

Datalogging the SensorTile through a PC

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Main components	
STEVAL-STLKT01V1	SensorTile development kit
STSW-STLKT01	Embedded software samples for SensorTile, including sensor data streaming via USB and BLE, data logging on SD card, audio acquisition and playback

Purpose and benefits

The purpose of this design tip is to implement a datalog of the sensors embedded in the SensorTile through the USB connection to the PC.

Description

The simplest way to connect the SensorTile is through Bluetooth via a portable device. It is possible to use the ST's mobile app "BlueMS", available for Android and iOS, to store the sensor data. In many cases, the requirement is to store the sensor data for a long period of time and with a precise timestamp.

This design tip is intended to help users to datalog the SensorTile quickly through a PC.

Getting the software

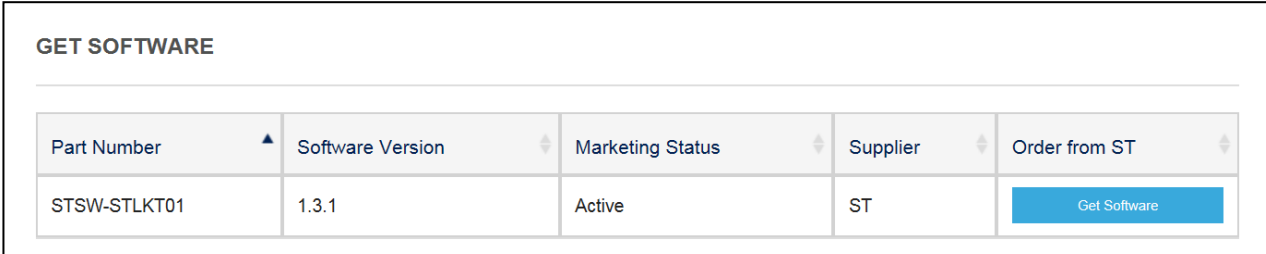
To obtain the required software, perform the following steps:

1. Navigate to the following page on the STMicroelectronics website:

http://www.st.com/content/st_com/en/products/embedded-software/evaluation-tool-software/stsw-stlkt01.html

2. Scroll down to the “GET SOFTWARE” section at the bottom of the page, and follow the instructions to download the “STSW-STLKT01” firmware package zip file (see Figure 1).

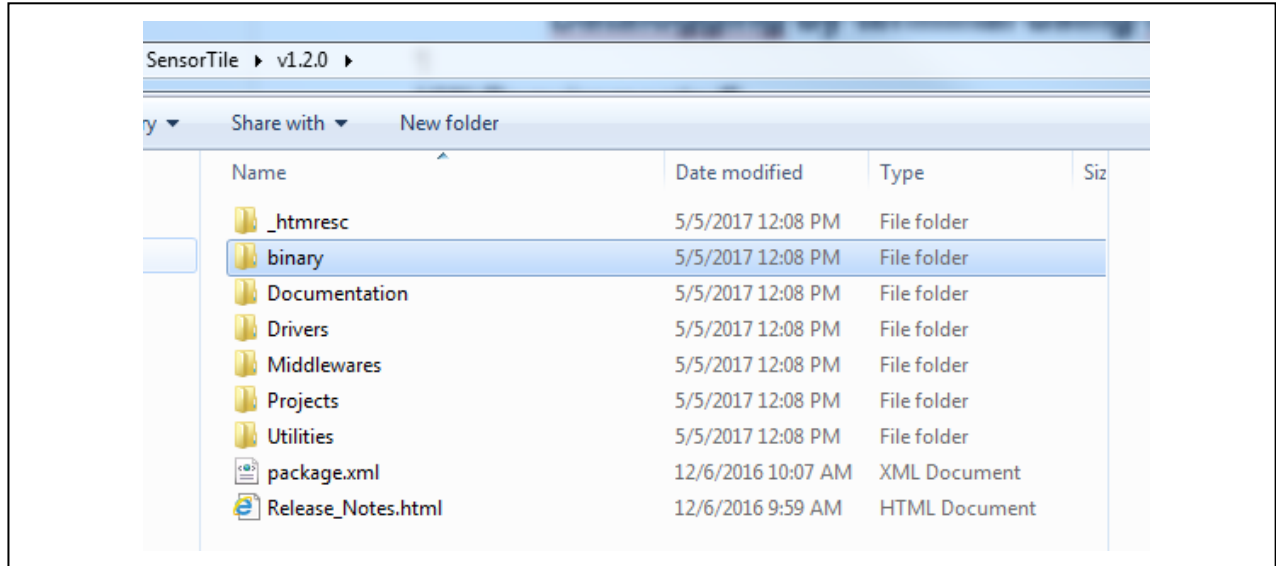
Figure 1. Screenshot - download the STSW-STLKT01 firmware package



