



# Module Software Integration Guide

User Guide



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## 1 Introduction

This package contains the module software library and an example integration. The library can be used to integrate the module software in custom hardware designs by changing the porting layer.

This example uses the [NUCLEO-L476RG](#) development board connected to a [SparkFun Pulsed Radar Breakout](#).

The electrical connections can be found in main.h or in the [Integration using STM32CubeIDE](#).

## 2 Package Overview

### 2.1 Package Contents

The package contains consists of the following folders

```
|_ include
|_ lib
|_ LICENCES
|_ out
|_ rule
|_ source
```

The include folder contains:

- Header files for the module software library
- Header files for the porting layer for the RSS library
- Header file for an open source printf implementation
- Configuration files for the STM libraries and drivers

The rule folder contains rules used by the make system.

The source folder contains the source file for the example integration.

The lib folder contains the RSS and module software libraries.

### 2.2 System Description

In order to run the module software an integration layer for the module software library and the radar library is provided with this example.

### 2.3 Memory Requirements

Total flash requirement for this example is approximately 205 kB. The example uses about 16 kB of RAM (8 kB data/bss and 8 kB stack), the remaining of the total available RAM is used for the heap. The heap usage depends on the selected range and service or detector.

## 3 Setting Up Development environment

This package is built using make and the arm gcc compiler. It also uses software package from STM. The instructions below assumes that Ubuntu 20.04 is used.

### 3.1 Install STM32Cube MCU Package

This software uses v1.17 of the [STM32Cube MCU Package for STM32L4 series and STM32L4 Plus series](#) package which needs to be installed and the “STM32CUBE\_FW\_L4\_ROOT” environment variable must be set to the installation directory e.g.:

```
unzip en.stm32cubel4_v1-17-0.zip
export STM32CUBE_FW_L4_ROOT=$PWD/STM32Cube_FW_L4_V1.17.0
```

### 3.2 Install Compiler

This software has been tested against the [GCC ARM Embedded 9-2020-q2-update](#) compiler which needs to be installed and the GNU\_INSTALL\_ROOT environment variable must be set to the installation directory e.g.:



```
tar xjf gcc-arm-none-eabi-9-2020-q2-update-x86_64-linux.tar.bz2
export GNU_INSTALL_ROOT=$PWD/gcc-arm-none-eabi-9-2020-q2-update/bin/
```

### 3.3 Install Make

In order to build the “make” command must be installed, e.g.:

```
sudo apt-get update
sudo apt-get install make
```

### 3.4 Build The Software

The software can now be build using the “make” command, e.g.:

```
$ make -j10
```

## 4 Run The Software

This package uses OpenOCD to run the software:

```
sudo apt-get install openocd
```

After this the module software can be flashed with

```
make flash_acc_module_server
```

And then started with:

```
make openocd_run
```



## 5 Disclaimer

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