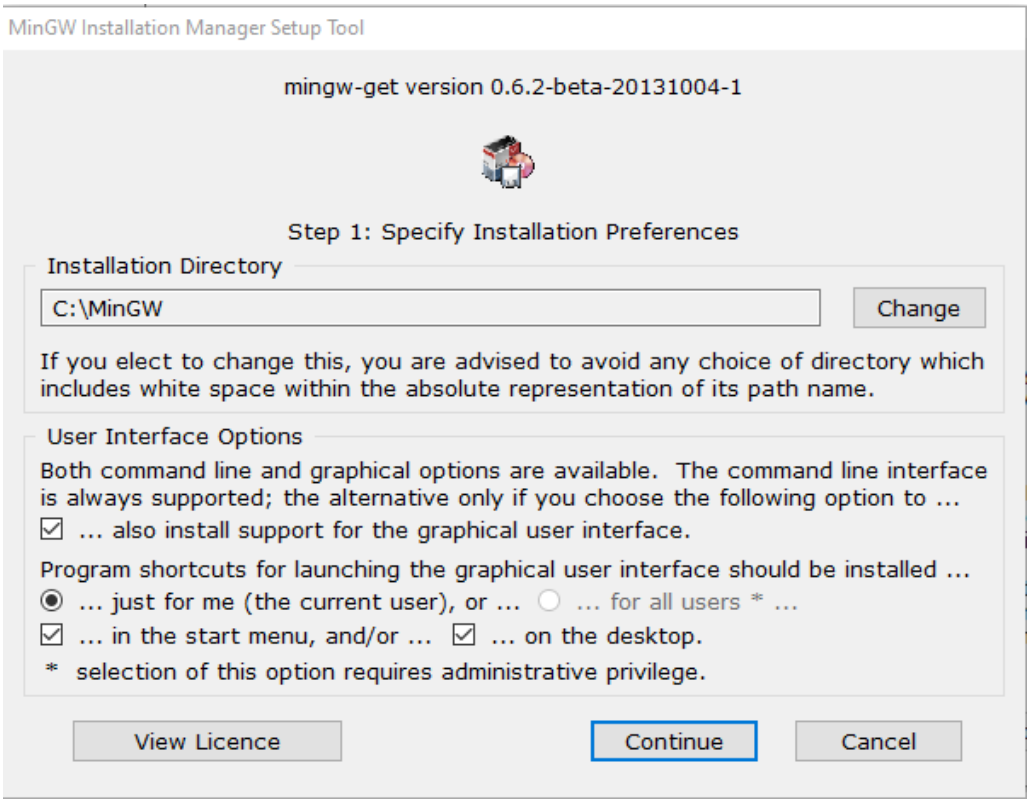


