Ten Minutes to Setup Modern Fortran Compiler 2003/2008

Fortran Programming

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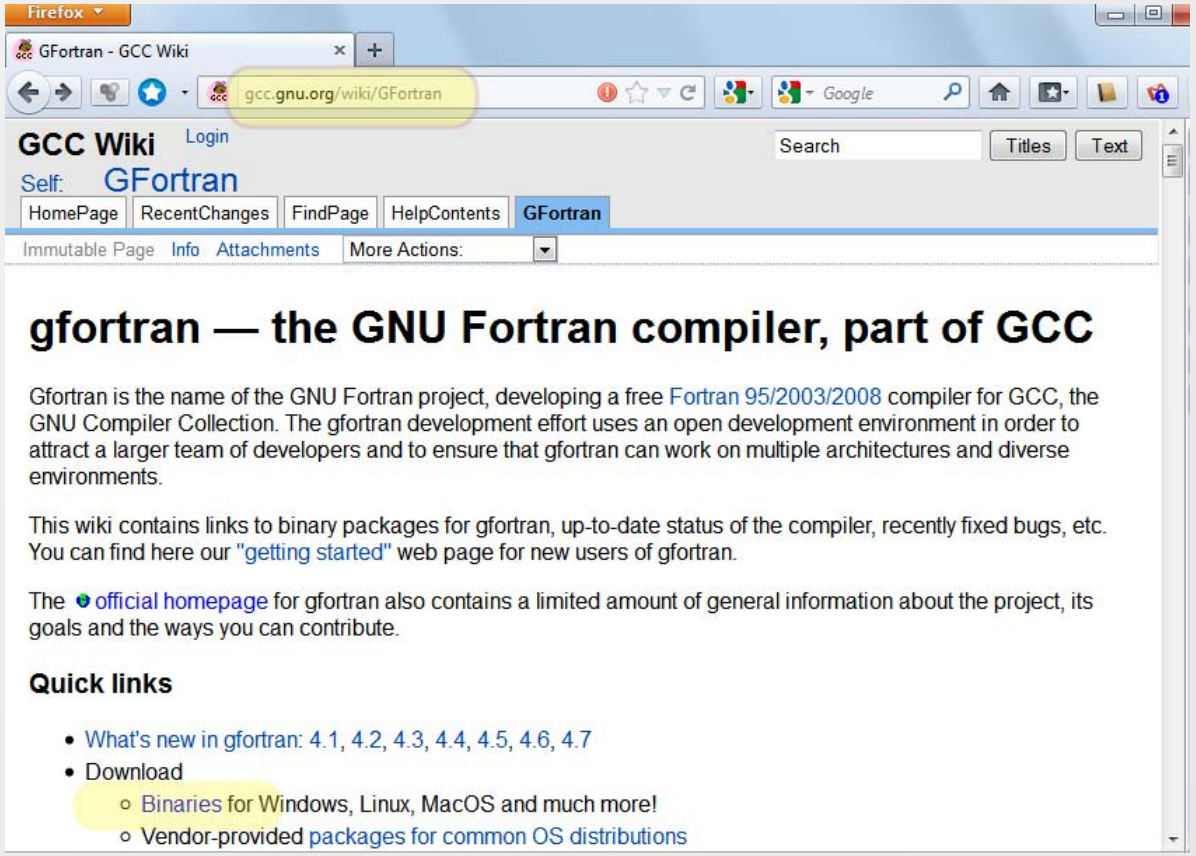
Outline

- Get the free gfortran compiler 2003/2008
- Get the free IDE, Code::Blocks (CB) for Fortran
- Setup gfortran on Windows
- Setup CB on Windows
- Write your first Fortran program

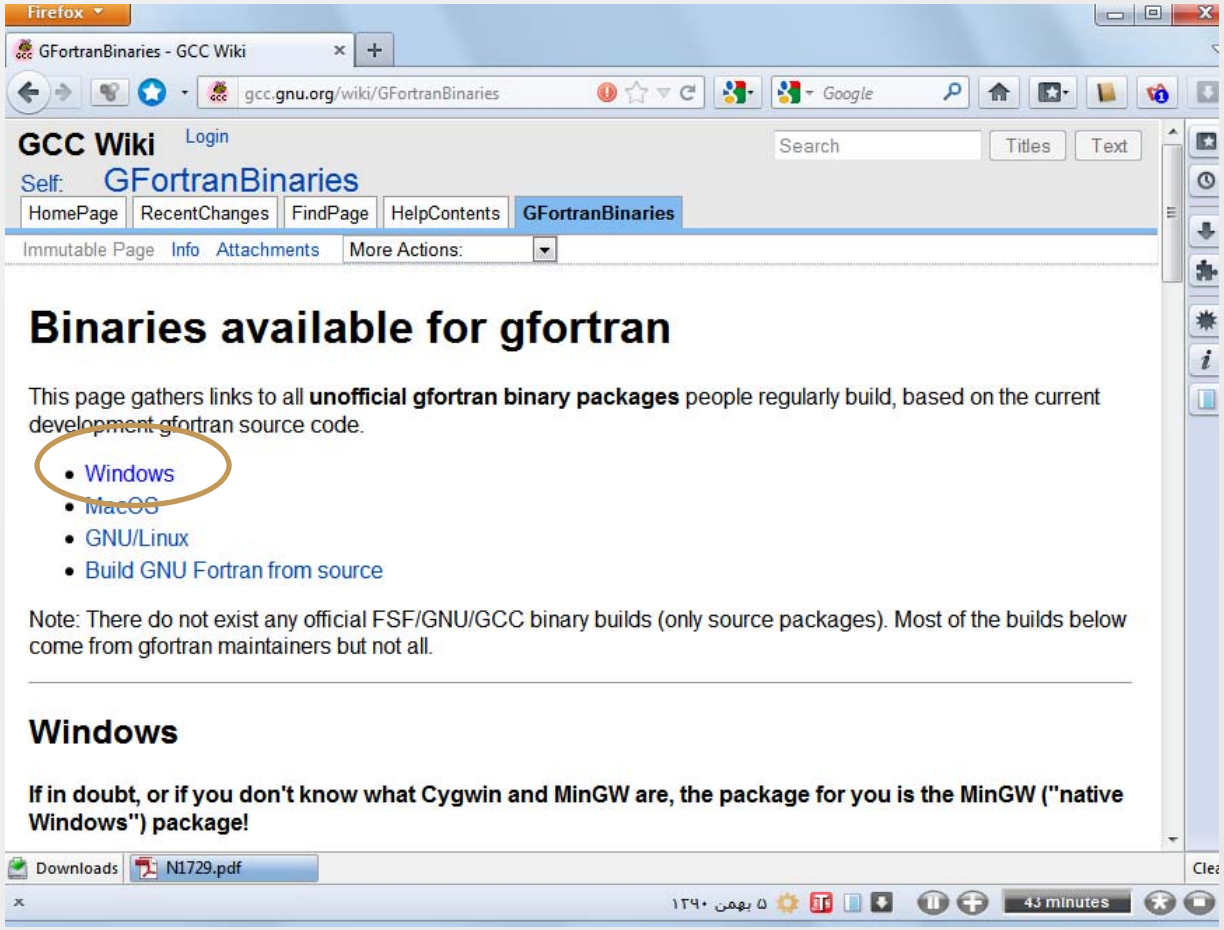
I. Get the gfortran compiler . . .

