



# nRF51 DK

*Development Kit for Bluetooth Smart, ANT and 2.4GHz applications.*

## Product Overview

The nRF51 DK is a single-board development kit for *Bluetooth*<sup>®</sup> Smart, ANT and 2.4GHz proprietary applications using the nRF51 Series SoC. This kit supports both development for both nRF51822 and nRF51422 SoCs.

The kit is compatible with the Arduino Uno Revision 3 standard, making it possible to use 3rd-party shield that are compatible to this standard with the kit.

The kit supports the standard Nordic tool-chain software using Keil, IAR and GCC. The kit also supports ARM<sup>®</sup> mbed tool-chain for rapid prototyping and development using mbed's cloud-based IDE and tool-chain with an extensive range of open-source software libraries. Program/Debug options on the kit are Segger J-Link OB for standard tool-chain and CMSIS-DAP for mbed. The kit gives access to all I/O and interfaces via connectors and has 4 LEDs and 4 buttons which are user-programmable.

A range of software examples are available from the nRF51 Software Development Kit (SDK) to support Bluetooth Smart, ANT and 2.4GHz applications.

## KEY FEATURES

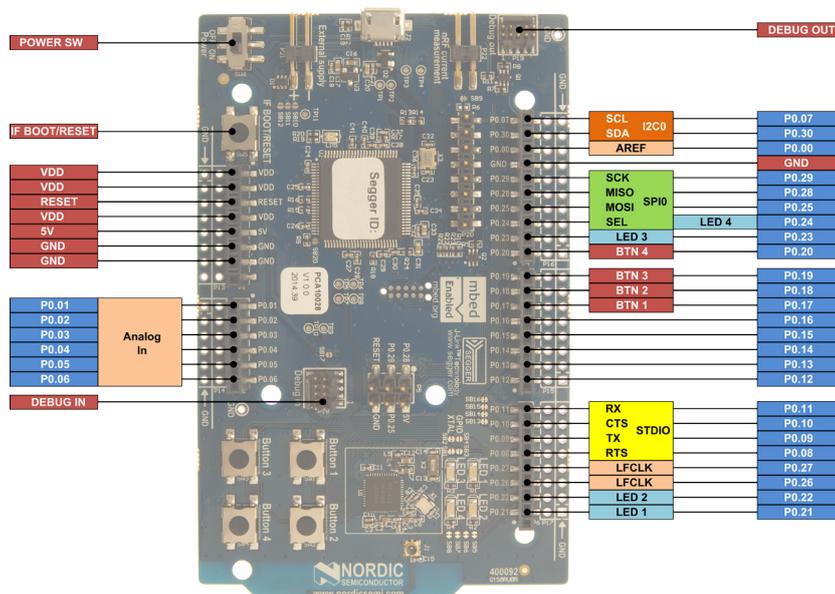
- Affordable, Rapid prototyping and development solution for nRF51 Series SoCs
- Kit supports both nRF51822 and nRF51422 development
- Supports Bluetooth Smart, ANT and 2.4GHz proprietary development
- Arduino Uno Rev. 3 compatible connector for use with 3rd party shields
- ARM mbed enabled
- All I/O and interfaces available via connectors
- Segger J-Link OB and ARM CMSIS-DAP Program/Debug supported
- Support for Program/Debug of external target boards
- Integrated PCB antenna
- Connector for RF measurements
- Pins for power consumption measurements
- Coin-cell battery holder
- 3.6v -1.6v, battery and USB, external

## APPLICATIONS

- Internet of Things (IoT) - Sensors and Hubs
- Wearables - Sensors and Hubs
- Accessories - Sensors and Hubs
- Desktop peripherals
- Remote controls
- Sports & Medical
- Smartwatch
- Smarthome sensors
- Toys
- Industrial sensors
- A4WP wireless charging control

## KIT CONTENT

- nRF51 DK board
- 2032 battery
- 5 nRF51 Series SoC samples





**nRF51 Series software architecture**  
 The nRF51 Series software architecture offers a clean separation between application code and Nordic's embedded protocol stacks (called Soft Devices). This means compile, link and run-time dependencies with the protocol stack and associated de-bugging challenges are removed. Application code can be developed and compiled independently of the protocol

stack. This simplifies overall development efforts and reduces the possibility, and complexity of bugs during development.

