

**Prerequisites:**

Make sure that host tools and the extensions are installed, if not, follow the instructions the last page. Or check out this video: <https://www.youtube.com/watch?v=WtQWrpUYF1g>

# Lab 1 – Hello World

The purpose of this lab is to get started with zephyr and the hands on labs environment, it is important to do these steps as all the following labs are based on this one.

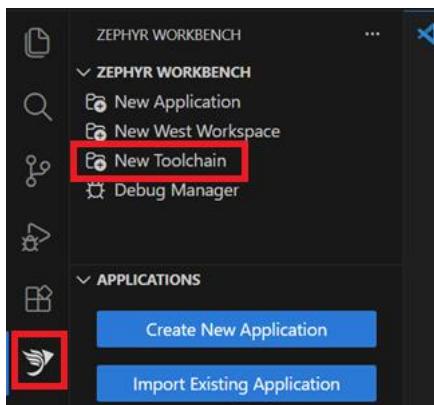
In case you have faced any problem, make sure that you have the right host requirements and installed the dependencies.

The lab consists of 7 steps, make sure that you follow them.

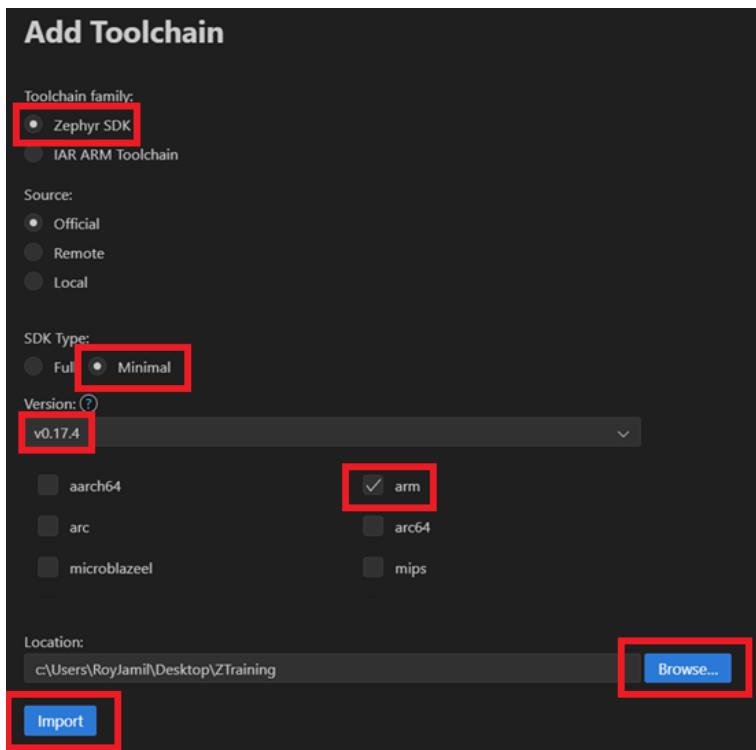
Note: in this lab, you may have already done some of the steps, but follow till the end, so that confirm that we all have a working environment

## 1- Import Zephyr SDK – (if not already imported)

- Open the workbench extension, then click on “New Toolchain”