- Open the following link: gcc.gnu.org/wiki/GFortran
- Click on Binaries for Windows under Download



I. Get the gfortran compiler . . .

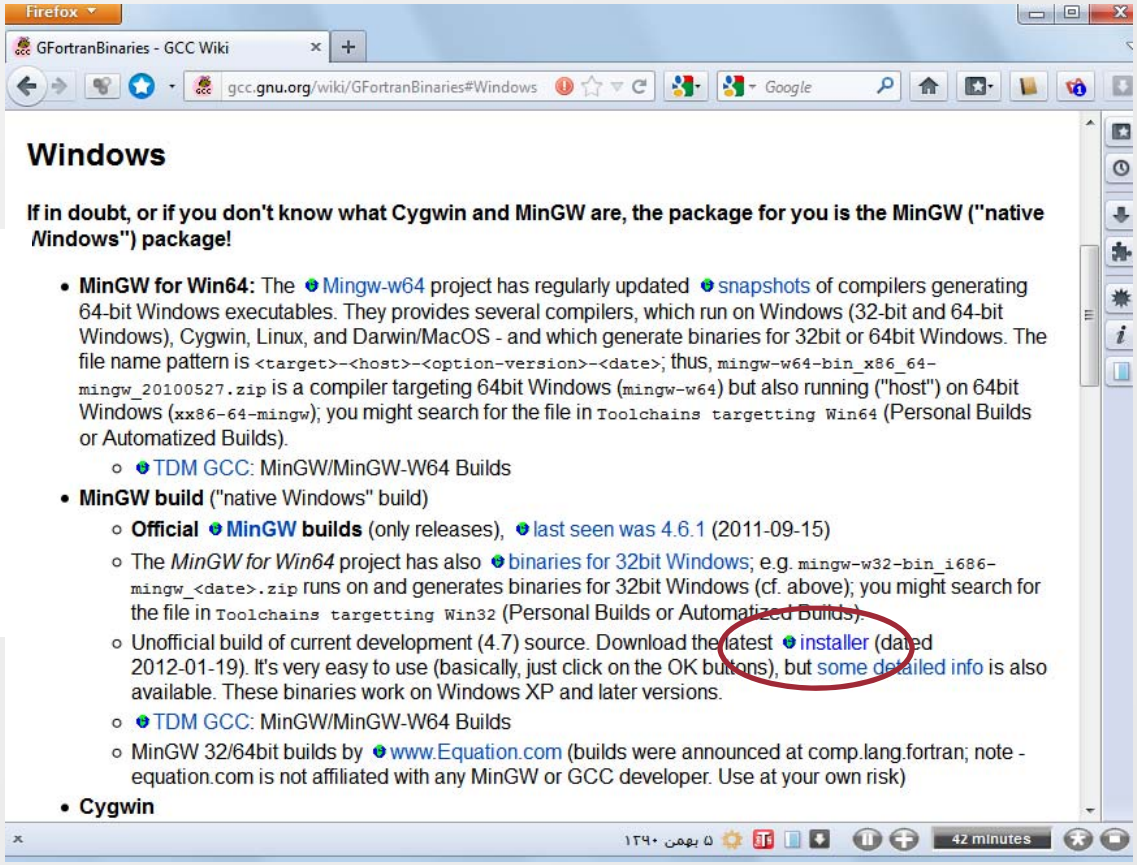
- Click on windows:



I. Get the gfortran compiler . . .

- There are different binaries to download:
  - 32 bit
  - 64 bit

For this demo, we download the latest 32 bit and it works both on 64 and 32 bit windows!



You can later download other builds and follow the same instructions

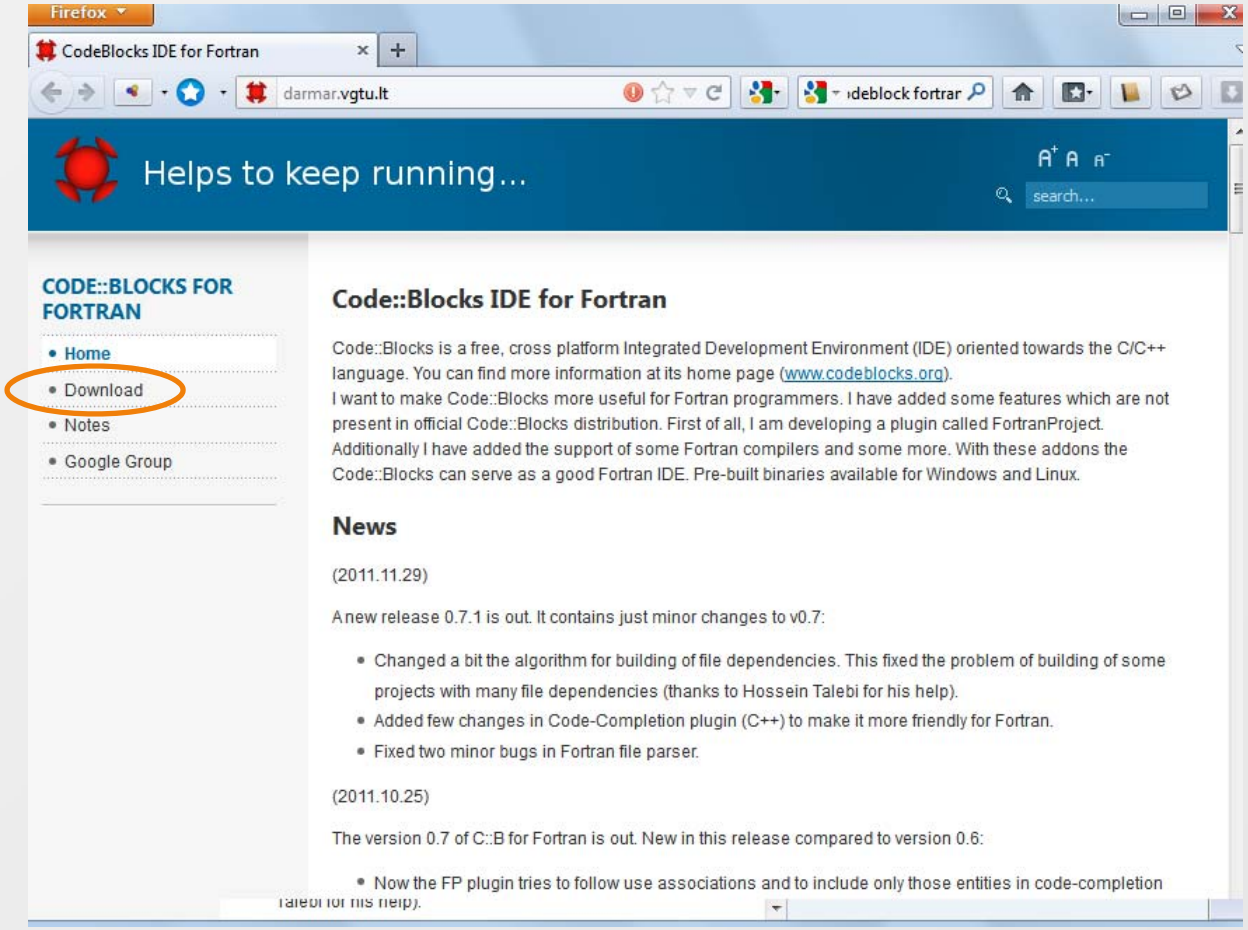
II. Get the IDE

- You can skip this step, if you don't need an IDE and use simple editor to code!
- There are two different IDEs you can download for free:
  - Code::Blocks (CB) for Fortran
    - Easy to use, syntax highlighting and code completion
    - Support muti-projects workspace
    - Can create static and dynamic libraries
    - Support debugging
  - Photran
    - A great portable IDE based on Eclipse (need JRE)
    - Refractoring capabilities
    - Support debugging, workspace
    - Can create static and dynamic libraries
- Here, CB is selected as the Fortran IDE

