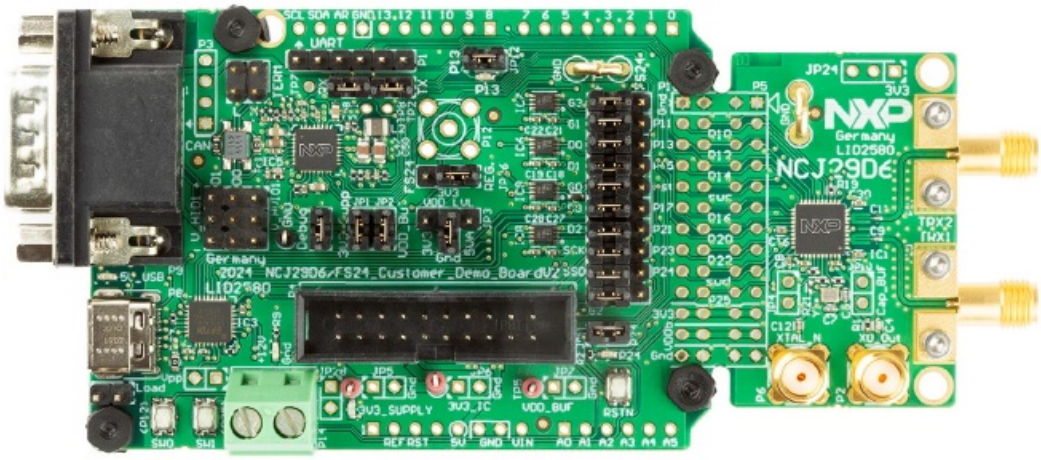
Contents

NXP NCJ29D6 Demo Board



Product Information

Specifications

- Product: NCJ29D6 UWB chip
- Manufacturer: NXP Semiconductors
- Package Contents:
  - NCJ29D6 demo board
  - Latest drivers

- Software Development Kit (SDK)
- Multiple examples
- Testware application software

Product Usage Instructions

Getting the Hardware
This section lists the hardware components needed to run the NCJ29D6 Testware application examples.

NCJ29D6 Demo Board Setup
The NCJ29D6 demo board includes main interfaces such as CAN, UART, TRX2, USB-C, and SWD. It operates in two communication modes: as a USB device connected to a PC or within a CAN bus network.

UWB Antenna Types
NXP offers different UWB antenna boards that can be used with the NCJ29D6. Customers can also connect their own antennas using the SMA connector.

Document information

Information	Content
Keywords	NCJ29D6, Demo Board, Customer Support Package, Secure Files, Software Release
Abstract	This document describes how to get started with the customer support package of NXP's NCJ29D6 UWB chip. It describes the hardware and the software provided by NXP, that is required to run the NCJ29D6 UWB demonstration applications.

Introduction

This document explains how to get started with the NCJ29D6 customer support package. The package includes the NCJ29D6 demo board, the latest drivers, a comprehensive Software Development Kit (SDK), multiple examples, and a Testware application software. The demo board is delivered with the Testware application preflashed on the NCJ29D6. It can be connected with a USB-C cable to control the NCJ29D6.

This document is structured as follows:

- Section 2 provides an overview of the hardware components required to perform ranging and radar.
- Section 3 details the registration process to access the documentation.
- Section 4 describes the process from creating a software account to downloading the software. NXP suggests using the latest software version available.

  Note: Download the latest version of this document at **https://www.nxp.com/products/NCJ29D6**.

Getting the hardware

This section lists the hardware components needed to run the NCJ29D6 Testware application examples. The package includes a NCJ29D6 demo board (LID2580) with a soldered IC is shown in Figure 1. The application examples require either one or two NCJ29D6 demo boards. The two possible demo setups are explained in Section 2.3 and in Section 2.4.

NCJ29D6 demo board setup

Figure 1 shows the demo board with the main interfaces.