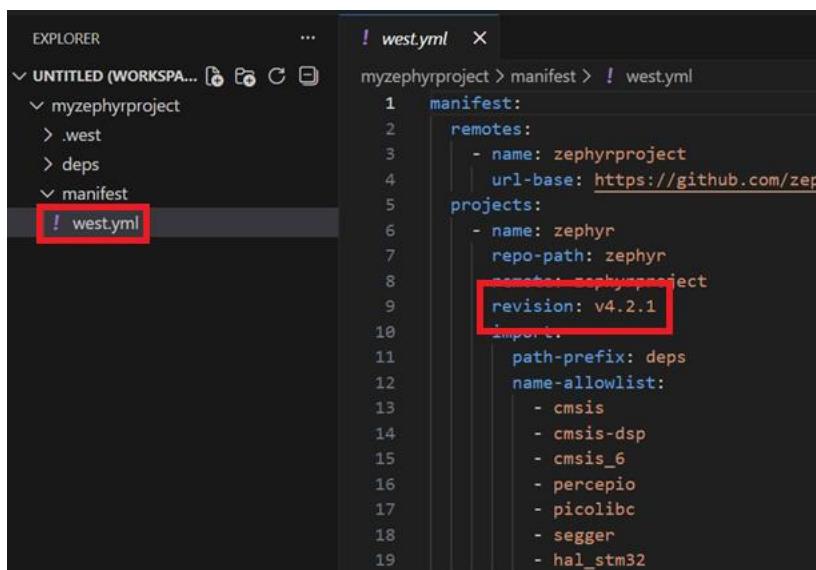
## 2- Import the Zephyr SDK v 0.17.4 for ARM (if not already imported)



### 3- Import the West Workspace

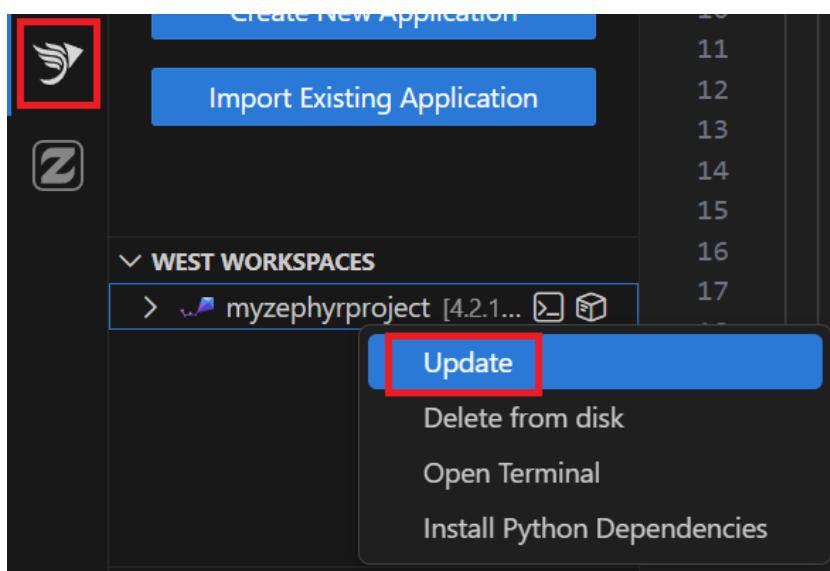
3.1 - If you already have a working west workspace, make sure you are on the version 4.2.1, if not go to the section 3.2

- Open the west.yml in: <west workspace>/manifest/west.yml
  - Check the revision, set it to v4.2.1 if it is different