IDE stands for Integrated Development Environment

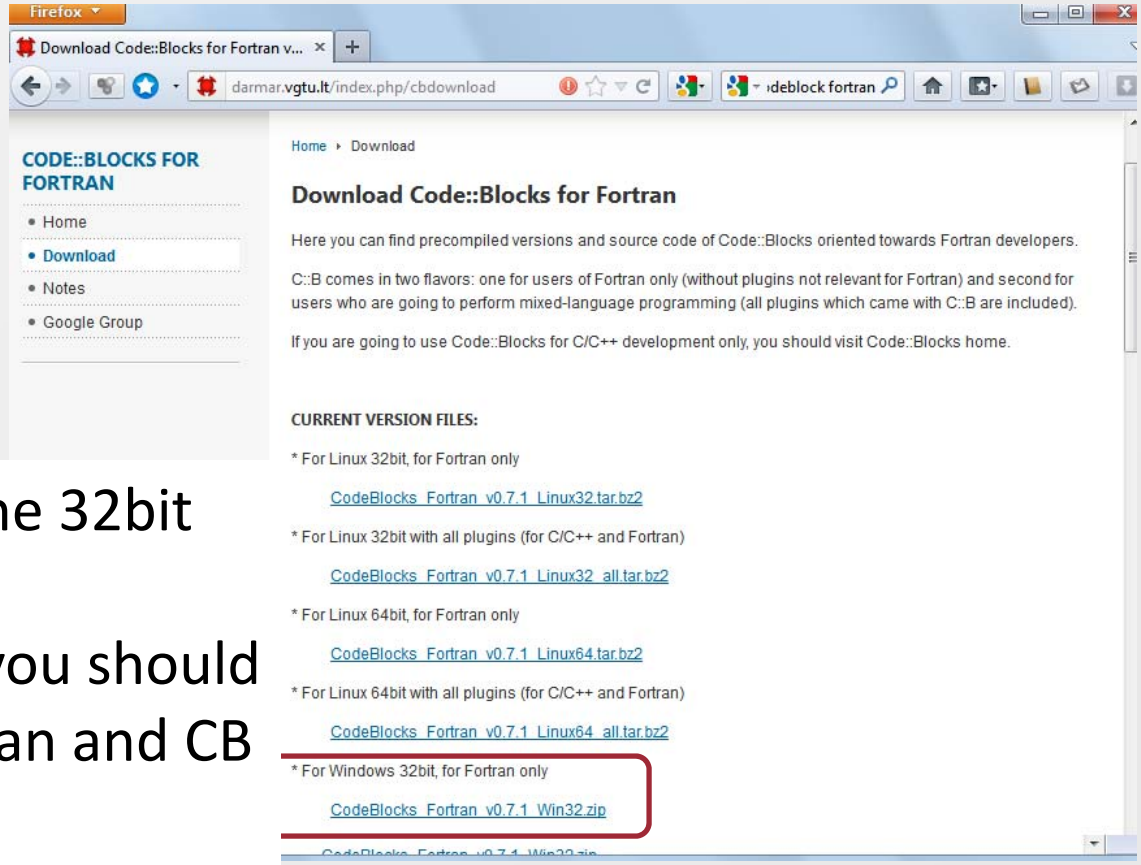
II. Get the CB IDE for Fortran …

- Open the following link: http://darmar.vgtu.lt/
- Click on download



II. Get the CB IDE for Fortran …

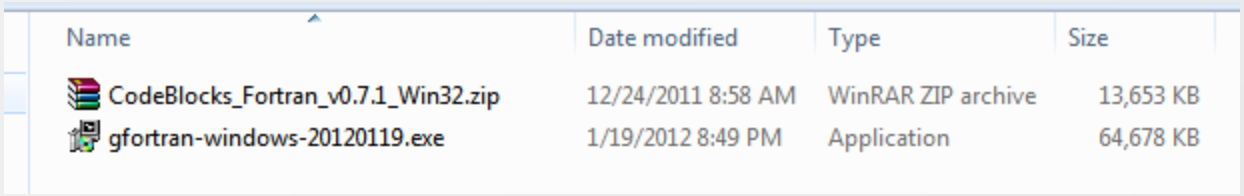
- Download the appropriate build



Here, we download the 32bit Windows version!
If you work on linux, you should download both gfortran and CB for linux!

III. Setup gfortran …

- Install gfortran on Windows by running the executable downloaded in step I
  The file version on the date of this presentation is gfortran-windows-20120119.exe



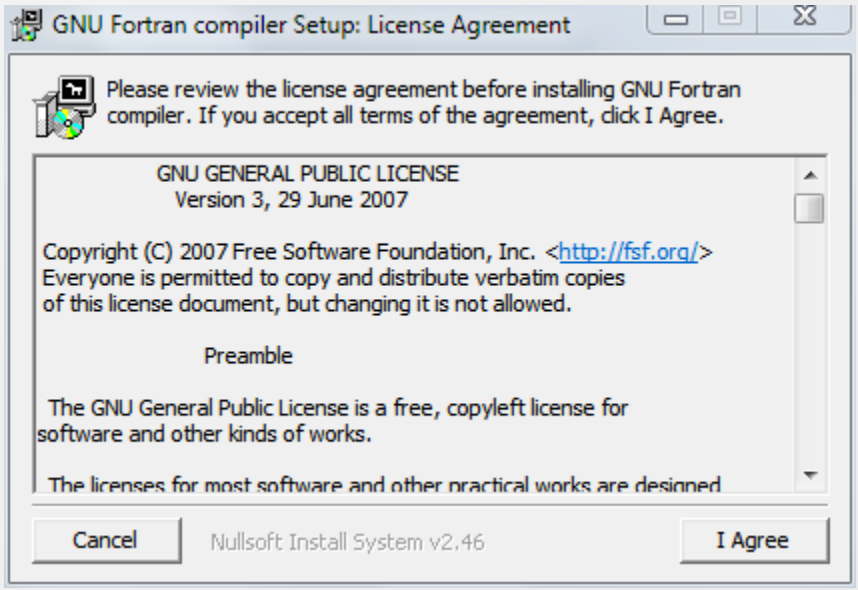
In this demo, we install on Windows 7, 64 bit. The instruction is the same under other versions of Windows!

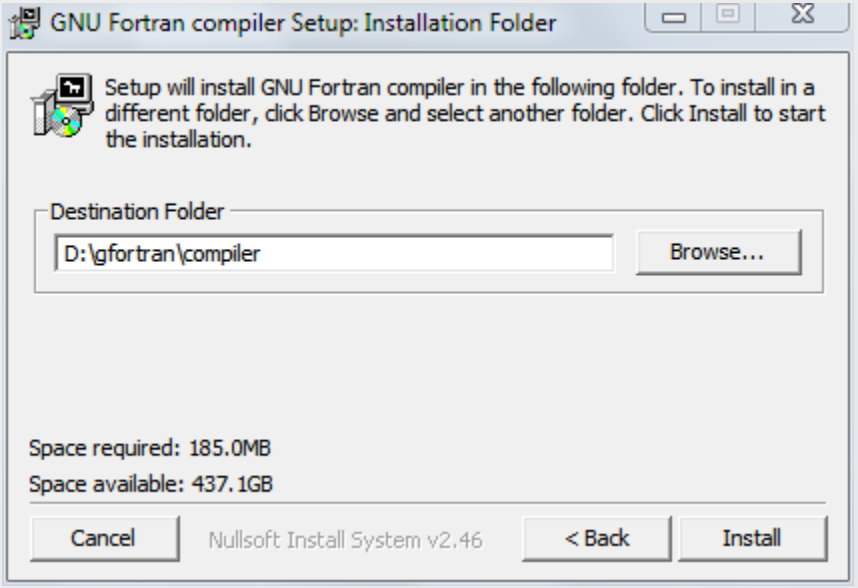
III. Setup gfortran …

- Follow the on screen instruction to complete the install!
- By default gfortran will be installed in Windows “Program Files” folder. If you setup a 32 bit version on 64 bit Windows, it will be installed in “Program Files (x86)”
- I recommend to choose an installation folder separate from windows Program Files! But it works fine even you install in “Program Files” folder!

III. Setup gfortran …

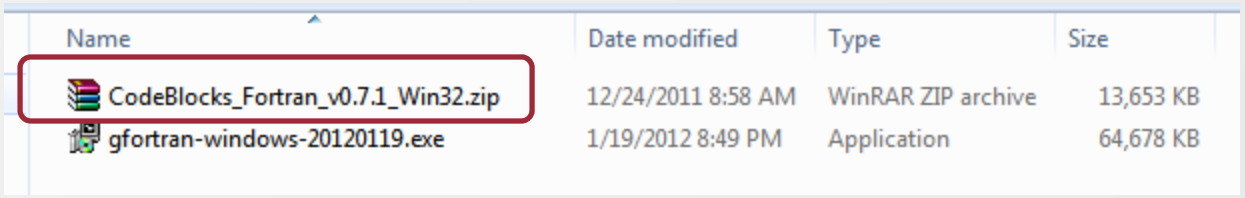
- Here I used “D:\gfortran\compiler” as my installation folder
- Wait to finish installation





