

Bluetooth® qualification process – nRF Connect SDK

Bluetooth LE Application note



Abstract

This application note outlines the declaration process for end-products incorporating u-blox Bluetooth Low Energy modules based on Nordic Semiconductor nRF5 chipsets open CPU applications using nRF Connect SDK.

Document information

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This document applies to the following products:

Product name
ANNA-B112 open CPU
BMD-3
NINA-B112 open CPU
NINA-B30
NINA-B40

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1 Bluetooth SIG

The Bluetooth Special Interest Group (SIG) is the standards organization that oversees the development of Bluetooth standards and the licensing of the Bluetooth technologies and trademarks to manufacturers. The organization cites the following mission statement [2]:

“In support of our vision and member companies, the Bluetooth SIG expands Bluetooth technology by fostering member collaboration to create new and improved specifications, drives global Bluetooth interoperability through a world class product qualification program, and grows the Bluetooth brand by increasing the awareness, understanding, and adoption of Bluetooth technology.”

1.1 Disclaimer

Although this document serves as guide for generating Bluetooth SIG declarations using u-blox Bluetooth Low Energy modules, final authority of the procedures that it includes rests with the Bluetooth SIG. A support request may need to be submitted to the SIG for any specific questions regarding the declaration process.

1.2 Bluetooth SIG membership

All companies that use Bluetooth technology are required to join the Bluetooth SIG. The Bluetooth SIG offers two membership levels – with varying benefits. The basic, or Adopter Membership, is free to join. Refer to the Bluetooth SIG website [2] for the latest membership information.

Membership is at a corporate level. But to use the procedures outlined in this document, even individual employees of a company organization can and should obtain unique login credentials under the company membership.

1.3 Bluetooth specification

Bluetooth Core specifications are consolidated into a single version, which means that all new product declarations fall under the same specification at the time of their submission. A product is not required to support all features within the specification, but those features that are included must properly identified.

You can download the latest version of the specification from the Bluetooth website [2] – without a login.

1.4 Bluetooth qualification

To use Bluetooth trademarks and market devices that employ Bluetooth technology, the Bluetooth SIG requires all products that enable Bluetooth technology to be properly qualified and declared. In this way, the Bluetooth SIG protects the brand and ensure that users enjoy a consistent experience. For end-products that use u-blox Bluetooth Low Energy modules, based on Nordic Semiconductor nRF5 chipsets, the process of qualification and declaration is simple. See also Bluetooth SIG Declaration ID fees [5].

1.5 Launch Studio website

Product declarations are submitted through the Bluetooth SIG Launch Studio website [3]. Membership login is required using the same credentials given for the Bluetooth SIG website [2].

2 Declaration process

2.1 Qualified design categories

A summary of the different Bluetooth Qualified Design categories featured in this chapter is given below. For further information about the design categorization and qualification process generally, visit the Bluetooth website.

All commercial products, subsystems and components that use Bluetooth technology must be fully qualified and listed as an End Product with the Bluetooth SIG.

Qualification is limited to designs for the following product types:

- **End Products.** Independently functional Bluetooth devices based on pre-qualified Host and Controller Subsystems are classified as End Products. They might also include subsystems that are related to Protocols/Services/Profiles or otherwise based on pre-qualified tested components that cover the layers in a functionally independent Bluetooth device. Products using nRF Connect SDK (NCS) [1] do not reference an End Product listing.
- **Subsystems.** There are three subcategories for Subsystems:
 - **Controller Subsystems.** Designs that must be combined with a complementary Host Subsystem to create the complete Bluetooth core architecture required for operation. For example, a USB commercial Bluetooth Dongle containing the RF-PHY and Link layer implementations, normally below the standardized HCI software and hardware interface of the Bluetooth stack. Products using NCS will use the SoftDevice¹ Controller Subsystem QDID provided by Nordic Semiconductor.
 - **Host Subsystems.** Designs that must be combined with a complementary Controller Subsystem. For example, a Bluetooth stack and application software running in the Zephyr real-time operating system (RTOS). Products using NCS will use the Host Subsystem QDID provided by Nordic Semiconductor.
 - **Profile Subsystems.** Designs that must be combined with a complementary End Product or Host Subsystem. For example, a product enhancement application implementing one or more of the adopted Bluetooth GATT profiles such as HID (human interface device) and DIS (device information service). Reference [4] is the adopted GATT profile page.
- **Components.** Designs without minimum layer support but can include any layer or combination of layers. Combined components, or components that are combined with one or more subsystems, are necessary parts for creating a new End Product or Subsystem qualified designs. Qualified Components are usually specific layers, for example the Nordic Semiconductor nRF52840 RF-PHY layer. Products using the nRF Connect SDK do not reference a Qualified Component listing.