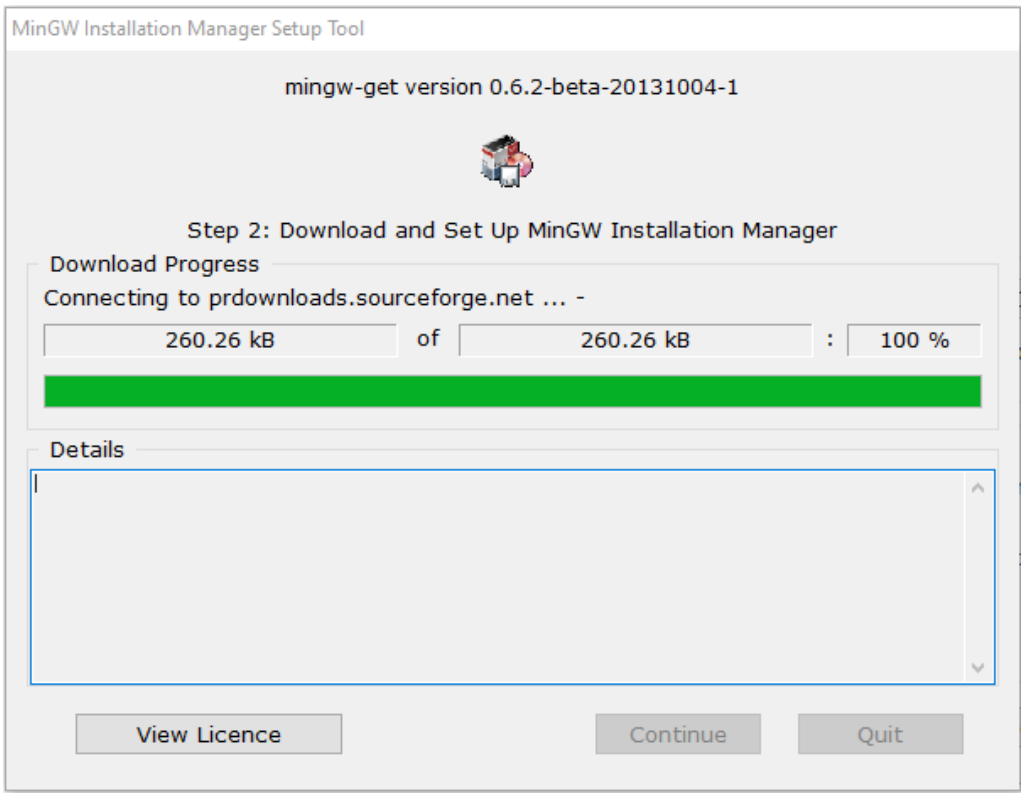
14. Then I have install GCC packages.

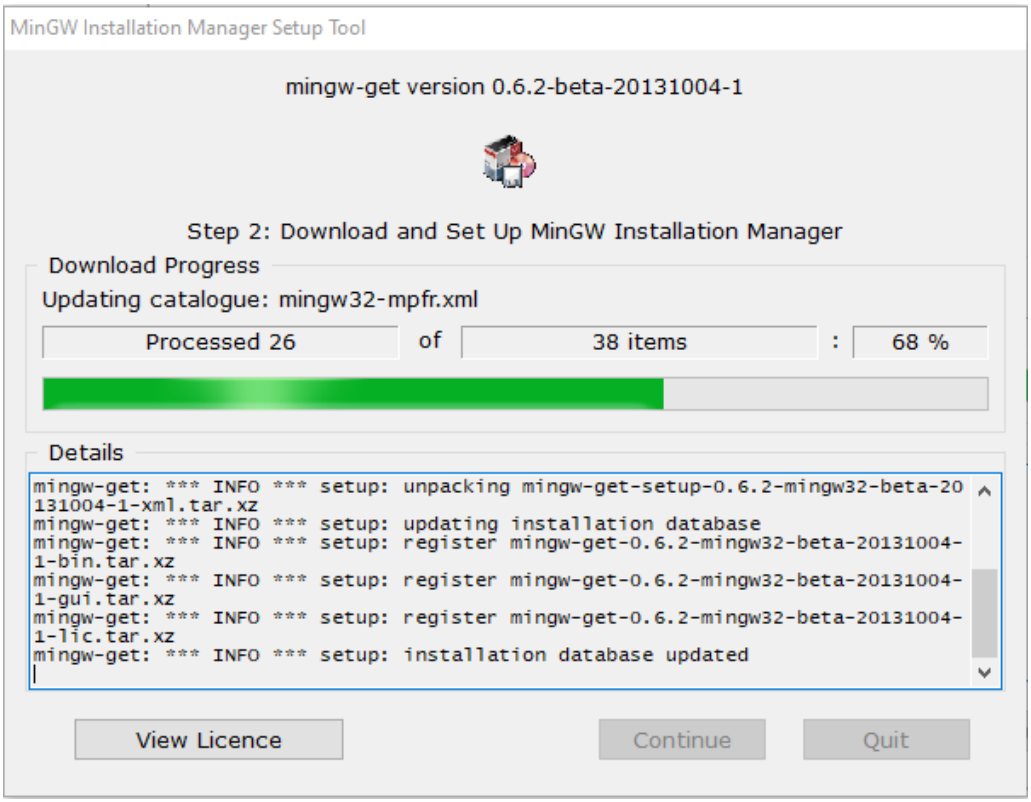


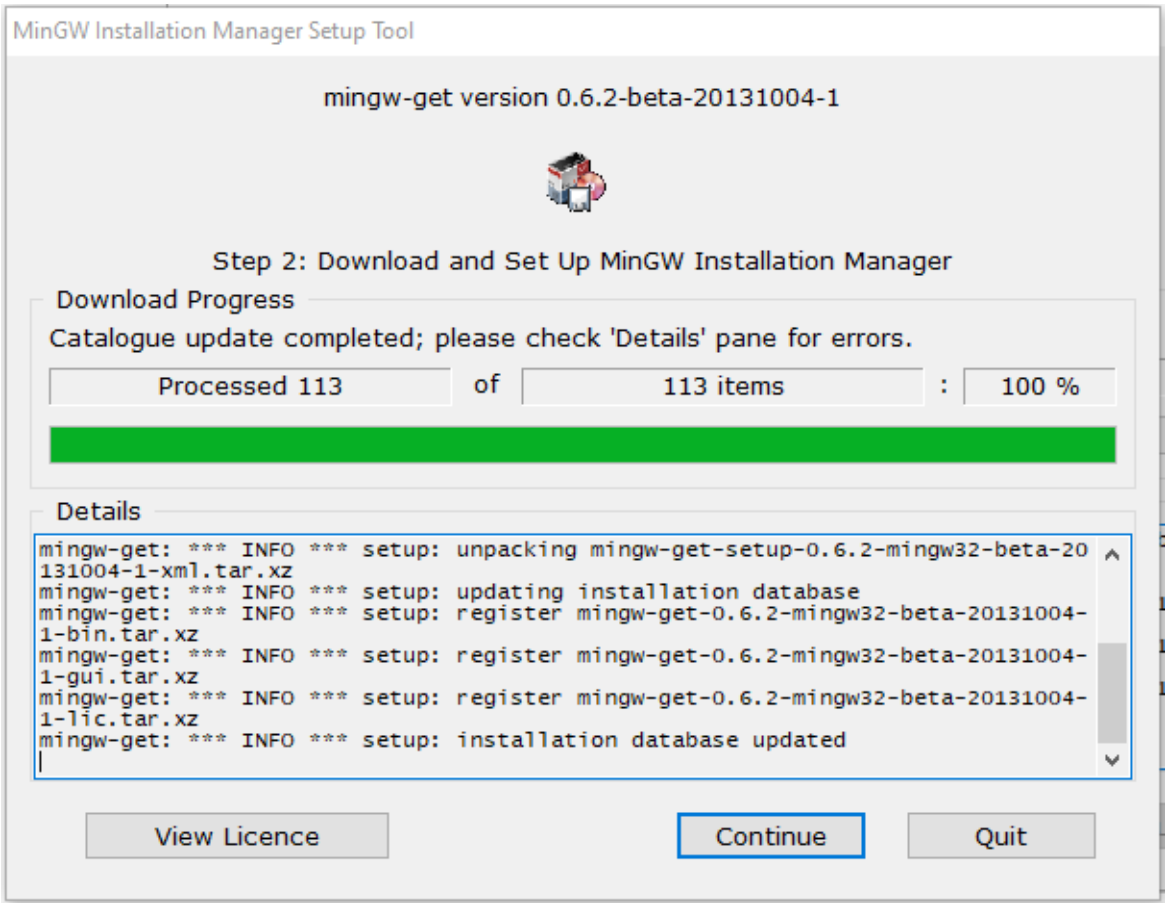



MinGW Installation Manager Setup Tool
mingw-get version 0.6.2-beta-20131004-1
Written by Keith Marshall
Copyright © 2009-2013, MinGW.org Project
http://mingw.org
This is free software; see the product documentation or source code, for copying and redistribution conditions. There is NO WARRANTY; not even an implied WARRANTY OF MERCHANTABILITY, nor of FITNESS FOR ANY PARTICULAR PURPOSE.
This tool will guide you through the first time setup of the MinGW Installation Manager software (mingw-get) on your computer; additionally, it will offer you the opportunity to install some other common components of the MinGW software distribution.
After first time setup has been completed, you should invoke the MinGW Installation Manager directly, (either the CLI mingw-get.exe variant, or its GUI counterpart, according to your preference), when you wish to add or to remove components, or to upgrade your MinGW software installation.
View Licence
Install
Cancel


MinGW Installation Manager Setup Tool
mingw-get version 0.6.2-beta-20131004-1
Step 1: Specify Installation Preferences
Installation Directory
C:\MinGW
Change
If you elect to change this, you are advised to avoid any choice of directory which includes white space within the absolute representation of its path name.
User Interface Options
Both command line and graphical options are available. The command line interface is always supported; the alternative only if you choose the following option to ...
... also install support for the graphical user interface.
Program shortcuts for launching the graphical user interface should be installed ...
... just for me (the current user), or ... ... for all users * ...
... in the start menu, and/or ... ... on the desktop.
* selection of this option requires administrative privilege.