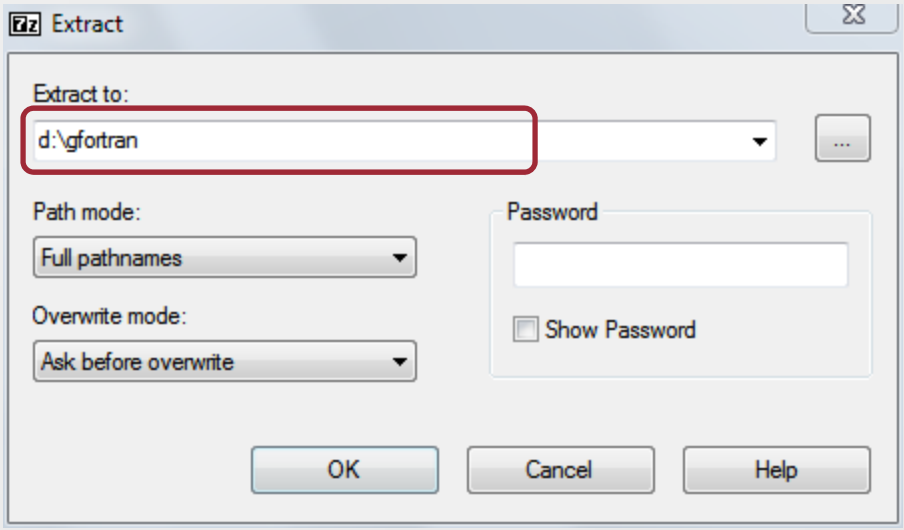
IV. Setup CB for Fortran …

- CB for Fortran is actually portable
- Just unzip the package into the folder of your choice



IV. Setup CB for Fortran …

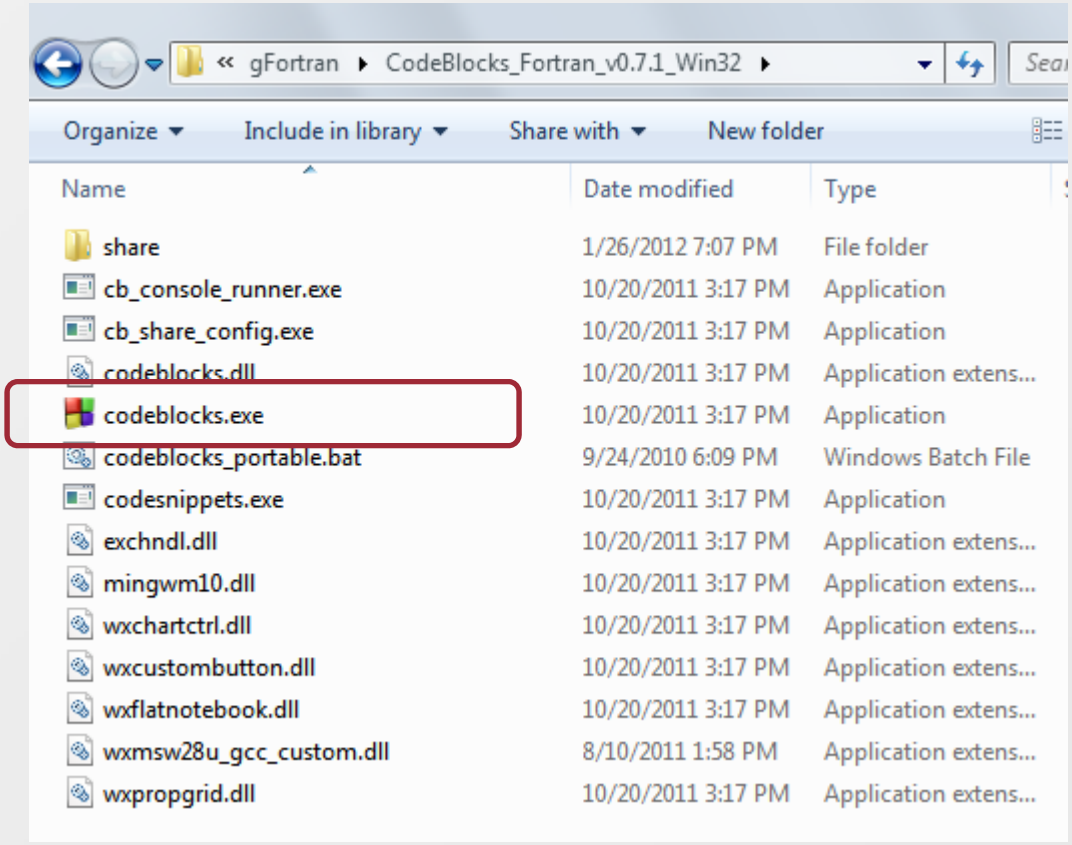
- Here we put CB in the same folder as gfortran i.e in our case *D:\gfortran*
- Just unzip the package in the folder of your choice



To unzip, you can use the free utility 7-zip.

Run CB and Set Options

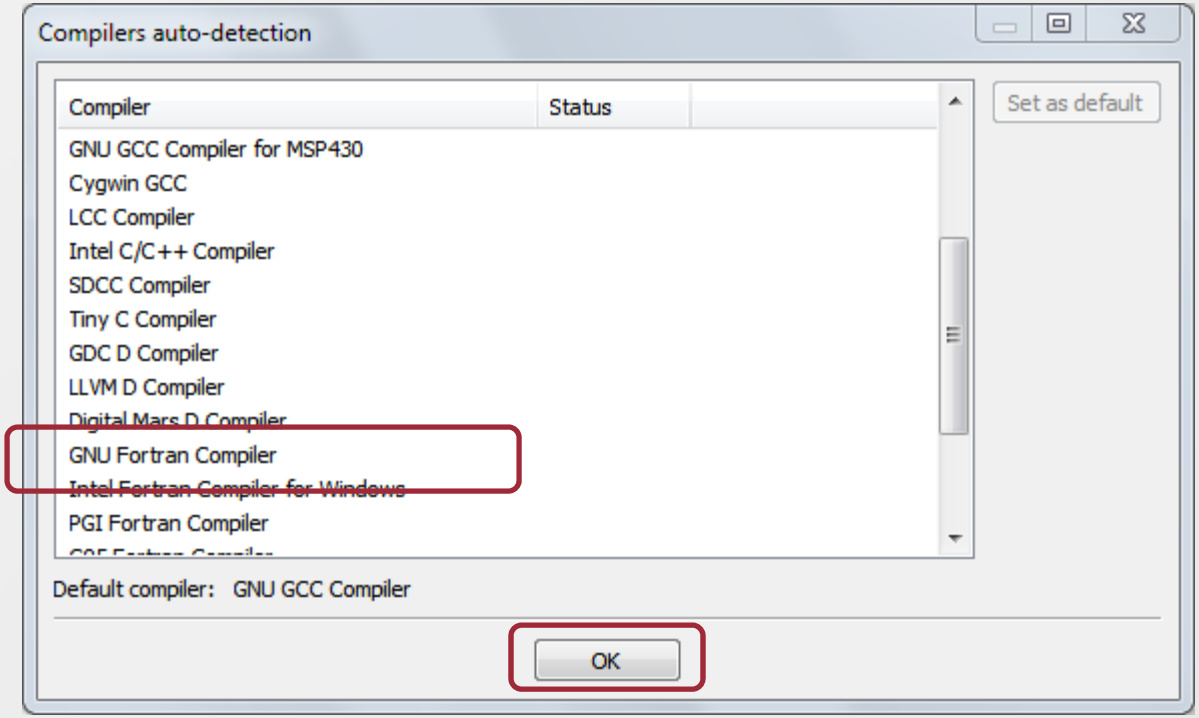
- Open the CB installation folder and run codeblocks.exe
- For convenience, you can make a shortcut on your desktop!



You can use CB as portable. You can consult the CB help for this purpose!