2.2 QDID selection

2.2.1 Host and Controller Subsystems

Based on the features made available by the End Product, the identities of one or more corresponding Qualified Designs (QDID) can be referenced.

¹ Mainline Zephyr RTOS has a separate Bluetooth controller subsystem. The SoftDevice Controller Subsystem is named by Nordic Semiconductor to differentiate it from mainline Zephyr.



Table 1 shows the current listings at the time of publication. Refer to the compatibility matrix for each nRF5 CPU for the latest Bluetooth QDID listings.

Module	CPU [compatibility matrix]	SoftDevice Controller Subsystem	Host Subsystem	NCS version
ANNA-B112	nRF52832 [8]	170216	157450	V1.6.x
ANNA-B402	nRF52833 [9]	170216	157450	V1.6.x
BMD-30	nRF52832 [8]	170216	157450	V1.6.x
BMD-33	nRF52810 [6]	170216	157450	V1.6.x
BMD-34	nRF52840 [10]	170216	157450	V1.6.x
BMD-35	nRF52832 [8]	170216	157450	V1.6.x
BMD-36	nRF52811 [7]	170216	157450	V1.6.x
BMD-38	nRF52840 [10]	170216	157450	V1.6.x
NINA-B11	nRF52832 [8]	170216	157450	V1.6.x
NINA-B30	nRF52840 [10]	170216	157450	V1.6.x
NINA-B40	nRF52833 [9]	170216	157450	V1.6.x
NORA-B1	nRF5340 [11]	170219	157450	V1.6.x

Table 1: NCS subsystem QDIDs

2.2.2 Profile Subsystem

If the end-product includes adopted Generic Attribute (GATT) profiles or services, such as the HID (human interface device) and DIS (device information service), then one or more profile subsystems must also be selected for the End Product submission. A list of current GATT profiles is maintained at the Bluetooth SIG website [4].

-  If a suitable pre-certified Profile Subsystem does not exist for an adopted GATT profile, then testing is required only for that profile. Profile Subsystem testing is outside the scope of this document.
-  Custom profiles do not require a profile subsystem entry.

3 Qualification using Launch Studio

3.1 Getting Started

Log into the Bluetooth LaunchStudio [3]. At the “Getting Started” page, select the process with “No Required Testing”.

Getting Started

Launch Studio will help you complete the Bluetooth Qualification Process. For more information, see the [Program Reference Document \(PRD\)](#) and the [Declaration Process Document \(DPD\)](#).

[Get help adding a product to an existing qualification](#)

Ready to get started?

The first step is to determine how your product will be or was developed.

If you are:

- Using another member organization's qualified Bluetooth End-Product or Subsystem in your product without changes or additions to the Bluetooth capabilities
- Purchasing a product manufactured by a third party and distributing it with your company's name or logo
- Creating combinations involving only qualified Bluetooth Subsystem Products and/or qualified Bluetooth End Products provided no design changes were made during the combination

Steps

- 1 Basic Project Information
- List Products
- 2 Pay Declaration Fee
- 3 Declare & Submit

Start the Bluetooth Qualification Process with **No Required Testing**

Figure 1: Launch Studio “No Required Testing”

3.2 Project Basics

Give the End Product a name and enter the QDIDs from Table 1 that match the CPU of the module.

Sample NCS End Product Project Actions ▾

Project Basics | Product Declaration | Declaration ID | Review & Submit

Qualification Project with No Required Testing
[Get help on this step](#)

Project Name *

Referenced Qualified Design * Q ?

If you don't have this number, ask your supplier or [Search Listings](#).

157450 | Host Subsystem | NCS 1.4.1 host TCRL 2019-2 q-c | Nordic Semicondt ✕

170216 | Controller Subsystem | NCS SD controller multirole nRF52 qc | Nordic ! ✕

Save and continue to Product Declaration > Save All Changes

Figure 2: New project with QDIDs entered

Select “Save and continue to Product Declaration”.

3.3 Product Declaration

On the Product Declaration page, enter a listing date when this listing will be made public on the Bluetooth SIG product searches. The listing date may be up to 90 days in the future.

The screenshot shows the 'Product Declaration' step in a multi-step process. The 'Listing Date' field is highlighted with a red border and contains the text 'Required for submission, YYYY-MM-DD'. Below the field, a red error message reads 'Listing Date is invalid.' A red arrow points to a question mark icon next to the field. The page also includes a 'Product Listing' section with detailed instructions and a table header for product information.

