Running examples that use a SoftDevice

Before you can run more advanced examples that use *Bluetooth* or ANT, you must program the SoftDevice on the board.

After you programmed the SoftDevice, follow the steps described in Running the example to run an example that uses the SoftDevice. For example, test the Heart Rate Application, Broadcast, or BLE Heart Rate Collector Example examples.

Programming SoftDevices

The SoftDevice binary is located in folder `components\softdevice\`*`SoftDevice`*`\hex` in the SDK, where *SoftDevice* is the name of the SoftDevice. You can also download SoftDevices from **nordicsemi.com <http://www.nordicsemi.com>**. Note that ANT SoftDevices for the nRF52 Series are not distributed by Nordic Semiconductor. See the Running ANT examples on the nRF52 Series section for information about how to run examples that use these SoftDevices.

There are several methods to program the SoftDevice:

- Using nRFgo Studio
- From an example project within ARM Keil
- Using the GCC makefile of an example

nRFgo Studio

To program the SoftDevice using nRFgo Studio, perform the following steps:

1. Open nRFgo Studio.
2. In the Device Manager, select the nRF5 Development board that you are working with (identified by the SEGGER serial number).
3. Select the **Program SoftDevice** tab.
4. Click **Browse** and navigate to the SoftDevice file that you want to use.
5. Click **Program**.

nRFgo Studio will erase any existing SoftDevice and program the selected SoftDevice.

ARM Keil

To program the SoftDevice using an example project in Keil, perform the following steps:

1. Open an example project in Keil. The example must require a SoftDevice.
2. Instead of the default target, select the target to flash the SoftDevice, for example, **flash_s132_nrf52_2.0.0-7.alpha_softdevice**.
3. Click **Options for Target**.
4. Select the Debug pane and click the **Settings** button for the J-Link / J-TRACE Cortex.

5. Select the J-Link / J-Trace Adapter corresponding to the serial number that is printed on your device.
6. Click **OK** to close the dialogs.
7. In the main window, click **Download** to program the SoftDevice.

Keil will erase any existing SoftDevice and program the appropriate SoftDevice for the example.

GCC makefile

To program the SoftDevice using a GCC makefile, perform the following steps:

1. Open a command prompt in the folder that contains the makefile of an example. The example must require a SoftDevice.
2. Ensure that nrfjprog.exe is in the path, thus the path to nrfjprog.exe is part of the PATH environment variable. The makefile issues a call to the nrfjprog tool.
3. Run the following command: **make flash_softdevice**

Running the makefile will erase any existing SoftDevice and program the appropriate SoftDevice for the example.

Running ANT examples on the nRF52 Series

ANT SoftDevices for the nRF52 Series are not distributed by Nordic Semiconductor. You can download them from **thisisant.com <http://www.thisisant.com/developer/components/nrf52832>**.

There are no Keil or GCC targets to program these SoftDevices. You must therefore use nRFgo Studio to program them.

The SDK does not include the header files for the ANT SoftDevices for the nRF52 Series. Therefore you must add them to your project before you can compile your application. To do so, extract the downloaded zip file that contains the SoftDevice. If you are working with the zip version of the SDK, copy the SoftDevice headers to `components/softdevice/`*`SoftDevice`*`/headers`. If you are using Keil packs, copy the files into a `headers` subfolder in your example folder.

Make sure that ANT_LICENSE_KEY is uncommented in the `nrf_sdm.h` file that you copied. The included license key can be used for evaluation, but before releasing a product, it must be replaced with a valid commercial license key. For more information about licensing, see **thisisant.com <https://www.thisisant.com/developer/ant/licensing>**.

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