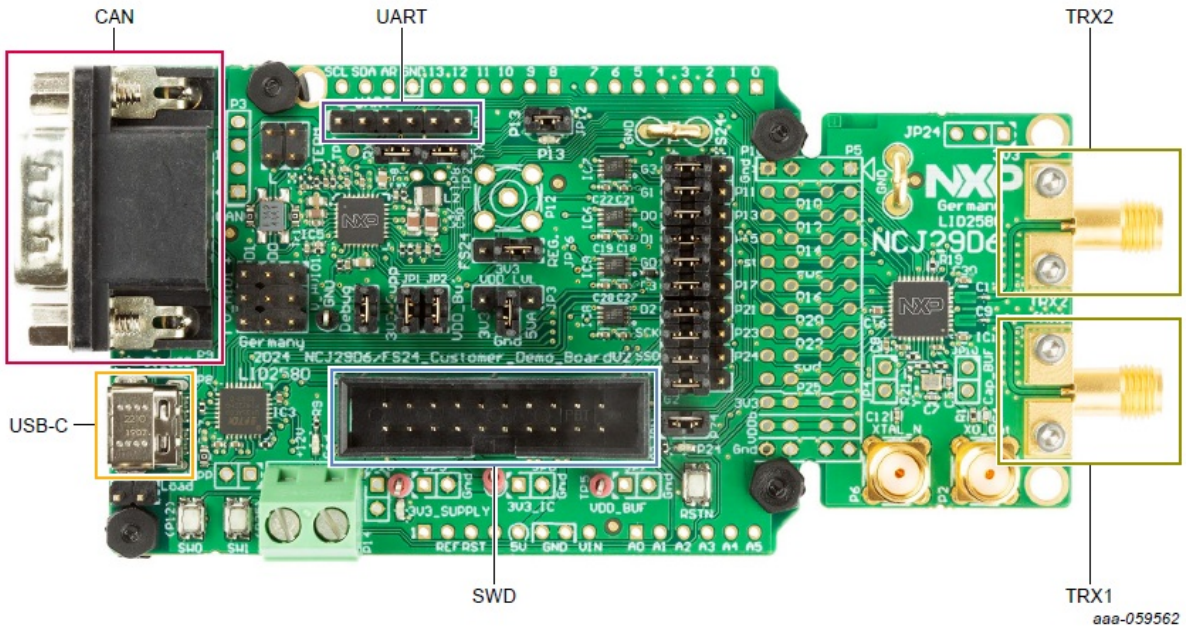


Figure 1. NCJ29D6 demo board with main interfaces

- **CAN:** Sub-D9 connector and pinheader to power the board and to connect it to a CAN bus network
- **USB-C:** Power the board and connect to a PC via the integrated QSPI to USB adapter
- **UART:** Pinheader to connect UART and 5 V board supply
- **SWD:** Debug interface for flashing and debugging of NCJ29D6
- TRX1: Antenna connector 1
- TRX2: Antenna connector 2

The device is designed to operate in two different communication modes. It can either run as a USB device connected to a PC or as a device within a CAN bus network. For more details on general device features and parameters, refer to the UM12152 LID2580 NCJ29D6 & FS24 customer demo board user manual [3]. The LID2580 NCJ29D6 customer demo board user manual is part of the NCJ29D6: Demo board Release Package [1] available via the product website of NXP at **https://www.nxp.com/products/NCJ29D6**.

The NCJ29D6 demo board and the antenna boards, see Section 2.2, are available on the product website of NXP **https://www.nxp.com/products/NCJ29D6**. Figure 2 shows a snippet from the website with available hardware components that can be ordered.