Product Name	Product Website	Product Category	Publish Date	Archive Date	Model Number	Subset ID	Description
--------------	-----------------	------------------	--------------	--------------	--------------	-----------	-------------

Figure 3: Product Declaration listing date

After the date is entered, the “Add a Product” and “Import Products” buttons appear.

The screenshot shows the 'Product Declaration' page after the date has been entered. The 'Add a Product' and 'Import Products' buttons are now visible at the top of the page. The table header from Figure 3 is also present.

Product Name	Product Website	Product Category	Publish Date	Archive Date	Model Number	Subset ID	Description
--------------	-----------------	------------------	--------------	--------------	--------------	-----------	-------------

Figure 4: Product buttons appear after entering date

Select “Add a Product”. Enter the information and click “Save”.

Add/Edit products ✕

Product Full Name *
(Including Trademark)

Category

Product Website

Publish Date *
Certain product information becomes visible to the public in Bluetooth SIG's database at 00:00 UTC±00:00 Coordinated Universal Time (UTC) on the Publish Date you select. The Publish Date must be on or after the Listing Date, but no later than 90 days from the date this product is submitted.

Description *

Model Number *

Figure 5: Add a product

The product will now show on the product declaration page. Additional products in the same product family may be included at this time. All products listed in this submission must share the same Bluetooth functionality, e.g., Subsystem versions and GATT features.

Product Name	Product Website	Product Category	Publish Date	Archive Date	Model Number	Subset ID	Description
NCS Widget	www.mywebsite.com	Unique Products	2021-09-30		Widget 001		Widget based on NCS ✎ Edit 🔄 Duplicate 🗑 Delete

Figure 6: Product list

Click on “Save and continue to “Declaration ID”.

3.4 Declaration ID

Select a previously purchased Declaration ID², then click on “Save and continue to Review”.

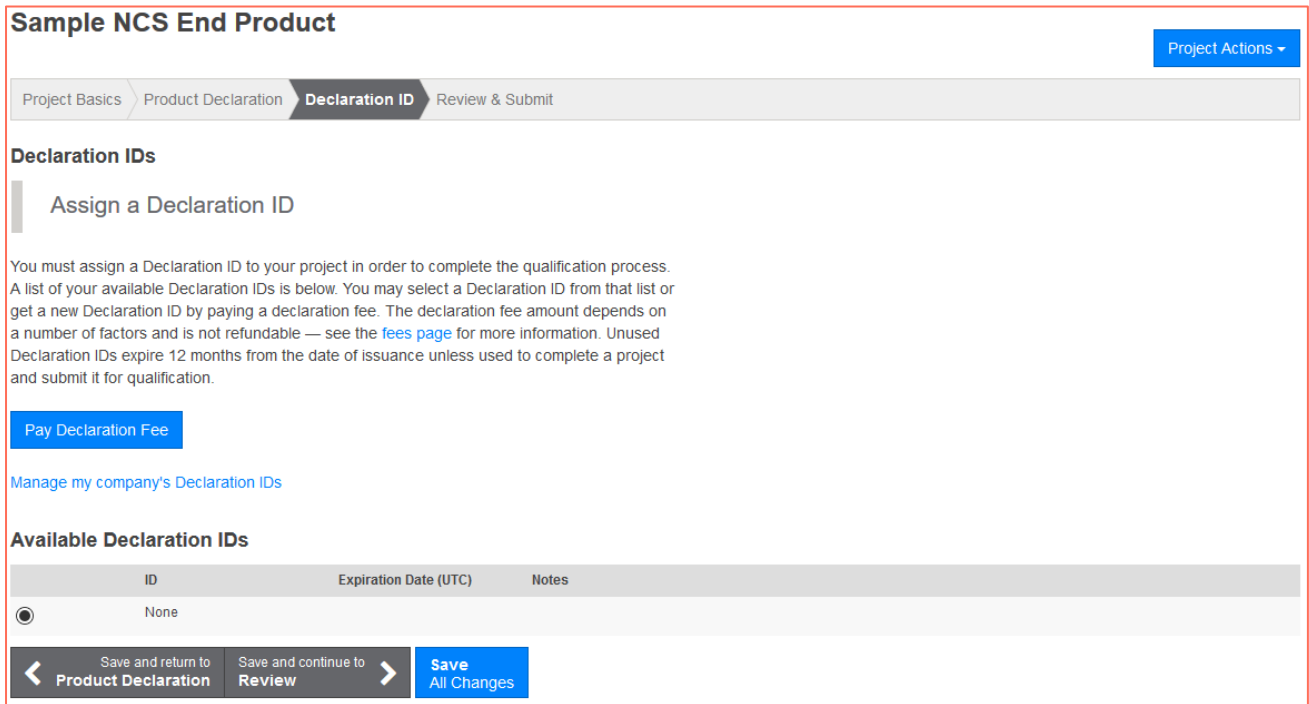


Figure 7: Select Declaration ID

² The test account used to generate the images did not have an available Declaration ID.

