

## Adafruit Feather nRF52 Pro with myNewt Bootloader - nRF52832

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## DESCRIPTION

The **Adafruit Feather nRF52 Pro** is another Bluetooth Low Energy board for advanced projects and users who want to use a **fully open source Bluetooth Low Energy 5.0 stack**. It has a

Downloaded from [Arrow.com](#). native Bluetooth chip, the nRF52832, as well as built in USB Serial and battery charging! [We](#)

have other boards in the Feather family, check'em out [here](#).

This is a special Feather - unlike the rest of the Feather family, this board is not for use with **Arduino IDE**. Instead, it is for use with **Mynewt only**! We have programmed it with the Mynewt bootloader and updated the hardware to add an SWD connector and an additional DFU button. [If you want to use the nRF52 with Arduino IDE please check out the Bluefruit nRF52 Feather which works out-of-the-box with our Arduino board support package](#). This Feather is for advanced users only, you will be interacting with the Mynewt RTOS rather than Arduino, and you cannot easily go back-and-forth without an SWD programmer.

We have quite a few BTLE-capable Feathers (it's a popular protocol!) so check out our [BT Feather guide for some comparison information](#).

At this point, the tools that Mynewt relies on are really aimed at running on a **POSIX-type system** (Linux, OS X, Mingw etc.) Windows users can also make use of the [Docker container](#) available on the Mynewt website.

[Check out our awesome & detailed product guide for information about the Feather nRF52, getting set up and deploying your very own mynewt images](#)

This chip has twice the flash, SRAM and performance of the earlier nRF51-based modules, and can do a lot of heavy lifting. That extra processing power and memory mean you can now run an RTOS for fast development of complex projects. This board was designed to work with the [Apache Mynewt](#) operating system, which is released by the Apache Foundation under the permissive and commercial-friendly Apache license. Apache Mynewt includes a number of professionally written networking stacks (BLE 5.0, [OIC/OCF](#), etc.), development tools, and professional project management features like a secure bootloader that allows you to cryptographically sign firmware images and verify them during device updates.

The Adafruit Feather nRF52 Pro ships pre-programmed with the Mynewt serial bootloader that allows you to flash firmware to the device directly from the command-line using the on-board USB Serial converter and the 'newtmgr' tool, so you can get started right away with no additional hardware required. For more advanced debugging, however, you can use a Segger J-Link and the on-board SWD debug connector, which gives you access to a more powerful set of development tools and options.

We also have a custom Mynewt Manager application that we've written for iOS that allows you to perform over the air firmware updates, and get live updates of the tasks running in the task manager, or to see any statistics generated by the internal reporting systems that are part of the OS.

#### Features:

- ARM Cortex M4F (with HW floating point acceleration) running at 64MHz
- 512KB flash and 64KB SRAM
- **Built in USB Serial converter for fast and efficient programming and debugging**
- Bluetooth Low Energy compatible 2.4GHz radio (Details available in the [nRF52832](#) product specification)
- **FCC / IC / TELEC certified module**
- Up to +4dBm output power
- 1.7v to 3.3v operation with internal linear and DC/DC voltage regulators
- 19 GPIO, 8 x 12-bit ADC pins, up to 12 PWM outputs (3 PWM modules with 4 outputs each)
- Pin #17 red LED for general purpose blinking
- Power/enable pin
- Measures 2.0" x 0.9" x 0.28" (51mm x 23mm x 8mm) without headers soldered in
- Light as a (large?) feather - 5.7 grams
- 4 mounting holes
- Reset button
- SWD connector for debugging
- 100% open source firmware when used with [Apache Mynewt](#)

Bluetooth Low Energy is the hottest new low-power, 2.4GHz spectrum wireless protocol. In particular, it's the only wireless protocol that you can use with iOS without needing special certification and it's supported by all modern smart phones. This makes it excellent for use in portable projects that will make use of an iOS or Android phone or tablet. It also is supported in Mac OS X and Windows 8+.

To make it easy to use for portable projects, we added a connector for any of our 3.7V Lithium polymer batteries and built in battery charging. You don't need a battery, it will run just fine straight from the micro USB connector. But, if you do have a battery, you can take it on the go, then plug in the USB to recharge. The Feather will automatically switch over to USB power when it's available. We also tied the battery thru a divider to an analog pin, so you can measure and monitor the battery voltage to detect when you need a recharge.

## The Power of Bluefruit LE

The nRF52 Pro uses an nRF52832 chipset from Nordic, which can be used as both a main microcontroller and a bluetooth low energy interface. For most people, they'll be very happy to use the standard Nordic UART RX/TX connection profile - example code is provided! In this profile, the Bluefruit acts as a data pipe, that can 'transparently' transmit back and forth from your iOS or Android device. You can use our [iOS App](#) or [Android App](#), or [write your own to communicate with the UART service](#).

The board is capable of much more than just sending strings over the air! Thanks to the Apache Mynewt operating system, you have full control over how the device behaves, including the ability to define and manipulate your own [GATT Services and Characteristics](#), or change the way that the device advertises itself for other Bluetooth Low Energy devices to see.

### Use the Bluefruit App to get your project started

Using our Bluefruit [iOS App](#) or [Android App](#), you can quickly get your project prototyped by using your iOS or Android phone/tablet as a controller. This data can be read over BLE and processed directly by the nRF52 microcontroller

Comes fully assembled and tested, with a USB Serial bootloader that lets you quickly use it from the command line. We also toss in some header so you can solder it in and plug into a solderless breadboard. [Lipoly battery](#) and [MicroUSB cable](#) not included (but we do have lots of options in the shop if you'd like!)

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## TECHNICAL DETAILS

[Check out our awesome & detailed product guide for information about the Feather nRF52, getting set up and deploying your very own mynewt images](#)

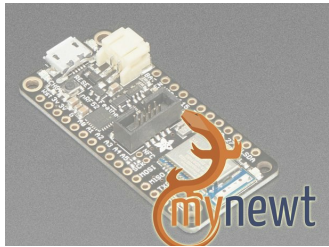
Product Dimensions: 50.8mm x 23.0mm x 7.0mm / 2.0" x 0.9" x 0.3"

Product Weight: 5.5g / 0.2oz



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## LEARN



### Adafruit nRF52 Pro Feather with Mynewt

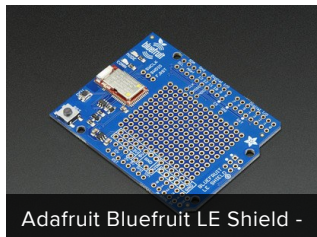
Take your Bluetooth LE projects to the next level with the mynewt RTOS

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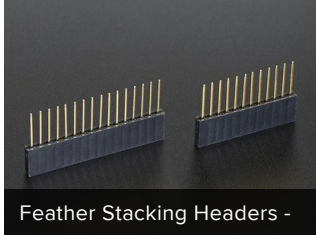
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Adafruit Feather 32u4



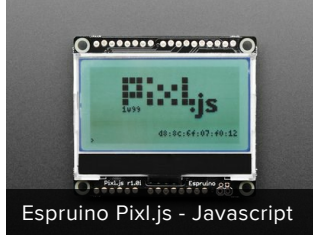
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makes little distinction between...  
work and play" - [L. P. Jacks](#)*

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