View Licence
Continue
Cancel


MinGW Installation Manager Setup Tool
mingw-get version 0.6.2-beta-20131004-1
Step 2: Download and Set Up MinGW Installation Manager
Download Progress
Connecting to prdownloads.sourceforge.net ... -
260.26 kB
of
260.26 kB
:
100 %
Details
View Licence
Continue
Quit


MinGW Installation Manager Setup Tool
mingw-get version 0.6.2-beta-20131004-1
Step 2: Download and Set Up MinGW Installation Manager
Download Progress
Updating catalogue: mingw32-mpfr.xml
Processed 26
of
38 items
:
68 %
Details
mingw-get: *** INFO *** setup: unpacking mingw-get-setup-0.6.2-mingw32-beta-20131004-1-xml.tar.xz
mingw-get: *** INFO *** setup: updating installation database
mingw-get: *** INFO *** setup: register mingw-get-0.6.2-mingw32-beta-20131004-1-bin.tar.xz
mingw-get: *** INFO *** setup: register mingw-get-0.6.2-mingw32-beta-20131004-1-gui.tar.xz
mingw-get: *** INFO *** setup: register mingw-get-0.6.2-mingw32-beta-20131004-1-lic.tar.xz
mingw-get: *** INFO *** setup: installation database updated
View Licence
Continue
Quit


MinGW Installation Manager Setup Tool
mingw-get version 0.6.2-beta-20131004-1
Step 2: Download and Set Up MinGW Installation Manager
Download Progress
Catalogue update completed; please check 'Details' pane for errors.
Processed 113
of
113 items
:
100 %
Details
mingw-get: *** INFO *** setup: unpacking mingw-get-setup-0.6.2-mingw32-beta-20131004-1-xml.tar.xz
mingw-get: *** INFO *** setup: updating installation database
mingw-get: *** INFO *** setup: register mingw-get-0.6.2-mingw32-beta-20131004-1-bin.tar.xz
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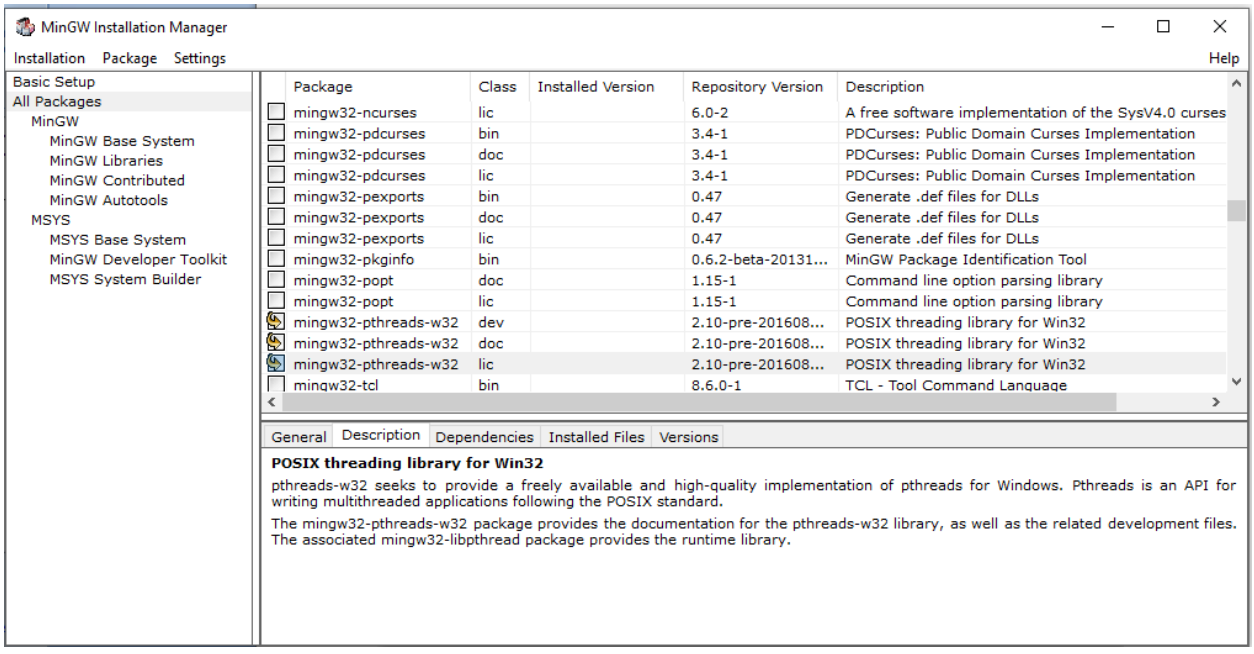
mingw-get: *** INFO *** setup: installation database updated
View Licence
Continue
Quit


MinGW Installation Manager
Installation
Package
Settings
Help
Basic Setup
All Packages
MinGW
MinGW Base System
MinGW Libraries
MinGW Contributed
MinGW Autotools
MSYS
MSYS Base System
MinGW Developer Toolkit
MSYS System Builder
Package
Class
Installed Version
Repository Version
Description
mingw32-ncurses lic 6.0-2 A free software implementation of the SysV4.0 curses
mingw32-pdcurses bin 3.4-1 PDCurses: Public Domain Curses Implementation
mingw32-pdcurses doc 3.4-1 PDCurses: Public Domain Curses Implementation
mingw32-pdcurses lic 3.4-1 PDCurses: Public Domain Curses Implementation
mingw32-pexports bin 0.47 Generate .def files for DLLs
mingw32-pexports doc 0.47 Generate .def files for DLLs
mingw32-pexports lic 0.47 Generate .def files for DLLs
mingw32-pkginfo bin 0.6.2-beta-20131... MinGW Package Identification Tool
mingw32-popt doc 1.15-1 Command line option parsing library
mingw32-popt lic 1.15-1 Command line option parsing library
mingw32-pthreads-w32 dev 2.10-pre-201608... POSIX threading library for Win32
mingw32-pthreads-w32 doc 2.10-pre-201608... POSIX threading library for Win32
mingw32-pthreads-w32 lic 2.10-pre-201608... POSIX threading library for Win32
mingw32-tcl bin 8.6.0-1 TCL - Tool Command Language
General
Description
Dependencies
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Versions
POSIX threading library for Win32
pthreads-w32 seeks to provide a freely available and high-quality implementation of pthreads for Windows. Pthreads is an API for writing multithreaded applications following the POSIX standard.