Part Number	Software Version	Marketing Status	Supplier	Order from ST
STSW-STLKT01	1.3.1	Active	ST	Get Software

3. Unzip the file and open the “binary” directory (see Figure 2), then select the DataLog_USB.hex file.

Figure 2. Unzip the file and open the “binary” directory



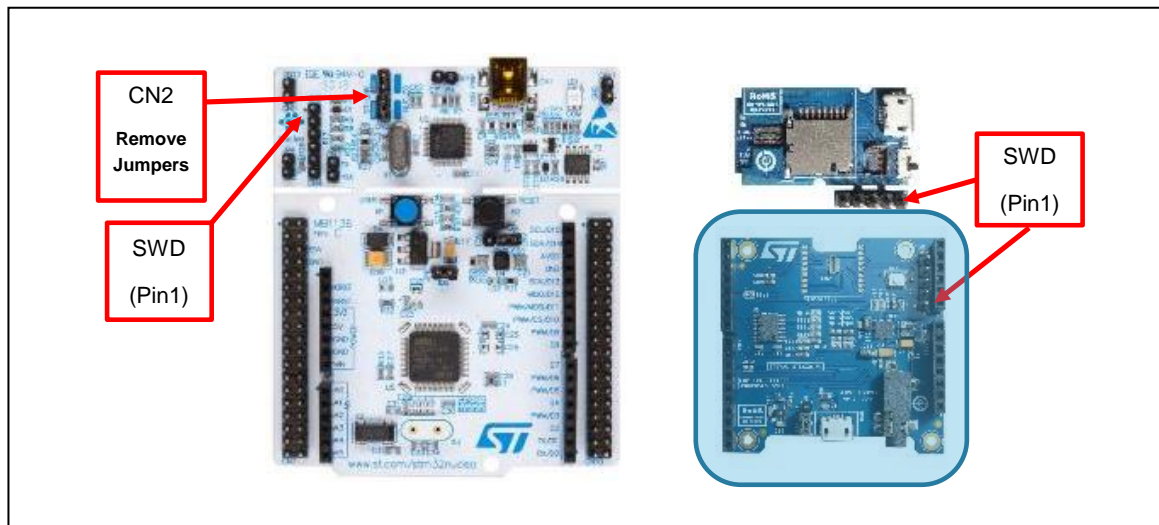
4. Open the file using the ST link Utility and program the file

Connecting the hardware

In order to program the SensorTile, connect an external ST-Link to the SWD connector on one of the cradles (5-pin flat cable included in the SensorTile kit), do the following:

- Using an STM32-Nucleo board that includes an ST-Link V2.1 in-circuit debugger/programmer, remove the CN2 Jumpers on the Nucleo board (see Fig.3)
- Connect the Nucleo board to the SensorTile cradle through the cable. Pay close attention to the polarity of the connectors: Pin 1 is identified by a circle on the PCB (Nucleo and SensorTile cradle expansion) or by the square shape of the soldering pad of the connector (SensorTile cradle).