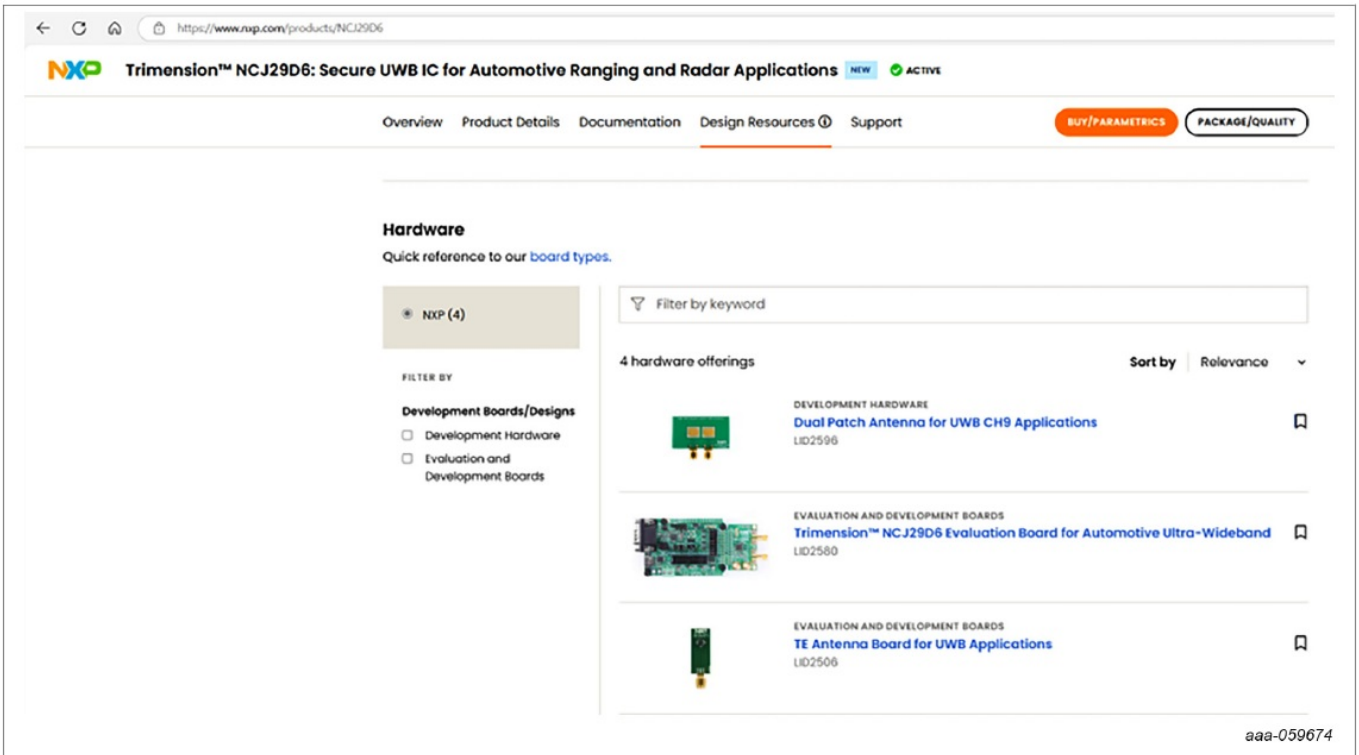


Figure 2. Product website:
https://www.nxp.com/products/NCJ29D6

UWB antenna types

The different NXP UWB antenna boards are shown in Table 1. NXP suggests using either one of these antenna boards to have a common setup on the customer and NXP side. Via the SMA connector customers can connect their own antennas, too.

Note: Antenna boards are available on **https://www.nxp.com/products/NCJ29D6**.

Table 1. UWB antenna types

Type	Application	Image
Dual patch antenna board for UWB CH 9 applications[1]	Ranging, radar and AoA	
TE antenna board[1]	Ranging and radar	

1. **CAUTION:** This product has not undergone formal electromagnetic compatibility (EMC) assessment. It is the responsibility of the user to ensure that any finished assembly complies with applicable regulations on EMC

interference. EMC testing, and other testing requirements for Consumer Electronics (CE) are the responsibility of the user.

Note: The Vivaldi antenna that is also listed on the website, will be discontinued, and is not mentioned in this document.

Hardware setup for ranging

For the ranging setup the following components are needed:

- 2x NCJ29D6 demo boards
- 2x TE antenna boards
- 2x USB-C to USB-A cables
- 1x PC with Windows 10 (or higher) installed