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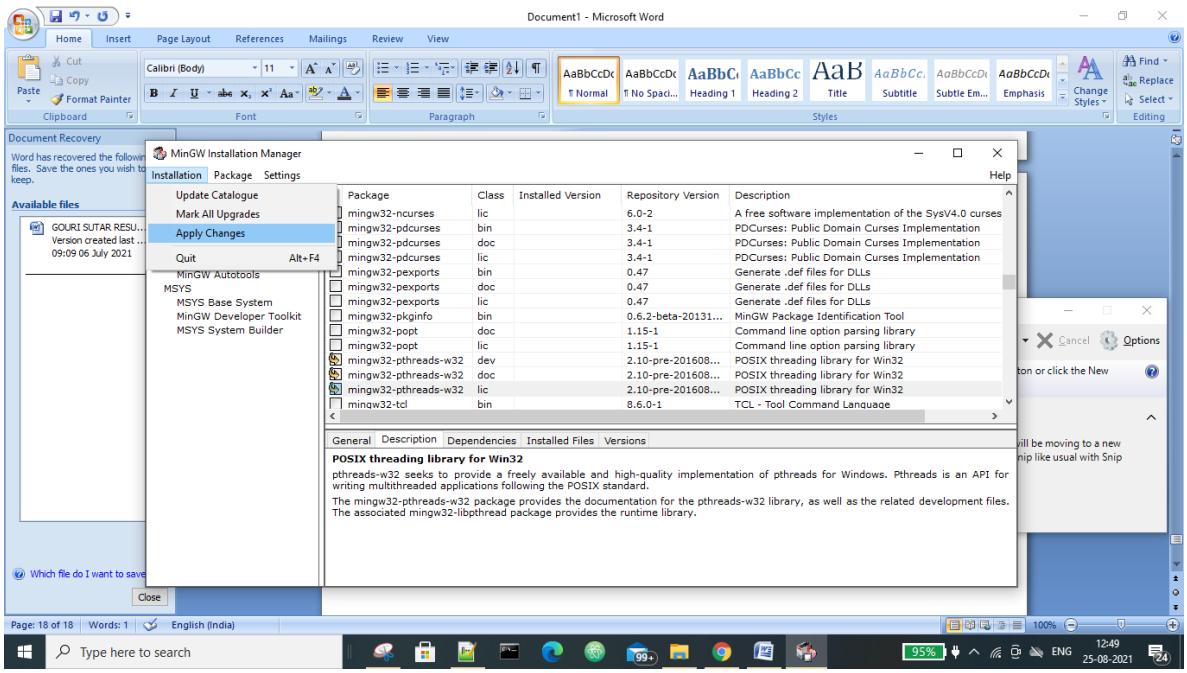
Document1 - Microsoft Word
MinGW Installation Manager
Installation
Package
Settings
Help
Update Catalogue
Mark All Upgrades
Apply Changes
Quit Alt+F4
MinGW Autotools
MSYS
MSYS Base System
MinGW Developer Toolkit
MSYS System Builder
Package Class Installed Version Repository Version Description
mingw32-ncurses lic 6.0-2 A free software implementation of the SysV4.0 curses
mingw32-pdcurses bin 3.4-1 PDCurses: Public Domain Curses Implementation