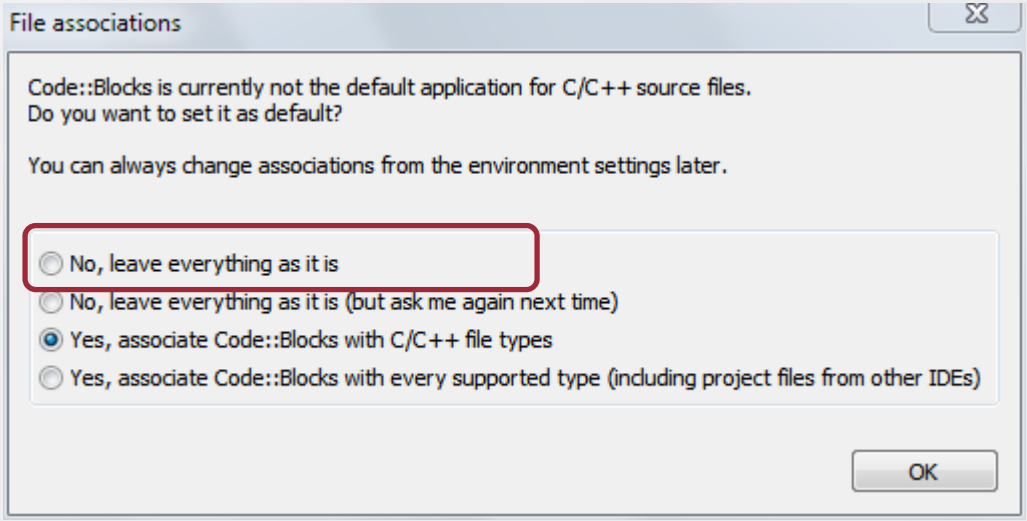
Set the Default Compiler

- After CB starts, a window appears ask for default compiler
- Select ‘GNU Fortran Compile’
- Click on ‘Set as Default’ and press ‘Ok’ button



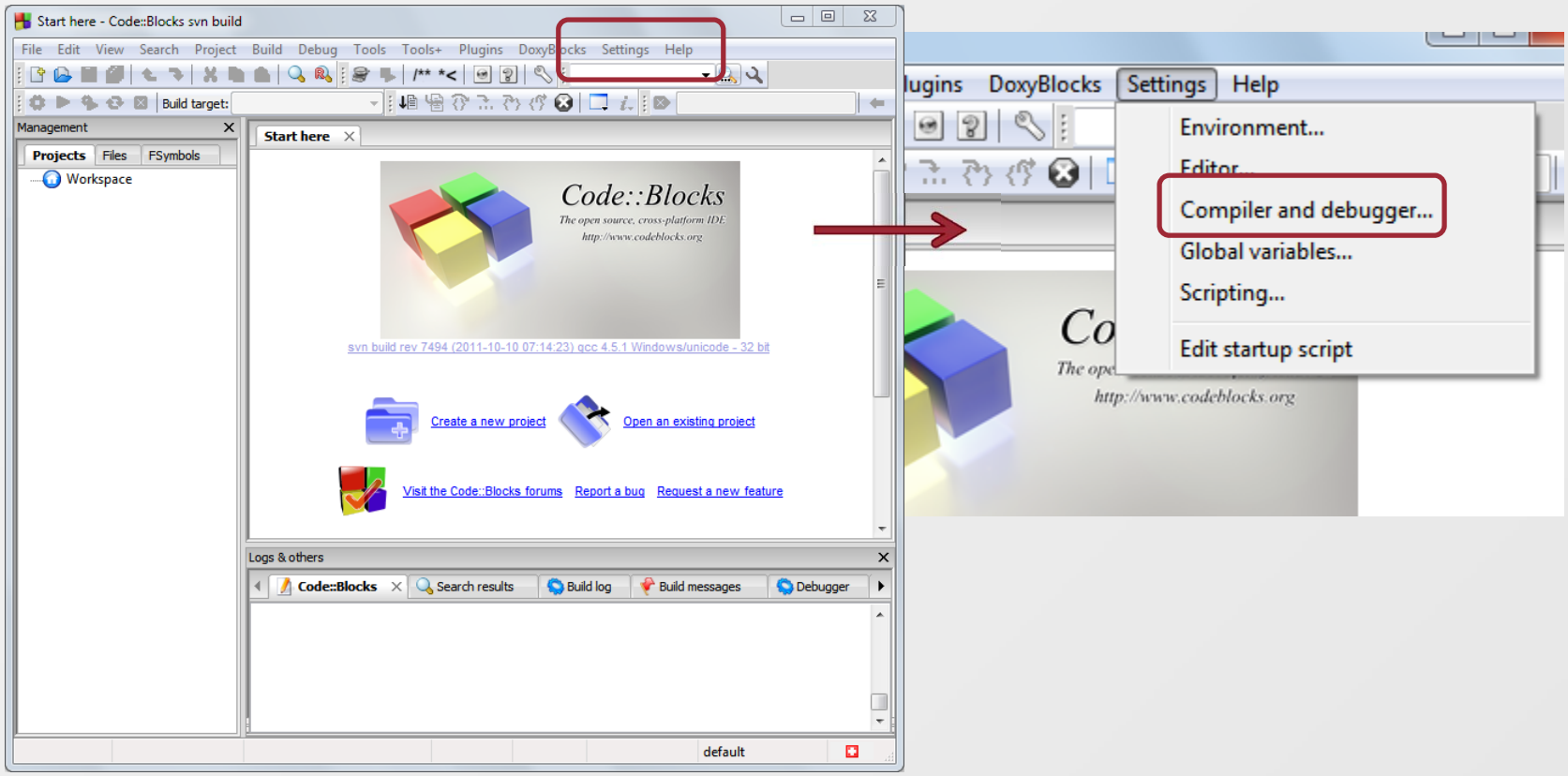
File associations

- CB lets you to associates file types with itself.
- You can skip this step or set some file types to be opened by CB.



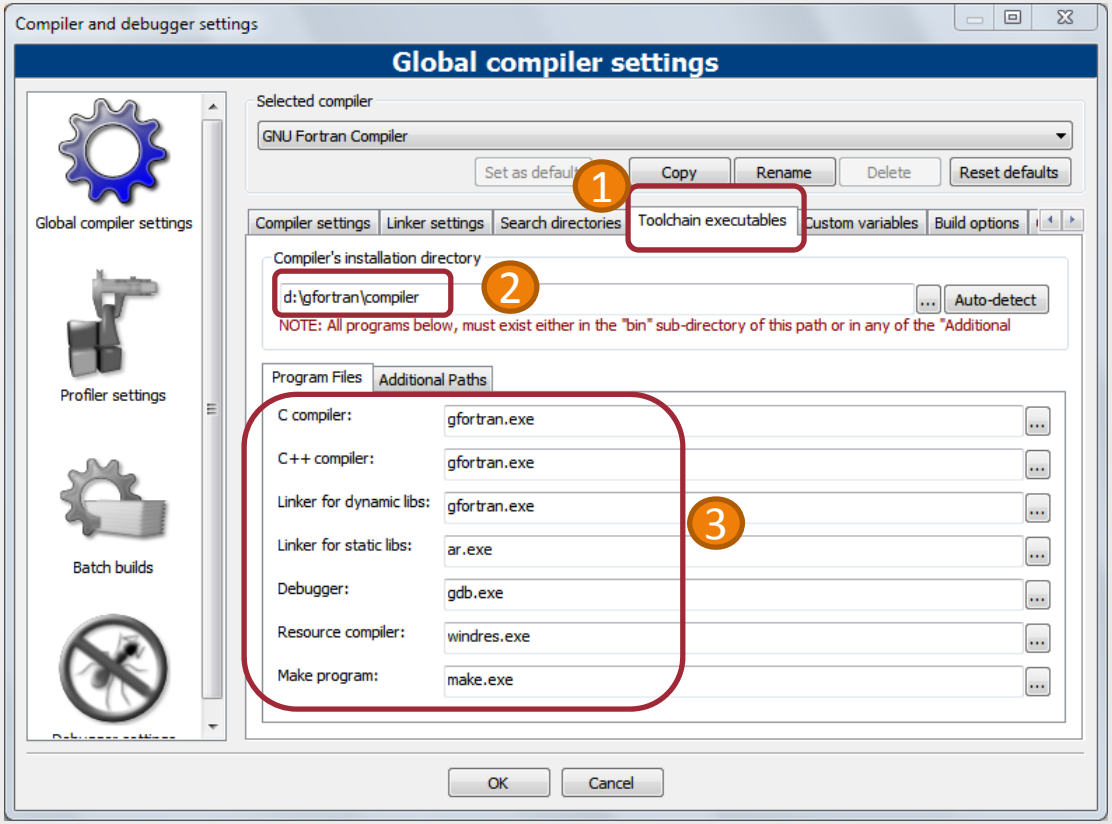
Set compiler and debugger path …

- Click on setting
- Select ‘Compiler and debugger…’



