



# EGSnrc Complete Installation Guide (Windows 10/11)

This step-by-step guide ensures no compiler or PATH errors (like “make not recognized” or “gfortran not found”). It uses MSYS2 (MinGW-w64) and ActiveTcl.

## Step 1: Install C++/Fortran Compiler (MSYS2 + MinGW-w64)

### 1. Download and Install MSYS2

- Go to:  <https://www.msys2.org/>
- Download the installer (msys2-x86\_64-...exe)
- Run the installer
- Keep default path:
- C:\msys64
-  **Important:** Avoid paths with spaces!

### 2. Update MSYS2 packages:

- **Open “MSYS2 MSYS” from Start Menu**
- **Run these one by one:**
  - **Terminal (MSYS2 MSYS):** `pacman -Syu`
  - (close and reopen terminal)
  - **Terminal (MSYS2 MSYS):** `pacman -Su`

### 3. Open 'MSYS2 UCRT64' and install full toolchain:

- **Terminal (MSYS2 MSYS):** `pacman -S --needed base-devel mingw-w64-ucrt-x86_64-toolchain`
- Press **Enter** for all defaults. This installs:
  - gcc, g++, gfortran (compilers)
  - make, ld, and other build tools

### 4. Verify Installation (Inside 'MSYS2 UCRT64')

- **Terminal:** `g++ --version`
- **Terminal:** `gfortran --version`
- **Terminal:** `make --version`
  - You should see version info like:
  - GNU Fortran (GCC) 12.2.0
  - GNU Make 4.4.1
- If yes → compilers installed successfully.

### 5. Add Compiler to Windows PATH:

- Press Windows key → type “env” → open “Edit the system environment variables”
- Click Environment Variables...
- Under System variables, find and select Path → click Edit...

- Click New and add this line:
- C:\msys64\ucrt64\bin
- C:\msys64\usr\bin

## 6. Verify in Command Prompt (cmd.exe)

- Open a new **Command Prompt** (not PowerShell) and run:
  - g++ --version
  - gfortran --version
  - make --version
- ☒ If all show version numbers → you're good!

## 7. Common Fixes for Compiler Errors

Error	Fix
make not recognized	Add C:\msys64\usr\bin or reinstall with: pacman -S --needed mingw-w64-ucrt-x86_64-make
gfortran not recognized	Add C:\msys64\ucrt64\bin to PATH or install: pacman -S --needed mingw-w64-ucrt-x86_64-gcc-fortran
g++ not recognized	Install: pacman -S --needed mingw-w64-ucrt-x86_64-gcc
Wrong shell used	Always use <b>MSYS2 UCRT64</b> terminal (not MSYS or MINGW32)

## Step 2: Install Tcl/Tk (for EGSnrc GUI)

1. Download **ActiveTcl** from <https://platform.activestate.com/ActiveState/ActiveTcl-8.6> and **install** it.
2. Add to **PATH** if needed: C:\ActiveTcl\bin

## Step 3: Install EGSnrc

### 1. Download EGSnrc Source

- From GitHub: <https://github.com/nrc-cnrc/EGSnrc/releases>
- Download: Source code (zip)

### 2. Extract Files

- Extract to: C:\EGSnrc
- You'll get: C:\EGSnrc\EGSnrc-202xx\
- This is your **HEN\_HOUSE** folder. Here under confirm folder has C:\EGSnrc\EGSnrc-202xx\HEN\_HOUSE.




### 3. Download EGSnrc Configuration Utility

- From the same GitHub release, download: EGSnrc-configure-windows.exe
- Move it to: C:\EGSnrc

### 4. Run Configuration Utility

- Double-click EGSnrc-configure-windows.exe
- When prompted:

Prompt	Value
HEN_HOUSE	C:\EGSnrc\EGSnrc-202xx\HEN_HOUSE (Select Path)
EGS_HOME	C:\EGSnrc\egs_home (Select Path)
Compiler	Detected automatically (MinGW-w64 / UCRT64)

-  **Tick both checkboxes:**
  - **Set environment** — this ensures EGSnrc adds itself to your system PATH (so you can use it from anywhere).
  - **Desktop shortcuts** — optional, but helpful for quick access.
-  **Click the “Install” button.**
  - The big white box will start showing progress logs (e.g., “Configuring EGSnrc core system,” “Compiling libraries,” etc.).
  - If your compiler (make, gfortran, g++) is correctly installed and on the PATH, this step will finish without errors.
-  Once it finishes (takes a few minutes ⌚), click **Finish** to close the wizard.

## Step 4: Finalize and Test

### 1. Verify environment variables (CMD Terminal):

- **Run this two Commands one by one:**
  - set HEN\_HOUSE
  - set EGS\_HOME

## Extra Notes

- Always use UCRT64 terminal for EGSnrc build.
- Ensure PATH updates are in cmd (not PowerShell).
- If issues persist, recheck compiler and Tcl/Tk installation.