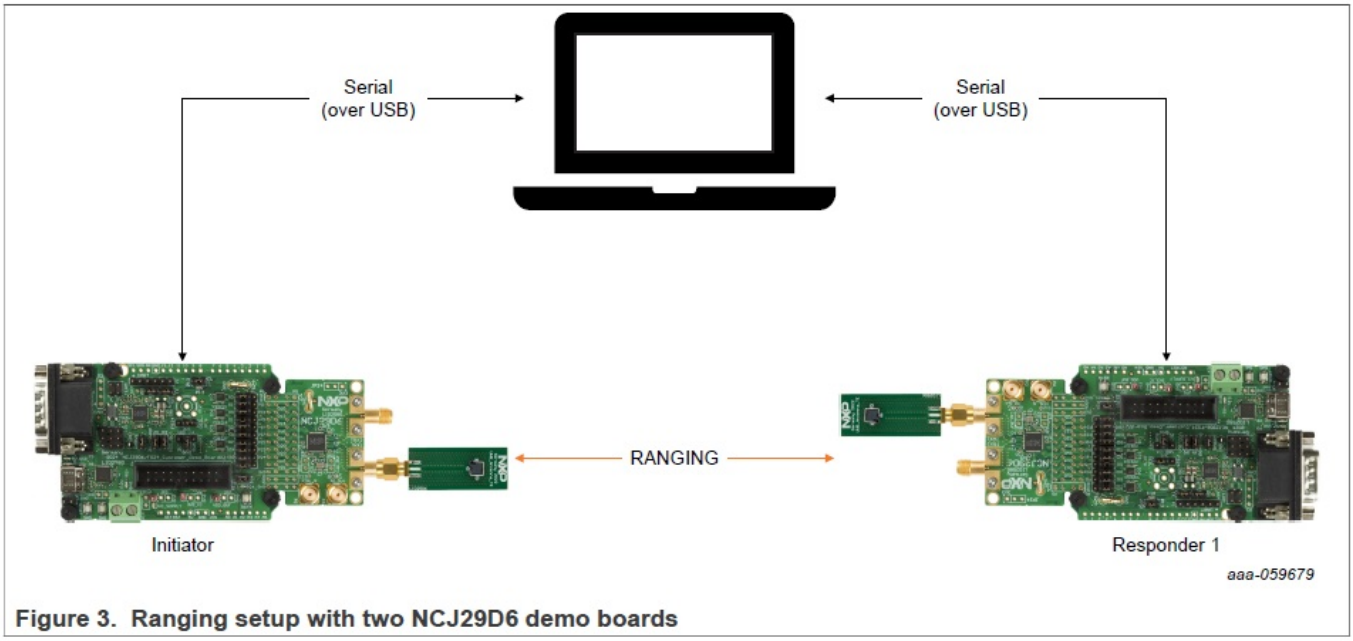


Figure 3. Ranging setup with two NCJ29D6 demo boards

To run the ranging demo, attach the TE antenna to the TRX1 (pin P20) SMA-connector on each demo board as shown in Figure 3. Connect the USB-C to USB-A cables to the devices and the PC, respectively. Refer to the document NCJ29D6 Quick Start Guide [2] on how to get started with the first customer application support (CAS).

Hardware setup for radar

For the radar setup the following components are needed:

- 1x NCJ29D6 demo board
- 1x Dual patch antenna board
- 1x USB-C to USB-A cable
- 1x PC with Windows 10 (or higher) installed

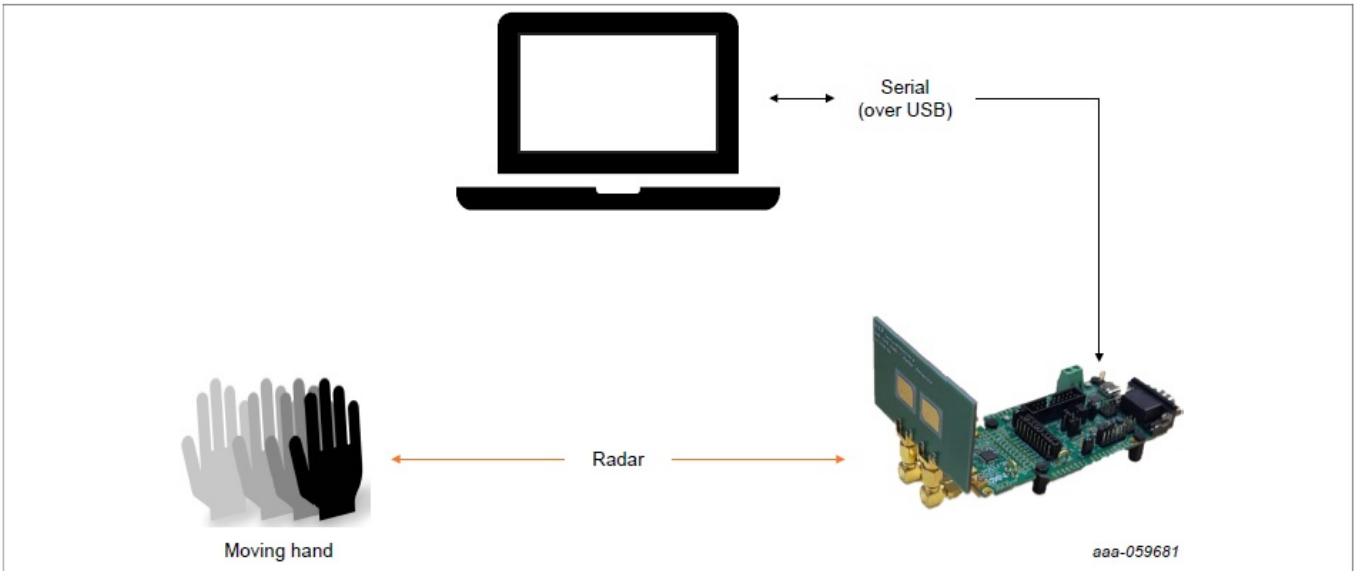


Figure 4. Radar setup with one NCJ29D6 demo board

To run the radar demo, attach the dual patch antenna on the demo board as shown in Figure 4. Then, connect the USB-C to USB-A cable to the device and the PC. For the radar, refer to the document NCJ29D6 Quick Start Guide [2] on how to get started with the first radar CAS example.

Getting the latest documentation

The latest documentation for the NCJ29D6, such as data sheet, user guide, and application notes, are available for download from NXP's website (**https://www.nxp.com**) in the Secure Files page (My NXP Account → Secure Files) and also on the product website (**https://www.nxp.com/products/NCJ29D6**). If you do not have an NXP account yet, you are able to download only the public documents from the product website as shown in Figure 5.

