## **G-TEST GUIDE**

This is the documentation for the development of G-Test .

**Reference**: <https://docs.zephyrproject.org/latest/develop/getting_started/index.html>

Follow this guide to:

* Set up a command-line Zephyr development environment on Ubuntu[](https://docs.zephyrproject.org/latest/develop/getting_started/index.html#select-and-update-os)

**Ubuntu**

* sudo apt update
* sudo apt upgrade

## **Install dependencies**

1. [CMake](https://cmake.org/) - sudo apt-get install cmake
2. [Python](https://www.python.org/) - sudo apt install python3.8
3. [Devicetree compiler](https://www.devicetree.org/) - 1. sudo apt install snapd

2. sudo snap install device-tree-compiler

1. Adding Kitware APT repository

* wget <https://apt.kitware.com/kitware-archive.sh>
* sudo bash kitware-archive.sh

1. Use apt to install the required dependencies:

sudo apt install --no-install-recommends git cmake ninja-build gperf \

ccache dfu-util device-tree-compiler wget \

python3-dev python3-pip python3-setuptools python3-tk python3-wheel xz-utils file \

make gcc gcc-multilib g++-multilib libsdl2-dev libmagic1  
make gcc gcc-multilib g++-multilib libsdl2-dev libmagic1

1. Verify the versions of the main dependencies installed on your system by entering:

* cmake –version
* python3 –version
* dtc –version

**Ubuntu**

**Install within virtual environment**

1. Use apt to install Python venv package:

* sudo apt install python3-venv

1. Create a new virtual environment:

* python3 -m venv ~/zephyrproject/.venv

1. Activate the virtual environment:

* source ~/zephyrproject/.venv/bin/activate

1. Install west:

* pip install west

1. For git clone ssl certificate error

* export GIT\_SSL\_NO\_VERIFY=1

1. Get the Zephyr source code:

* west init --mr ~/zephyrproject v3.2.0
* cd ~/zephyrproject
* west update

1. Export a [Zephyr CMake package](https://docs.zephyrproject.org/latest/build/zephyr_cmake_package.html#cmake-pkg).

* west zephyr-export

1. Zephyr’s scripts/requirements.txt file declares additional Python dependencies. Install them with pip.

* pip install -r ~/zephyrproject/zephyr/scripts/requirements.txt

**Install Zephyr SDK**

1. Download and verify the [Zephyr SDK bundle](https://github.com/zephyrproject-rtos/sdk-ng/releases/tag/v0.16.4):

cd ~

* wget https://github.com/zephyrproject-rtos/sdk-ng/download/v0.16.4/ zephyr-sdk-0.16.4\_linux-x86\_64.tar.xz
* wget -O - https://github.com/zephyrproject-rtos/sdk-ng/releases/download/ v0.16.4/sha256.sum | shasum --check --ignore-missing

1. Extract the Zephyr SDK bundle archive:

* tar xvf zephyr-sdk-0.16.4\_linux-x86\_64.tar.xz

**Build the G-TEST**

* cd ~/zephyrproject/smart-filter-controller-embedded/gtest
* west build -p auto –b native\_posix

## **Coverage reports using the POSIX architecture**

**Reference** : <https://docs.zephyrproject.org/latest/develop/test/coverage.html>

16.west build -b native\_posix -- -DCONFIG\_COVERAGE=y

17./build/zephyr/zephyr.exe  
# Press Ctrl+C to exit

18.lcov --capture –directory ./ --output-file lcov.info -q --rc lcov\_branch\_coverage=1

19.genhtml lcov.info --output-directory lcov\_html -q --ignore-errors source --branch-coverage --highlight --legend