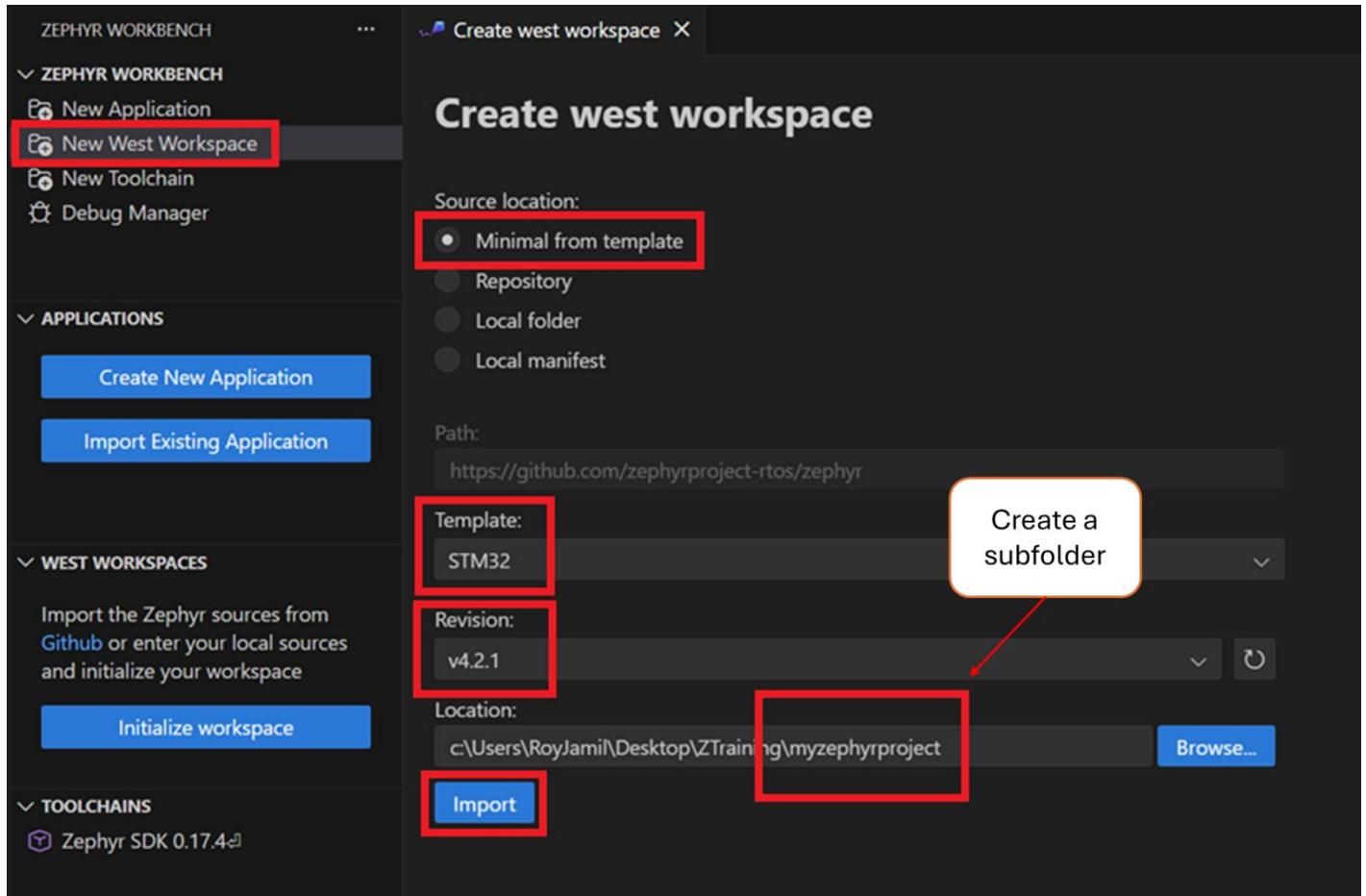
```
! west.yml
myzephyrproject > manifest > ! west.yml
1 manifest:
2   remotes:
3     - name: zephyrproject
4       url-base: https://github.com/zephyrproject-rtos/zephyr
5     projects:
6       - name: zephyr
7         repo-path: zephyr
8         remote: zephyrproject
9         revision: v4.2.1
10        imports:
11          path-prefix: deps
12          name-allowlist:
13            - cmsis
14            - cmsis-dsp
15            - cmsis_6
16            - percepio
17            - picolibc
18            - segger
19            - hal_stm32
```

- Update west workspace:
  - Right click on the west workspace already imported then => update