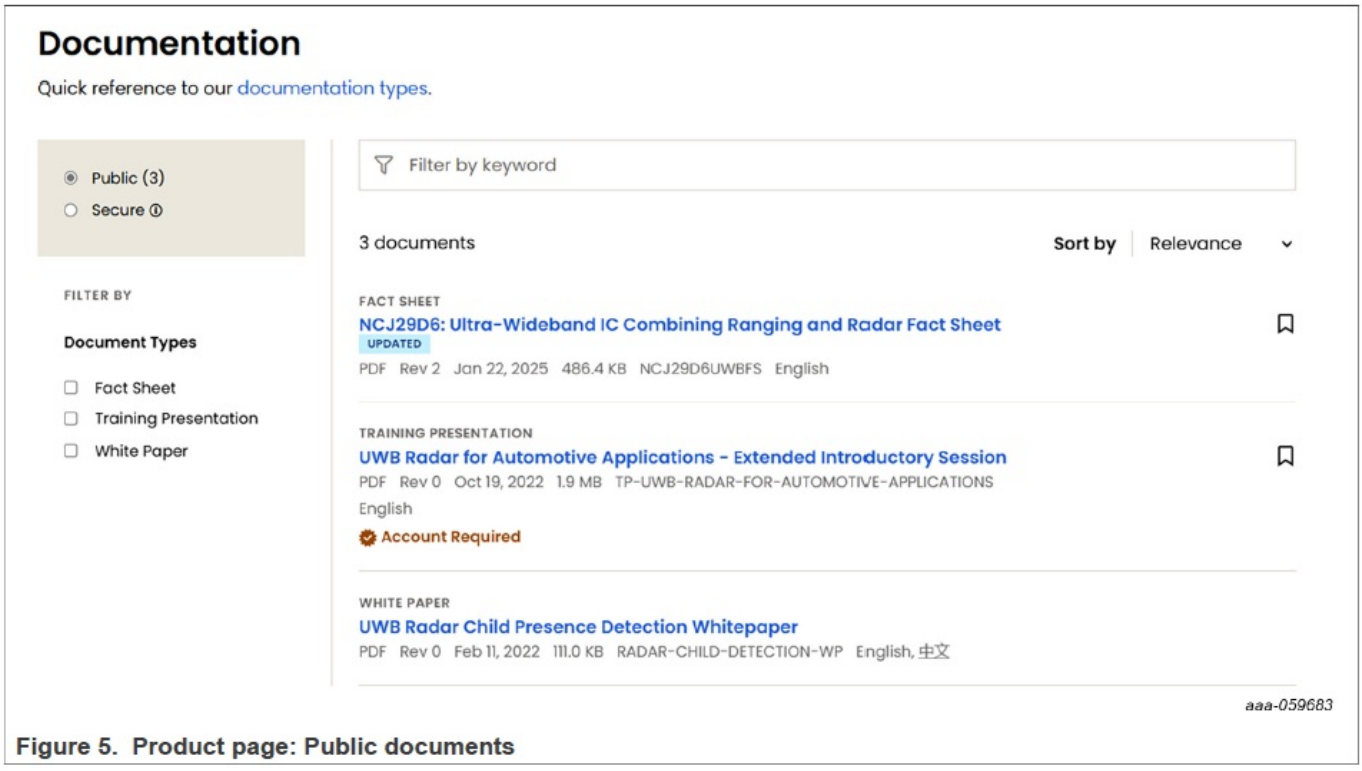


Figure 5. Product page: Public documents

In Figure 6, no other documents are listed under the Secure section without logging in with an nxp.com account.

Figure 6. Product Page: Not registered yet

Secure Files: Create a new user account
To obtain access to the Secure Files, create an account as a first step as shown in Figure 7. UM12283