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mingw32-pthreads-w32 lic 2.10-pre-201608... POSIX threading library for Win32
mingw32-tcl bin 8.6.0-1 TCL - Tool Command Language
General Description Dependencies Installed Files Versions
POSIX threading library for Win32
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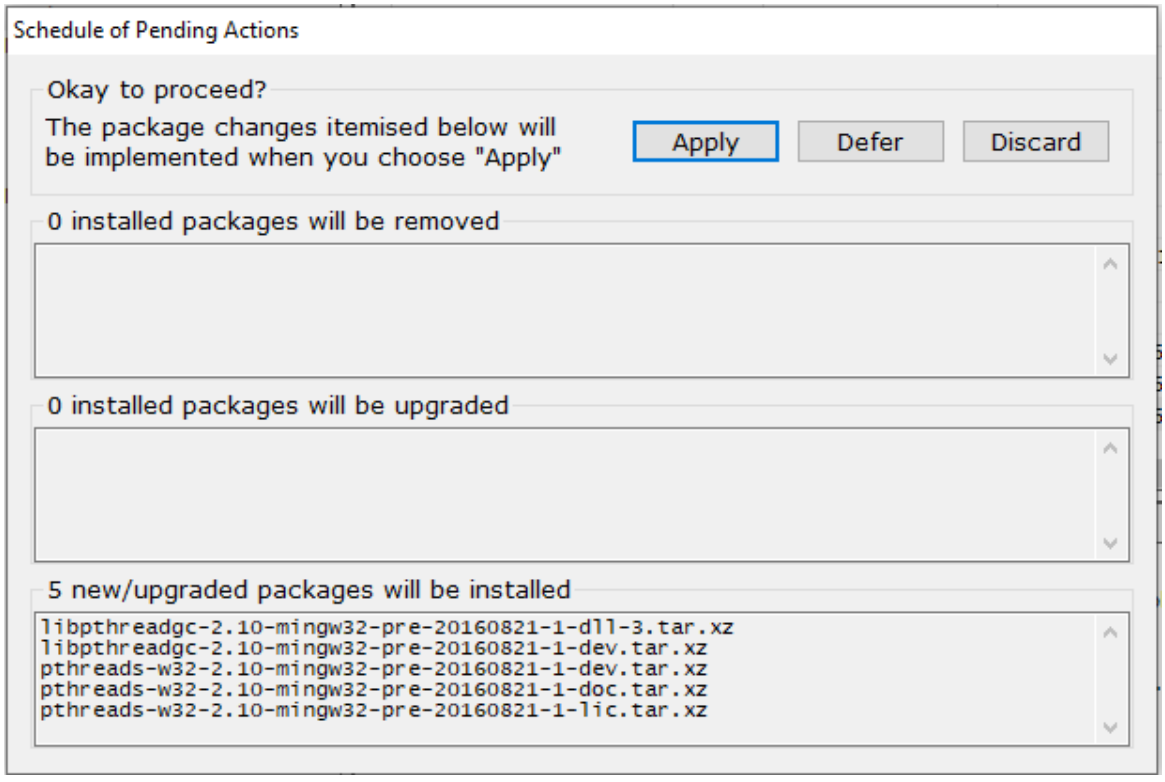
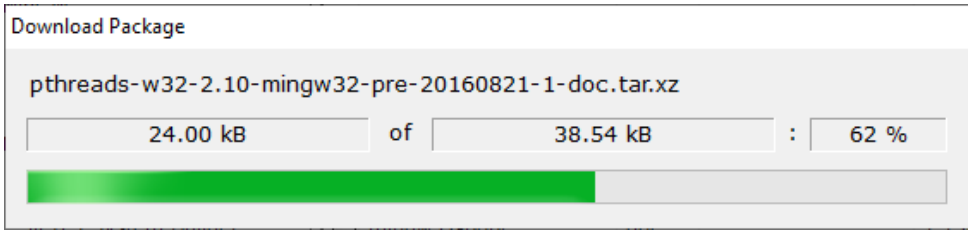
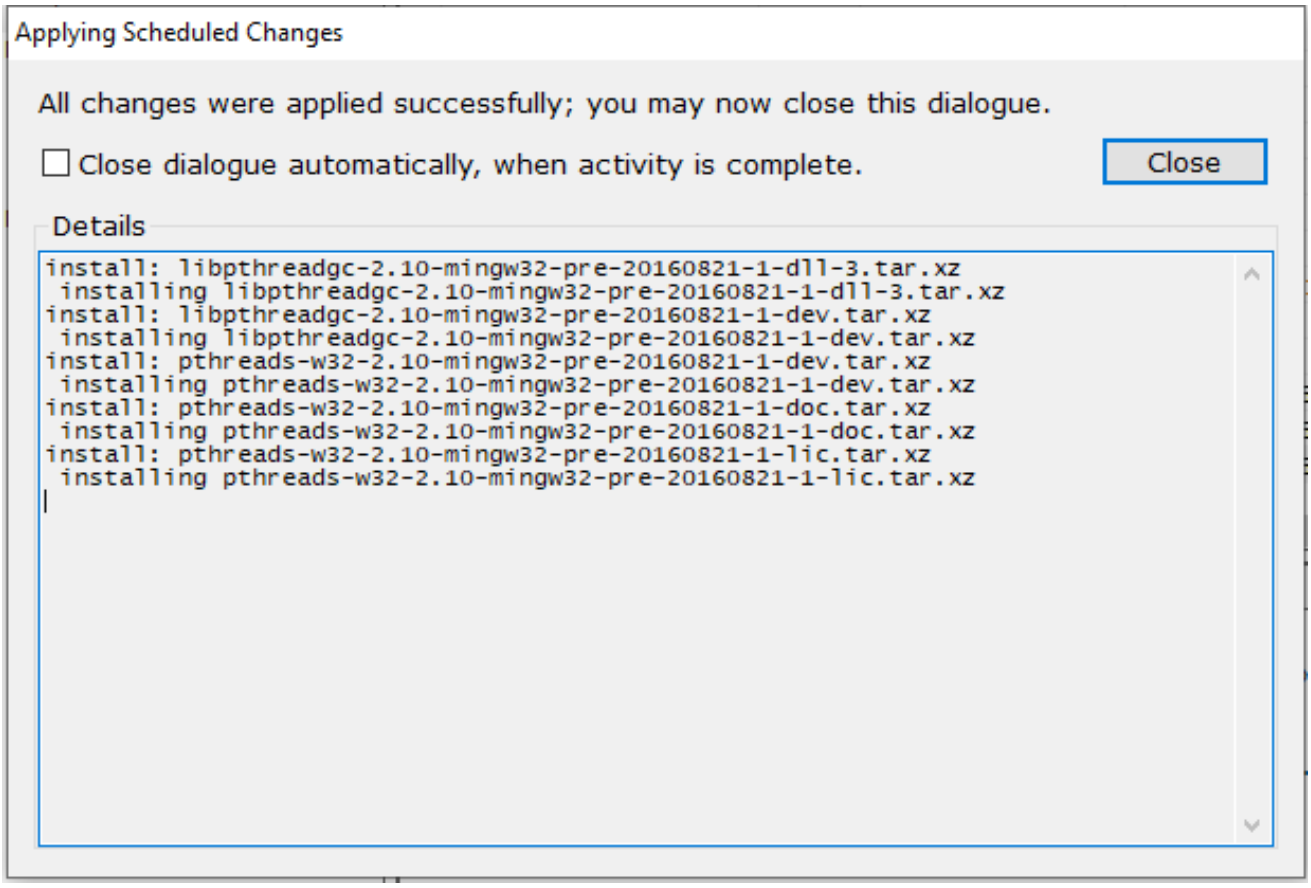
Available files
Close
Type here to search


Schedule of Pending Actions
Okay to proceed?
The package changes itemised below will be implemented when you choose "Apply"
Apply
Defer
Discard
0 installed packages will be removed
0 installed packages will be upgraded
5 new/upgraded packages will be installed
libpthreadgc-2.10-mingw32-pre-20160821-1-dll-3.tar.xz
libpthreadgc-2.10-mingw32-pre-20160821-1-dev.tar.xz
pthreads-w32-2.10-mingw32-pre-20160821-1-dev.tar.xz
pthreads-w32-2.10-mingw32-pre-20160821-1-doc.tar.xz
pthreads-w32-2.10-mingw32-pre-20160821-1-lic.tar.xz


Download Package
pthreads-w32-2.10-mingw32-pre-20160821-1-doc.tar.xz
24.00 kB
of
38.54 kB
:
62 %


Applying Scheduled Changes
All changes were applied successfully; you may now close this dialogue.
Close dialogue automatically, when activity is complete.