**SoftDevices**

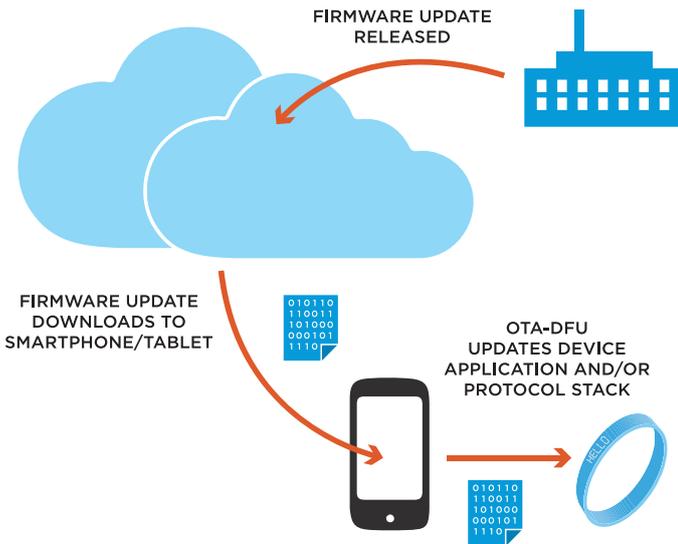
The nRF51 DK is supported by a range of protocol stacks. These Nordic protocol stacks are known as SoftDevices and complement the nRF51 Series SoCs. SoftDevices can support Bluetooth Smart, ANT and Bluetooth Smart/ANT combinations. SoftDevices are pre-compiled binary files for nRF51 Series SoCs and are available from Nordic Semiconductor as downloads. This brings maximum flexibility to application development and allows the latest stack version and associated features to be programmed into the nRF51 Series SoC.

**nRF51 DK compatible SoftDevices**

S110	Bluetooth Smart peripheral stack
S120	Bluetooth Smart 8-link central stack
S130	Bluetooth Smart concurrent central/peripheral/broadcaster/observer stack
S210	ANT/ANT+ 8 link stack
S310	Bluetooth Smart peripheral/ANT 8-link stack

**OTA-DFU**

nRF51 Series SoCs support an Over-The-Air Device Firmware Update (OTA-DFU) feature. This allows for wireless updates of application code and/or software stacks.



**nRF 51 Series Software Development Kit**

The nRF51 Software Development Kit (SDK) is available from Nordic Semiconductor to support the nRF51 Series SoCs. The nRF51 SDK contains a wide range of software modules, complete examples and useful utilities. The nRF51 SDK is a great starting point for beginning building your applications.

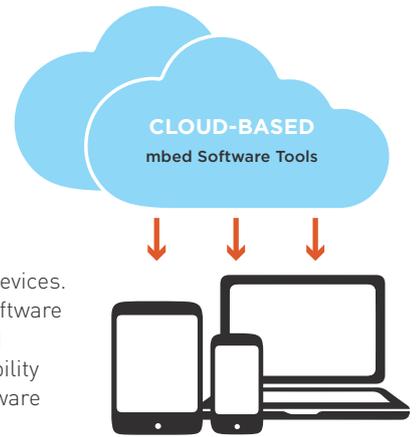
SoftDevices and the nRF51 SDK are available to download at [www.nordicsemi.com](http://www.nordicsemi.com)

The nRF51 DK is supported by a number of tool-chains. **Nordic offers support for the following:**

- Keil MDK
- IAR Workbench
- GCC
- ARM mbed

**About mbed**

Mbed is a platform for developing smart devices that are based on 32-bit ARM Cortex™-M microcontrollers. It is designed to provide a highly productive solution for rapid prototyping and product development, with a focus on connected Internet of Things devices. Mbed offers browser-based software development tools in the cloud allowing a high degree of flexibility in how you approach your software development.



**About Arduino Uno Rev 3 connector standard**

The Arduino Uno Rev. 3 is a popular HW format for simple, rapid prototyping using Arduino Uno compatible shields. Shields conforming to the Arduino Uno Rev. 3 standard can be used with the nRF51 DK.

**RELATED PRODUCTS**

nRF51822	Bluetooth Smart and 2.4GHz proprietary multi-protocol SoC
nRF51422	ANT/Bluetooth Smart multiprotocol SoC
nRF51 Dongle	USB Dongle for development and test of nRF51 Series SoC

**ORDER INFORMATION**

nRF51-DK	Development Kit for Bluetooth Smart, ANT and 2.4GHz applications
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**Distributor partners**

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