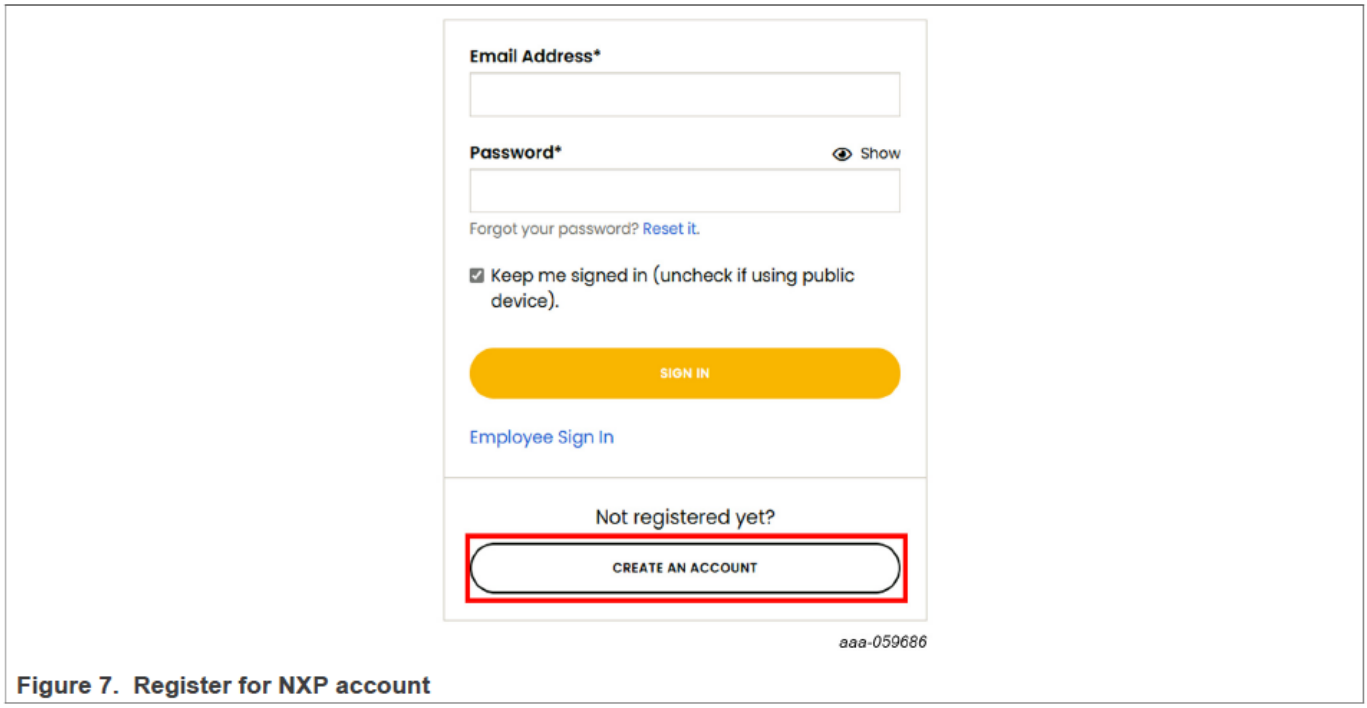


Figure 7. Register for NXP account

Note: Use a valid business email to get access to the secure files.

How to access secure information: Request access rights
Once the account is created, you must request secure access rights to obtain access to the secure files by navigating to the My NXP Account → Your Account (see Figure 8).

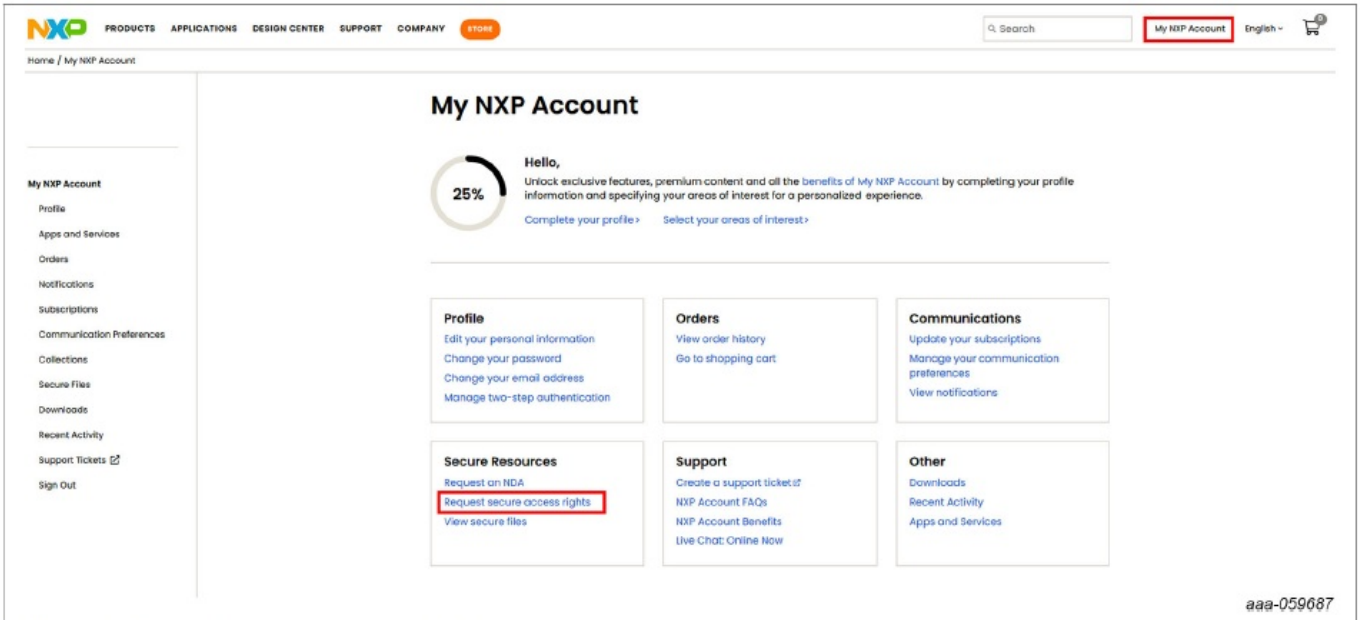


Figure 8. Request secure access rights

You are redirected to fill out the secure access rights form, see Figure 9, which provides NXP with information about your company and your point of contact. The NCJ29D6 documents can only be shared under a nondisclosure agreement (NDA). Therefore, it is mandatory to upload an NDA for obtaining secure access rights. If you have not signed an NDA with NXP yet, click the Request an NDA with NXP button, as can be seen in Figure 9.