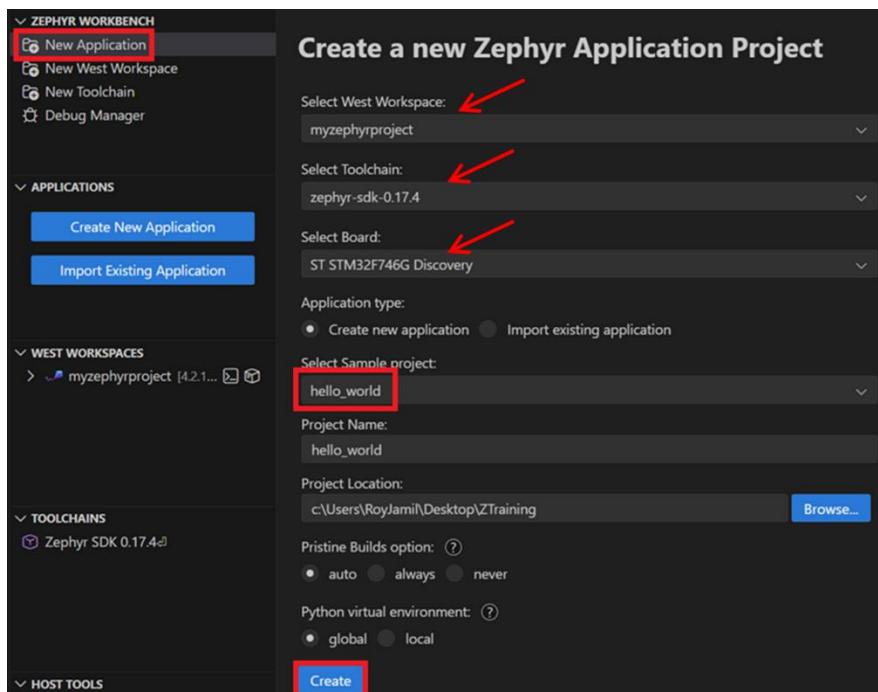


3.2 - If you have not already imported the workspace you need to import it (skip, if you already imported it):

- “New West Workspace” => minimal => STM32 => v4.2.1 => specify the folder (put it in a subfolder)  
=> Click “Import”