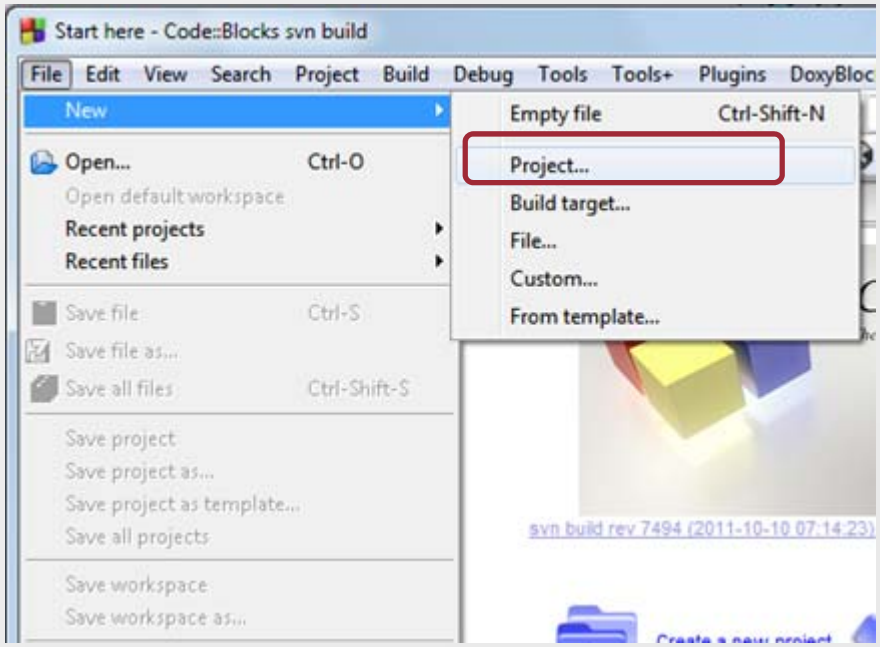
Set compiler and debugger path

- Click on ‘Toolchain executables’ and set the ptah
- For this demo, the path is as below!
- Correct it (step 2 below) based on your installation
- Click ‘OK’
- That’s all.



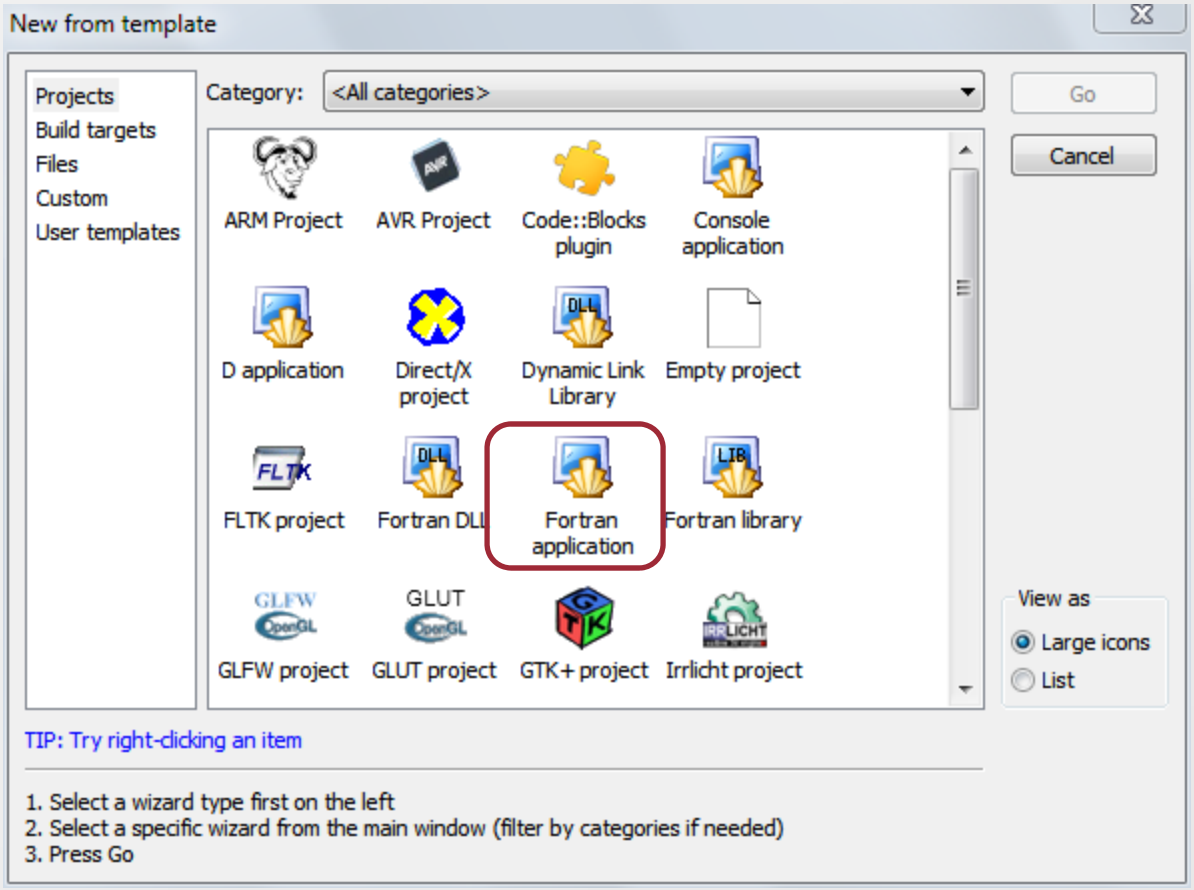
V. Create a simple Fortran program …

- Click on ‘New’ from menubar
- Select ‘Project’



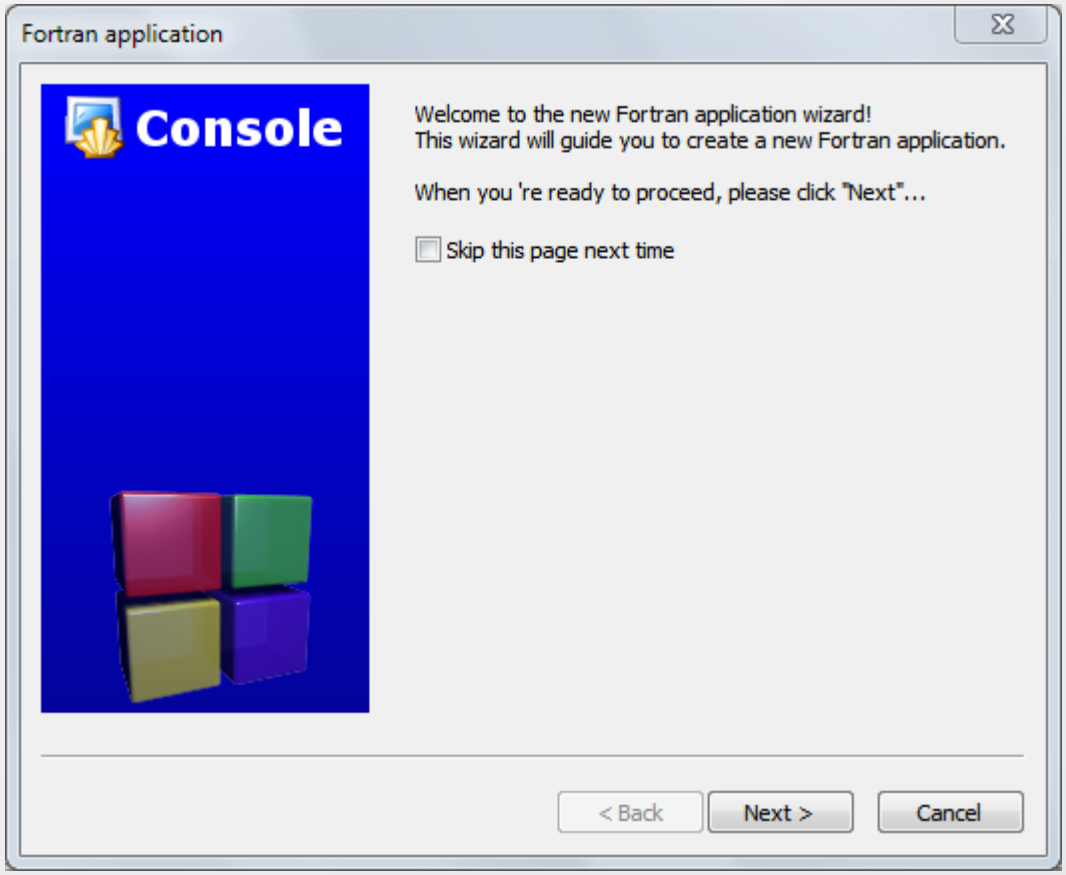
Fortran Application

- In the window appears, select ‘Fortran Application’