Figure 3. Connection of Nucleo ST-Link to SensorTile



Terminal setup

A terminal window for the appropriate UART communication port (use the baud, data, parity and stop settings below) can be set up to enable the datalog through the PC.

After programming the SensorTile, use the configuration in Figure 3:

- Disconnect the Nucleo board, keeping the SensorTile connected to the PC.
- Check Windows® Device Manager . The SensorTile must be connected through the Virtual Com Port, as shown in Figure 4.
- Open the serial port and configure the terminal and the serial port as shown in Figure 5.

Figure 4. Device Manager Virtual Com Port connection

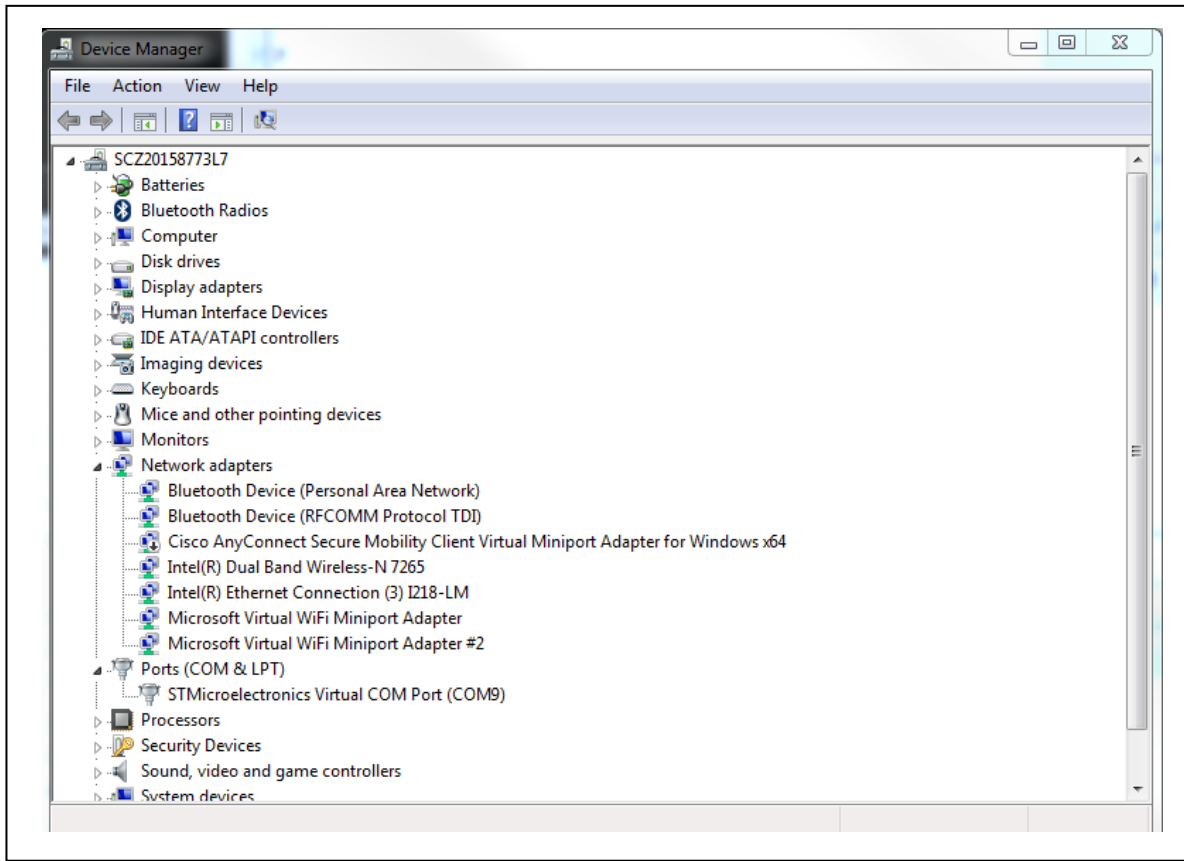
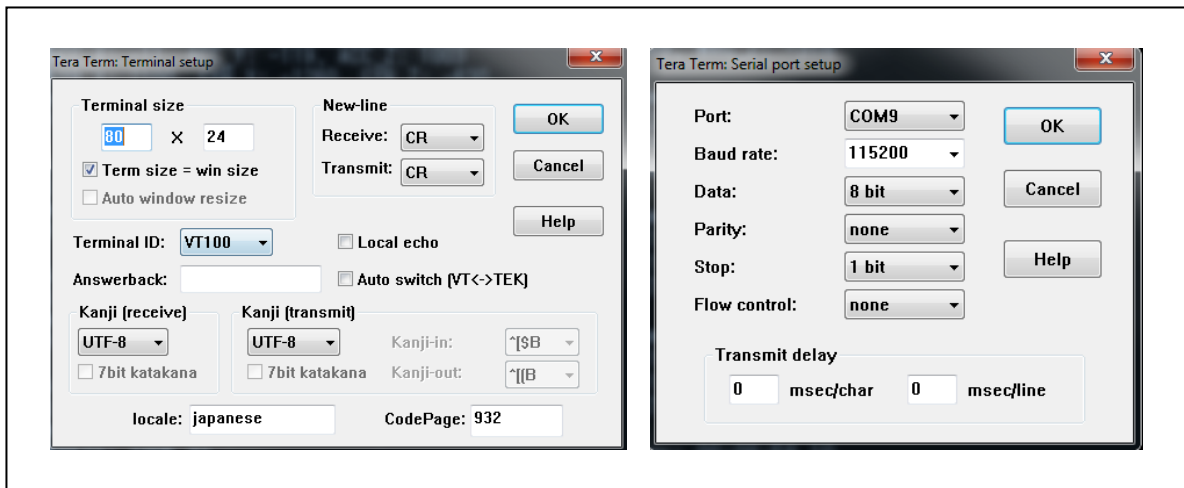