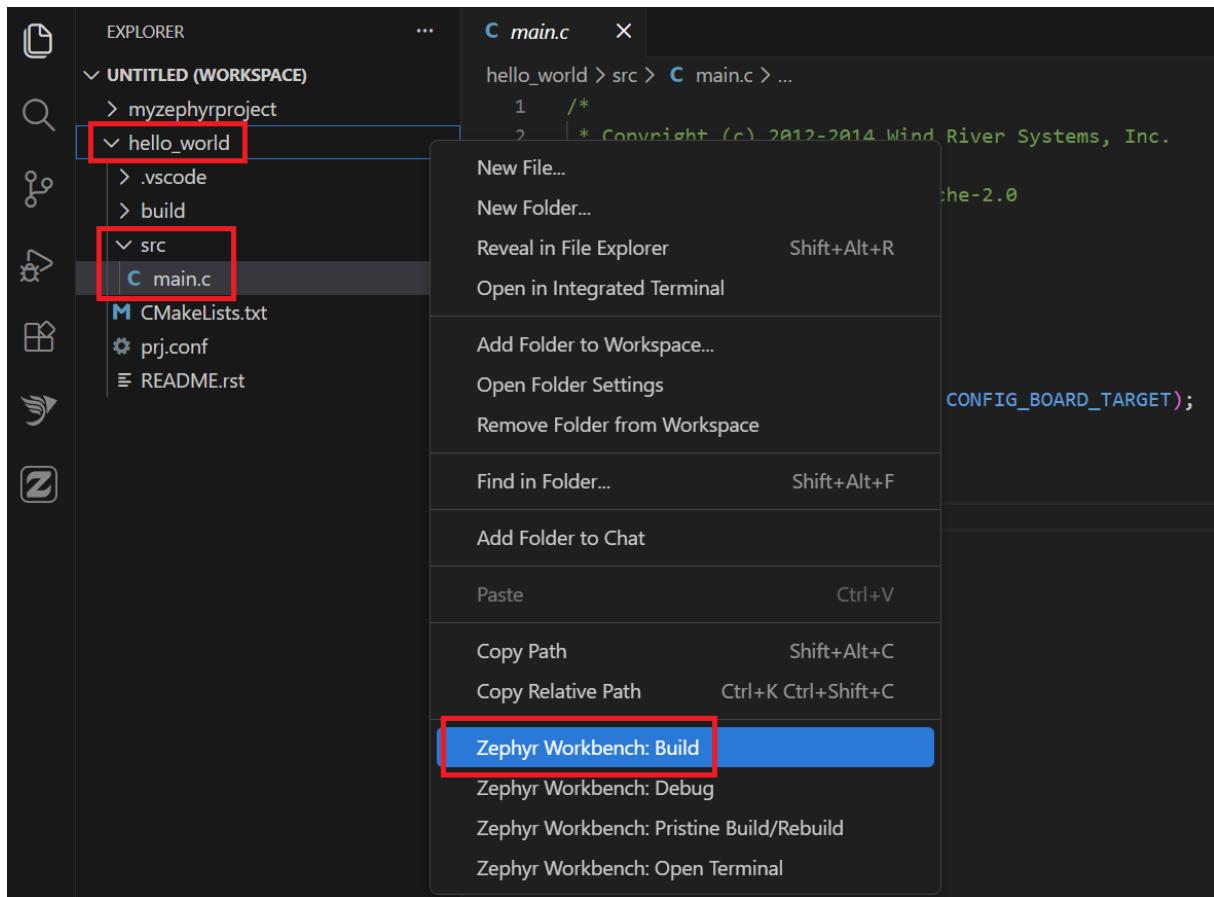


#### 4- Create the Hello world application:

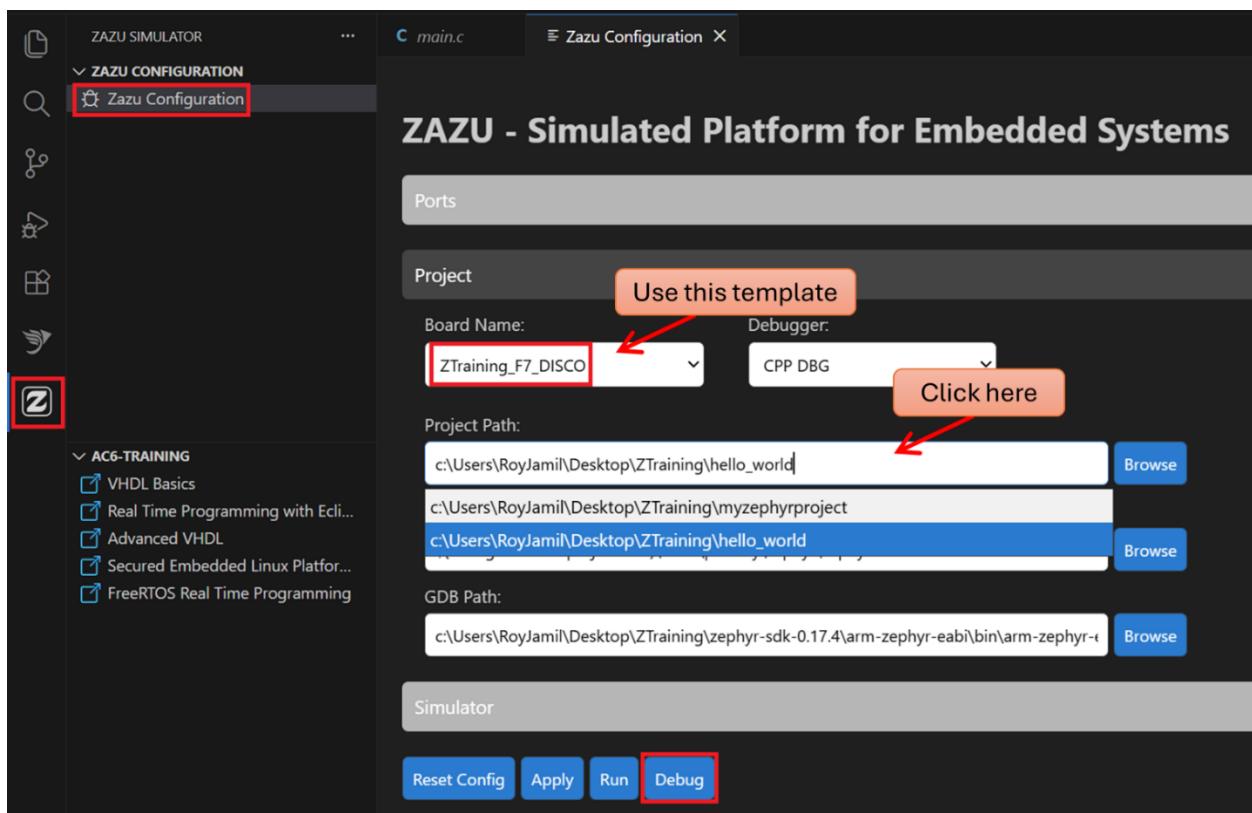


## 5- Build the application:

- Right click on the Hello World application, then build



## 6- Run and Debug:



## 7- Application Running:

The screenshot shows a development environment with several windows:

- Code Editor:** A window titled "main.c" showing C code for a "Hello World" application. The code includes a copyright notice and prints the target board name. Line 13 is highlighted.
- Zazu Configuration:** A window showing the configuration for the Zazu board.
- Serial Terminal:** A window titled "Serial" showing the output of the application. It displays the boot message "\*\*\* Booting Zephyr OS build v4.2.1 \*\*\*" and the "Hello world! stm32f746g\_disco/stm32f746xx" message.
- Hardware:** An image of the STM32F746G-DISCO development board. A red box highlights the JTAG header pins (P1.11-P1.14) which are connected to a logic analyzer.
- Logos:** Logos for "AC6 training", "BENINGO EMBEDDED GROUP", and "citrinio".

A red arrow points from the "Resume" button in the top toolbar to the JTAG header on the hardware board.

```
/* Copyright (c) 2012-2014 Wind River Systems, Inc.
 * SPDX-License-Identifier: Apache-2.0
 */
#include <stdio.h>
int main(void)
{
    printf("Hello World! %s\n", CONFIG_BOARD_TARGET);
    return 0;
}
```

Serial

Enter message...  Send