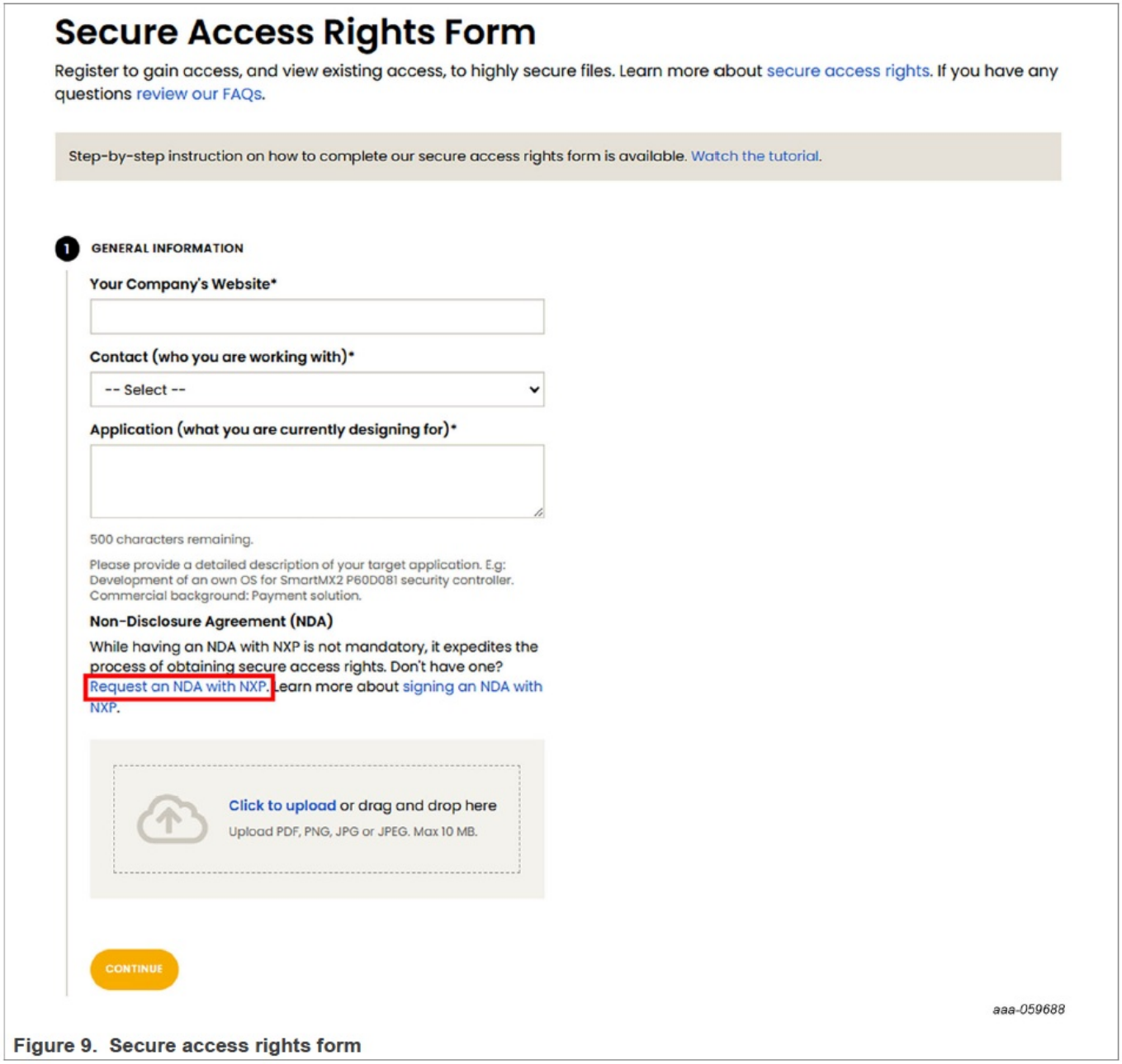


Figure 9. Secure access rights form

You are forwarded to the NDA form. Provide all available and relevant information and submit your request.

After your request is processed, you will be contacted by the NXP NDA team.
Once you have filled out the Secure Access Rights Form as well as uploaded the NDA, you will be redirected to the AREAS OF INTEREST (see Figure 10) to provide your intrested areas on which you would like to gain secure access rights. Select Secure Car Access under the Security Authentication tab, in order to get access to the NCJ29D6 secure files. Upon completion of this form, you will receive a confirmation email and your application will be reviewed.