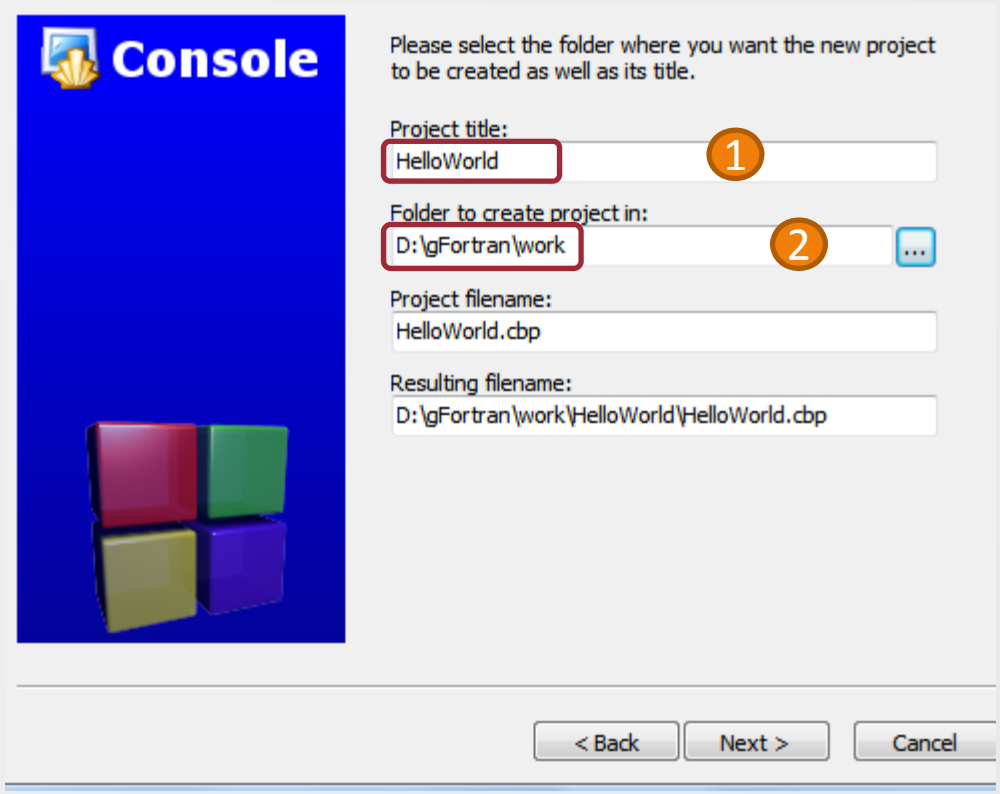
Welcome window

- Select ‘Next’



Select project title and folder

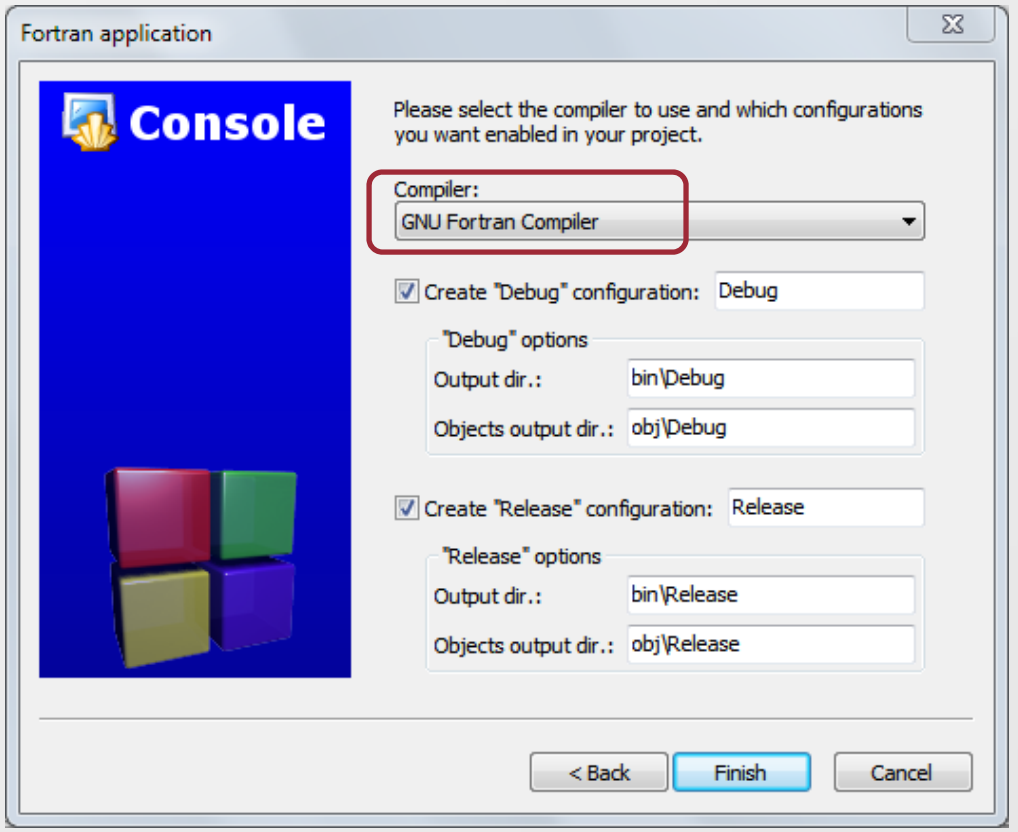
- Enter a project title
- Select a project folder



Don't worry about the Project filename, it will be 'main.f90'