```
*** Booting Zephyr OS build v4.2.1 ***
Hello world! stm32f746g_disco/stm32f746xx
```



# Software installation

The following software need to be installed onto each delegate PC (only Windows 10/11, Ubuntu > 20.04 or MacOS (ARM)) - If your system is not supported, please use the provided Docker image:

- Visual Studio Code (VSCode)
- Workbench for Zephyr Extension
- Zazu Simulator
- Percepio View

## A) VSCode (if not already installed)

- Download the installer from
  - <https://code.visualstudio.com>
- Install using the default options
- Alternatively, you may use the VSCode portable (this avoids modifying your existing VSCode configuration)

NOTE: You can follow this YouTube video to install and test the extensions B) and C):

<https://youtu.be/WtQWrpUYF1g>

## B) Workbench for Zephyr extension

- Open VSCode
- Click on “Extensions” icon on the left 
- Search for “Workbench for Zephyr”
- Click on install
- Open Zephyr Workbench Extension using this icon 
  - Under the “HOST TOOLS”
  - Click on “Install host tools”

## C) Zazu Simulator extension

- Click on “Extensions” icon on the left 
- *Search for “Zazu Simulator”* 
- *Click on install*
- *Install dependencies under “DEPENDENCIES” panel*

## D) Percepio View

- Visit this link: <https://traceviewer.io/get-view/?target=Zephyr>
- Download and install the tool
- Optional: Register to access more tracing functionalities