Close
Details
install: libpthreadgc-2.10-mingw32-pre-20160821-1-dll-3.tar.xz
installing libpthreadgc-2.10-mingw32-pre-20160821-1-dll-3.tar.xz
install: libpthreadgc-2.10-mingw32-pre-20160821-1-dev.tar.xz
installing libpthreadgc-2.10-mingw32-pre-20160821-1-dev.tar.xz
install: pthreads-w32-2.10-mingw32-pre-20160821-1-dev.tar.xz
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install: pthreads-w32-2.10-mingw32-pre-20160821-1-doc.tar.xz
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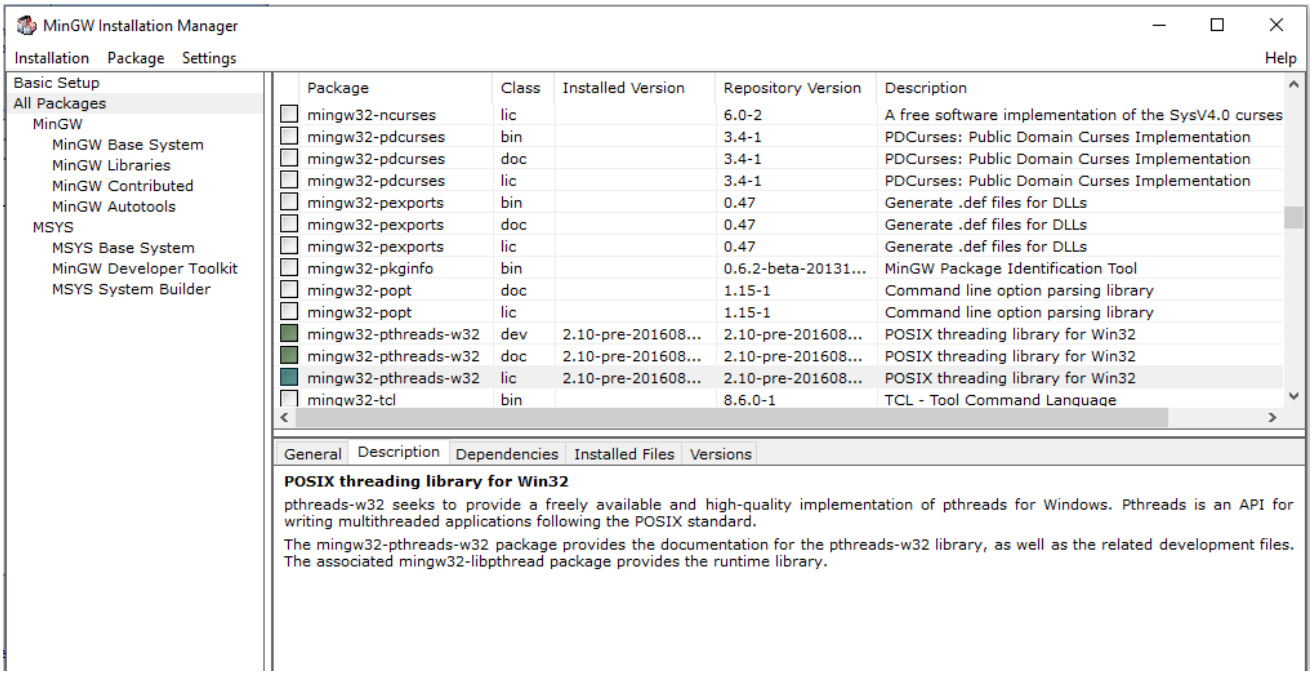
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Basic Setup
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Problem Statement 2: Write Hello World program with PRN.

CODE:

```
#include <omp.h>
#include <stdio.h>
#include <stdlib.h>
int main(int argc, char* argv[])
{
	//begining of parallel region
	#pragma omp parallel
	{

		printf("Hello World...2018BTECS00069....from thread = %d\n", omp_get_thread_num());
	}
	//end of parallel region
}
```

OUTPUT:

```
Gouri S@LAPTOP-1A70AQBU /cygdrive/d
$ cd "HPC lab/hpc1"

Gouri S@LAPTOP-1A70AQBU /cygdrive/d/HPC lab/hpc1
$ gcc -o h -fopenmp firstopenmp.c

Gouri S@LAPTOP-1A70AQBU /cygdrive/d/HPC lab/hpc1
$ ./h
Hello World...2018BTECS00069....from thread = 0
Hello World...2018BTECS00069....from thread = 1

Gouri S@LAPTOP-1A70AQBU /cygdrive/d/HPC lab/hpc1
$ export OMP_NUM_THREADS=5

Gouri S@LAPTOP-1A70AQBU /cygdrive/d/HPC lab/hpc1
$ ./h
Hello World...2018BTECS00069....from thread = 1
Hello World...2018BTECS00069....from thread = 2
Hello World...2018BTECS00069....from thread = 3
Hello World...2018BTECS00069....from thread = 4
Hello World...2018BTECS00069....from thread = 0

Gouri S@LAPTOP-1A70AQBU /cygdrive/d/HPC lab/hpc1
$
```