Figure 5. Terminal and the serial port setup



Data log

The datalog monitors the following sensor data and timestamp using the Nucleo cradle (see Figure 6):

- Accelerometer
- Gyroscope
- Magnetometer
- Pressure

The datalog monitors the following sensor data and timestamp using the portable cradle (see Figure 7):

- Accelerometer
- Gyroscope
- Magnetometer
- Pressure
- Humidity
- Temperature
- Battery status

Figure 6. Datalog using the Nucleo cradle

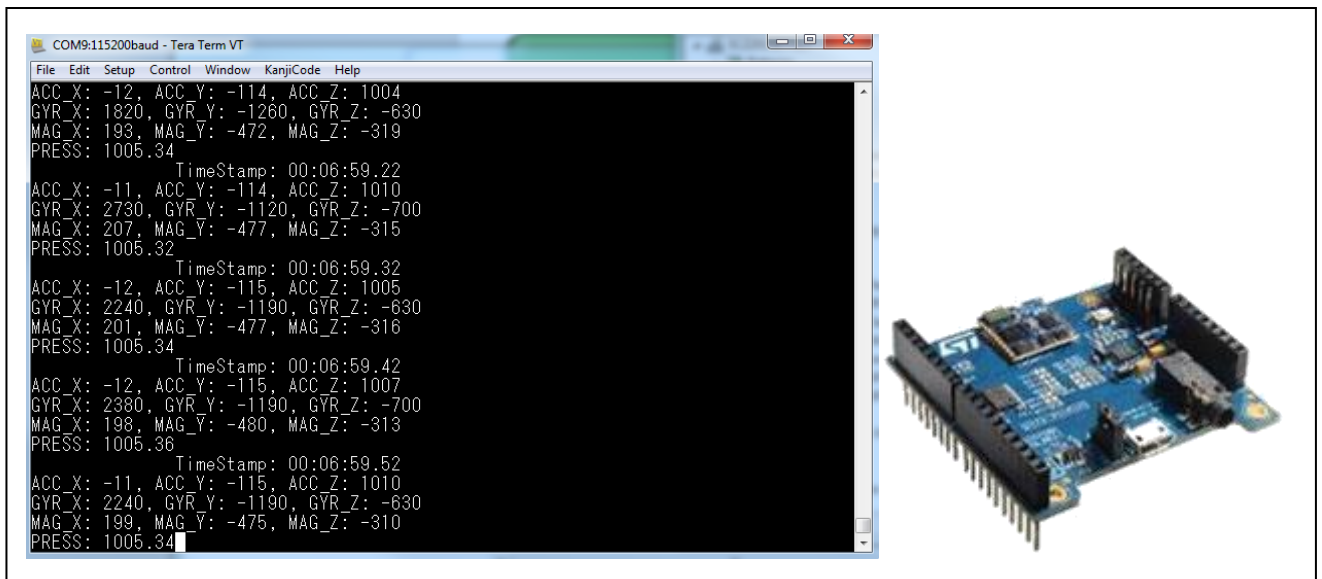
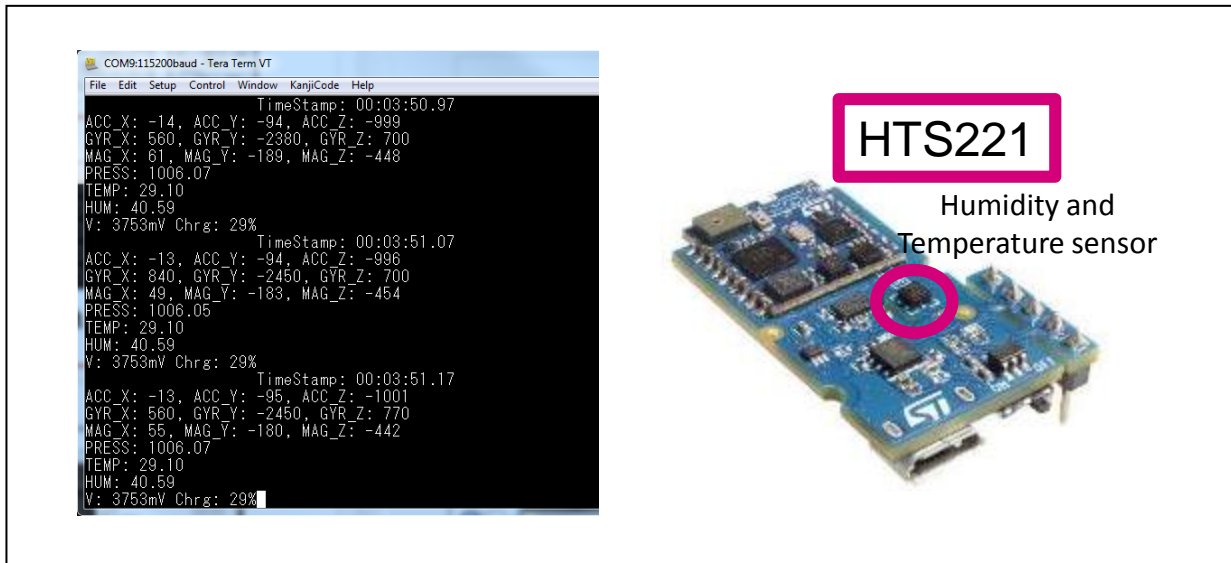


Figure 7. Datalog using the portable cradle



Support material

Related Documentation
User Manual UM2055: Getting started with the software package for Bluetooth low energy and sensors in BLUEMICROSYSTEM2
Data brief: STEVAL-STLKT01V1, SensorTile development kit
User Manual UM2101: Getting started with the STEVAL-STLKT01V1 SensorTile integrated development platform
User Manual UM0892: STM32 ST-LINK utility software description

Revision history

Date	Version	Changes
07-Dec-2017	1	Initial release

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