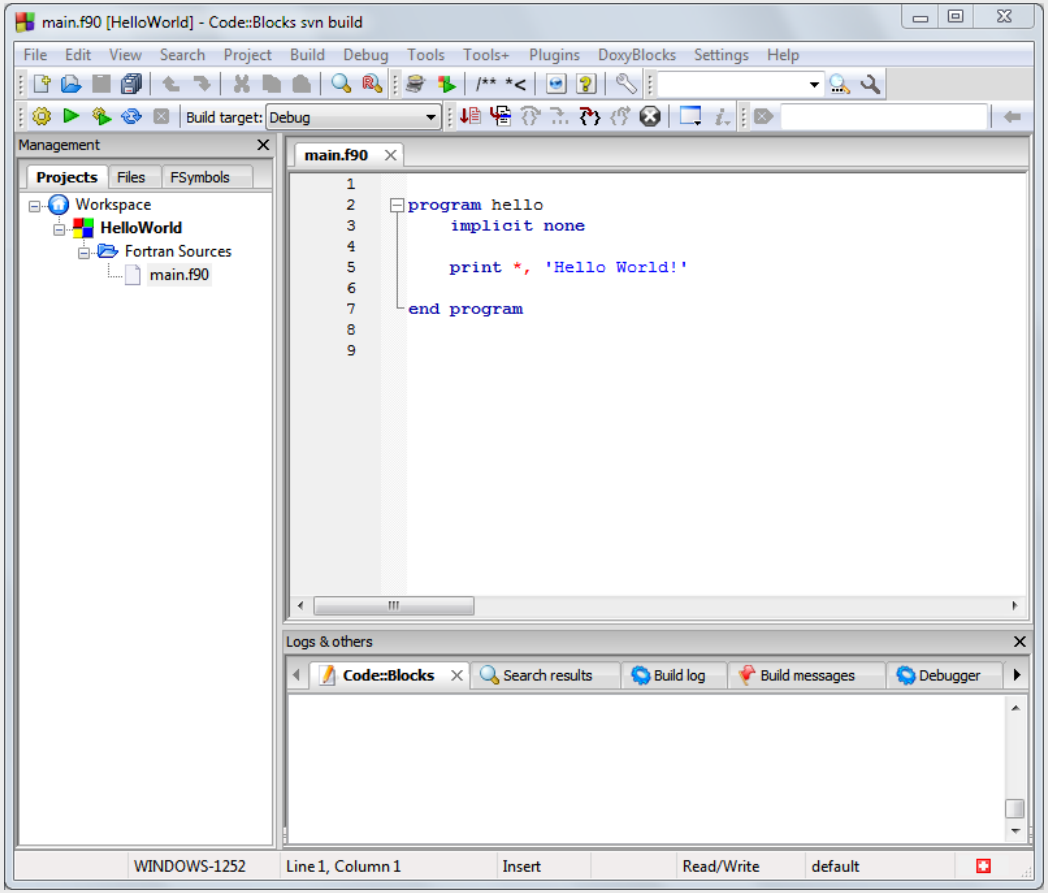
Fortran project configuration

- By default CB create two build configurations
  - Debug configuration
  - Release configuration
- Make sure ‘Compiler’ is set to ‘GNU Fortran Compiler’
- Click on ‘Finish’



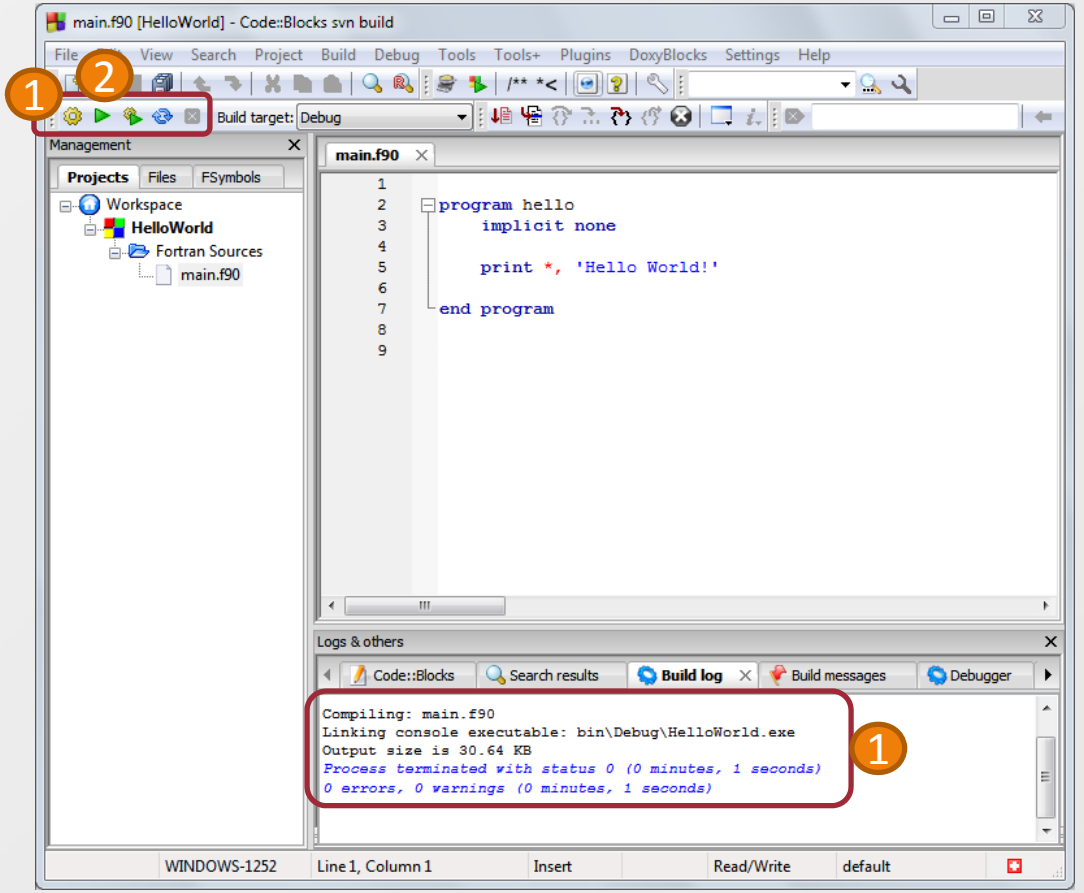
The Fortran source file

- By default a ‘main.f90’ is created
- You can edit it and put your own code inside ‘main.f90’
- You can also rename it, if you like
- …

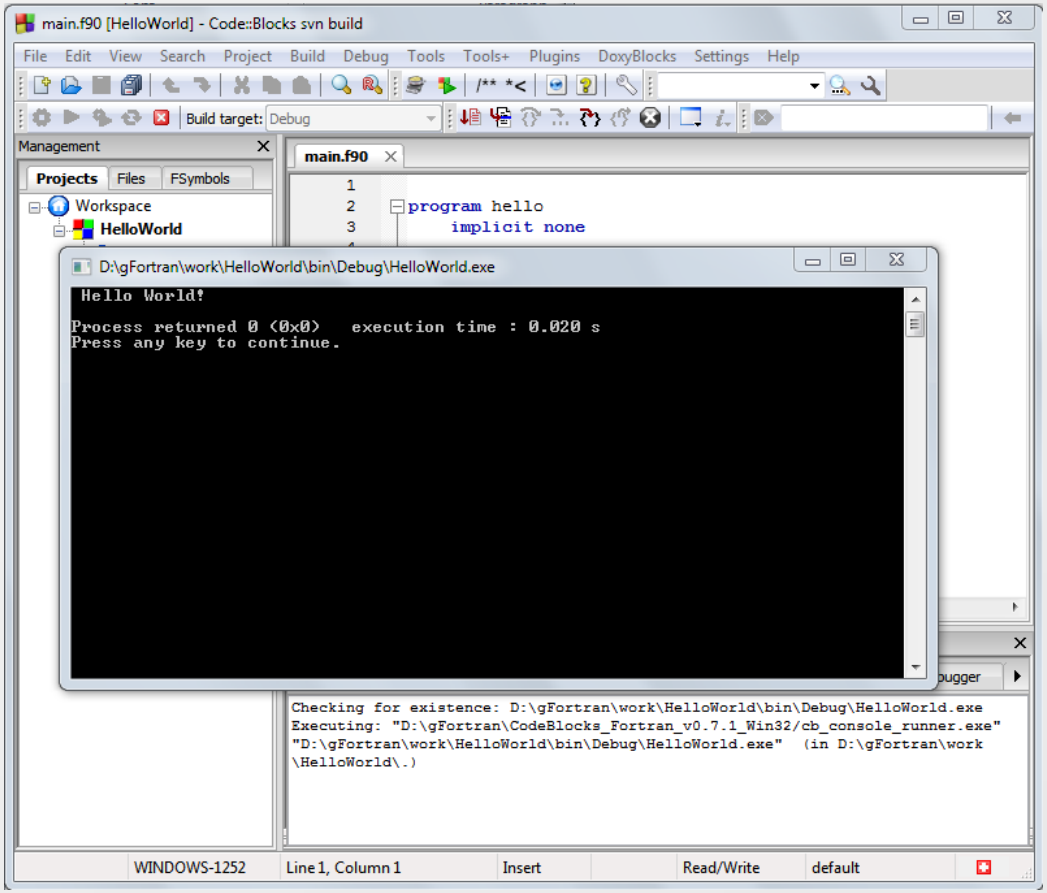


Compile, build and run your first program

- Click on ‘build’ button to compile and build your program (*step 1*)
- Click on ‘Run’ button (*step 2*)



See the result



Some exercises

- Exercises
  - Create a Fortran program with two source files
  - Compile only the source files, one by one using ‘compile current file’ under ‘build’ menu item
  - Rebuild your program by using the toolsbar icon
  - Try debugging capabilities of CB
    - Add some variables to watch window
    - Step into procedures
  - Try other Fortran projects provided by CB
    - Make a Fortran static library
    - Make a Fortran DLL
  - Try workspace capabilities of CB
    - Create two projects
    - Make one dependent on the other