3.5 Review and submit

Review the information presented. Agree to the submission terms and select “Signature Confirmed”.

Sample NCS End Product
Project Actions ▾

Project Basics Product Declaration Declaration ID **Review & Submit**

Review

Review the product listings and submit your product(s) for qualification.

Please carefully review all listing information below for accuracy, and use the links below to correct any errors.

[Get help on this step](#)

Project Status Notes

Project Step	Status	Description
Referenced Designs	✔	Complete
Product Listing	✔	Complete
Declaration ID	❗	Assign a Declaration ID

Project Details

Project Name	Sample NCS End Product	Edit
Referenced Qualified Design(s)	157450 170216	Edit
Listing Date	2021-09-30	Edit
Declaration ID		Edit
Product Listing(s)		Edit

Name	Website	Category	Publish Date	Model Number	Description
NCS Widget	www.mywebsite.com	Unique Products	2021-09-30	Widget 001	Widget based on NCS

Member Company

Member Company	u-blox AG	
Declaring Member Contact / Listing Contact Person	Name	Bob Recny
	Address	2601 25th ST SE Suite 200
	City	Salem
	State	OR
	Country	United States
	Postal Code	97302

Complete the Project and Submit Product(s) for Qualification

All status alerts must be resolved before submitting a project. See above "Project Status" section.

By typing my name or other symbol of my signature into the "Signature" field below, I agree on behalf of u-blox AG ("Company") to [Bluetooth Launch Studio Terms of Use](#), and I make the following representations and warranties personally and on behalf of Company. The following representations and warranties, together with all project information and the [Bluetooth Launch Studio Terms of Use](#), are the Supplier Declaration of Conformity and Declaration of Compliance described in the [Program Reference Document \(PRD\)](#) and [Declaration Process Document \(DPD\)](#).

I am authorized by Company to submit all of the information and materials included in this project and all information and materials are true, complete, and accurate.

Company does not, by its governing documents or other applicable law, require more than one signatory, a stamp or seal, or a witnessed signature to be legally bound.

I agree on behalf of Company to contract in English and electronically, and adopt the characters and symbols input in the signature field below as my signature, with the same effect as an ink signature.

The products included in this project are owned by Company and, if marketed or distributed, are done so under a name that uniquely identifies Company as the source of the Product.

The product(s) included in this project and the corresponding Qualified Designs comply with the [Bluetooth Launch Studio Terms of Use](#) and the versions of the Bluetooth Specifications referenced in the project.

If any of the foregoing is not correct or you do not agree, you must exit this form without signing.

Signature:

Save & Exit without Submitting
Signature Confirmed - Complete Project & Submit Product(s) for Qualification

Submit your project and documentation to the Bluetooth SIG.

Figure 8: Submission information and authorization


Appendix

A Glossary

Abbreviation	Definition
Bluetooth SIG	Bluetooth Special Interest Group
CPU	Central Processing Unit
DIS	Device Information Service
End-product	The product being declared with the Bluetooth SIG
End Product QDID	The QDID that is the result of this process for the end-product
GATT	Generic Attribute Profile
NCS	nRF Connect SDK
QDID	Qualified Declaration Identification
SoftDevice Controller Subsystem	Nordic Semiconductor branded and declared Bluetooth stack

Related documentation

- [1] Nordic Semiconductor, [nRF Connect SDK](#)
- [2] [Bluetooth SIG website](#)
- [3] [Bluetooth Launch Studio website](#) (login required)
- [4] [Bluetooth GATT profiles](#)
- [5] [Bluetooth SIG Declaration ID fees](#)
- [6] Nordic Semiconductor, [nRF52810 Bluetooth compatibility matrix](#)
- [7] Nordic Semiconductor, [nRF52811 Bluetooth compatibility matrix](#)
- [8] Nordic Semiconductor, [nRF52832 Bluetooth compatibility matrix](#)
- [9] Nordic Semiconductor, [nRF52833 Bluetooth compatibility matrix](#)
- [10] Nordic Semiconductor, [nRF52840 Bluetooth compatibility matrix](#)
- [11] Nordic Semiconductor, [nRF5340 Bluetooth compatibility matrix](#)

 For product change notifications and regular updates of u-blox documentation, register on our website, www.u-blox.com.

Revision history

Revision	Date	Name	Comments
R01	08-Nov-2021	brec	Initial release

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