



# Setting Up Zephyr on Windows

## What we end up with

- Windows setup
- Python in a venv (Python 3.13 worked)
- West 1.4.0
- Zephyr tree at `C:\Users\<you>\Documents\zeephyr-workspace\zephyr`
- Zephyr SDK 0.17.4 with the ARM toolchain installed
- Build directory at `C:\Users\<you>\Documents\zephyr-workspace\build`
- Board Test: Nucleo F411RE flashes and blinks

## 1) Install host tools

Use `winget` install dependencies

1. Download and install `python 3.13.6`

2. Open command prompt and execute the following command one-by-one:

```
pip install west
winget install -e --id Kitware.CMake
winget install -e --id Ninja-build.Ninja
winget install -e --id oss-winget.gperf
winget install -e --id oss-winget.dtc
winget install -e --id Git.Git
winget install -e --id 7zip.7zip
```

3. Open new command prompt window to verify by executing the following:

```
cmake --version
```

```
ninja --version  
gperf --version  
dtc --version  
git --version  
west --version
```

Add 7-Zip to PATH:

```
set "PATH=C:\Program Files\7-Zip;%PATH%"
```

## 2) Create a Windows venv the right way

Navigate to the zephyr-workspace folder, create a virtual environment and activate it

### Create

```
py -3.13 -m venv .venv
```

### Activate

```
.\.venv\Scripts\activate
```

*If PowerShell blocks activation, we use*

```
Set-ExecutionPolicy -Scope Process Bypass -Force
```

### Activate

```
.\.venv\Scripts\Activate.ps1
```

## 3) Initialize the west workspace and fetch Zephyr

*Execute this while in the workspace folder in command prompt*

```
west init  
west update  
west zephyr-export
```

*Install python requirements*

```
pip install -r zephyr\scripts\requirements.txt
```

## 4) Install the Zephyr SDK and ARM toolchain

*Install Wget and Add to PATH*

```
winget install -e --id JernejSimoncic.Wget  
set PATH=C:\Program Files\Wget;%PATH%
```

## **Restart cmd**

*Make sure 7z is callable in this window*

```
set "PATH=C:\Program Files\7-Zip;%PATH%"  
west sdk install
```

*If error occurs run setup manually:*

```
"%USERPROFILE%\zephyr-sdk-0.17.4\setup.cmd"
```

*Tell this shell to use the SDK*

```
set ZEPHYR_TOOLCHAIN_VARIANT=zephyr  
set ZEPHYR_SDK_INSTALL_DIR=%USERPROFILE%\zephyr-sdk-0.17.4
```

*Confirm compiler exists:*

```
dir "%USERPROFILE%\zephyr-sdk-0.17.4\arm-zephyr-eabi\bin\arm-zephyr-eabi-gcc.exe"
```

*Make it Persist for future shells:*

```
setx ZEPHYR_TOOLCHAIN_VARIANT zephyr  
setx ZEPHYR_SDK_INSTALL_DIR "%USERPROFILE%\zephyr-sdk-0.17.4"
```

## **5) Build Blinky**

### **Restart cmd**

From the workspace root,

**Activate venv:**

```
.\.venv\Scripts\activate
```

**execute:**

```
west build -p always -b nucleo_f411re zephyr\samples\basic\blinky
```

## **6) Flash the board**

```
west flash
```