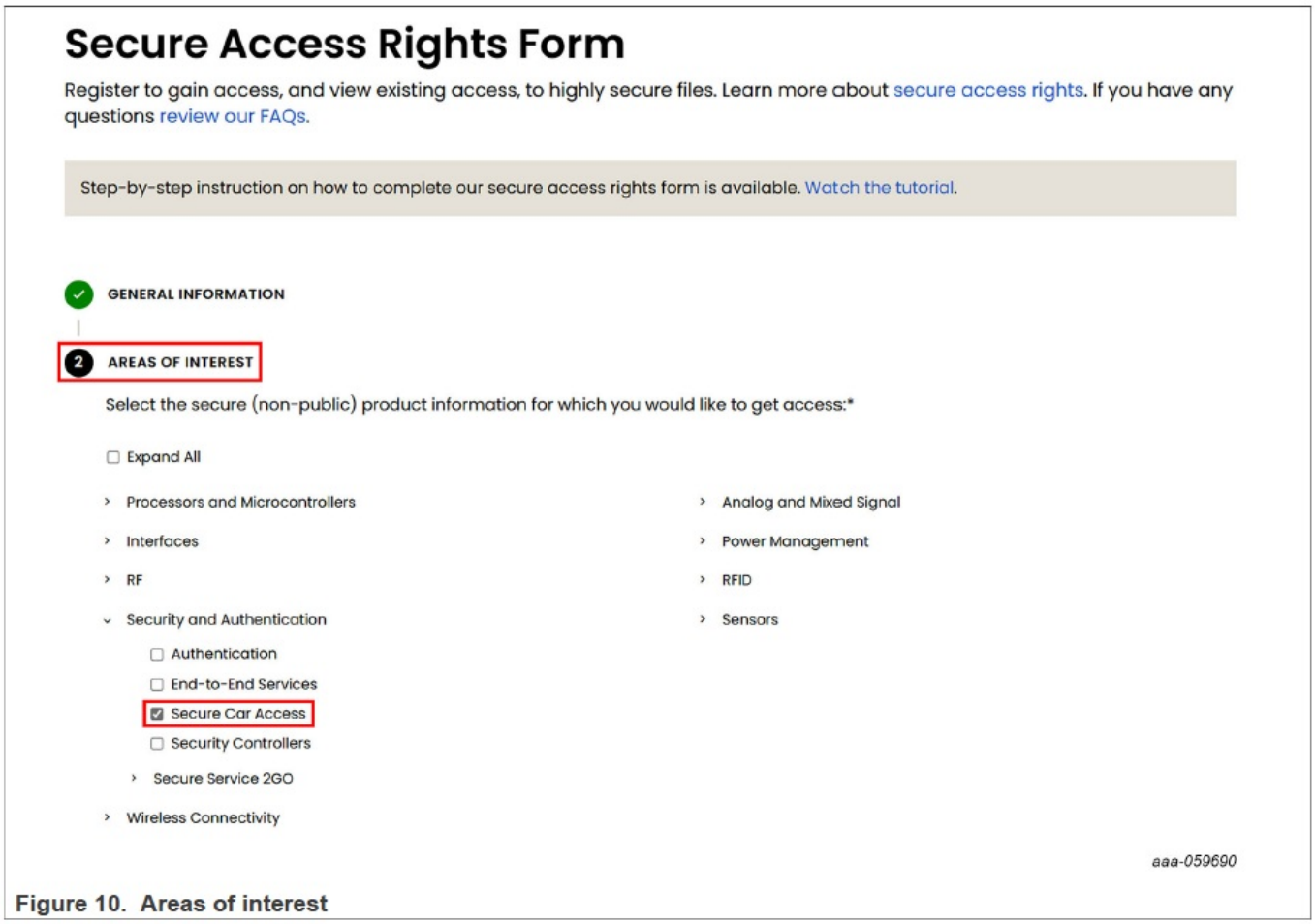


Figure 10. Areas of interest

Secure Files: Access content

After submitting your application, you will be redirected to the page where you started the request. Your application will show one of the three status listed below:

- In Progress – once you have requested secure access rights for secure information, your request is subject to review. During this time, you will see “in progress” as the status for your request. Furthermore, you will receive an email confirming your request was received and is in review.
- Declined – if it has been determined that you are ineligible to receive secure access rights to secure information, you will receive an email notifying you of this decision. Note that you may resubmit a request even if you have been declined previously.
- Granted – if your request is approved, you have immediate access to the secure information for which you requested secure access rights. In order to access secure files, you have the possibility to navigate to the My NXP Account → Secure Files (see Figure 11). Here, you select the Product Category UWB Trimension or directly search for the name of the product, NCJ29D6. Most of the files can only be viewed with a valid NDA (see Section 3.2 to request NDA) and therefore access to each file needs to be requested. In Figure 11 show the search result.

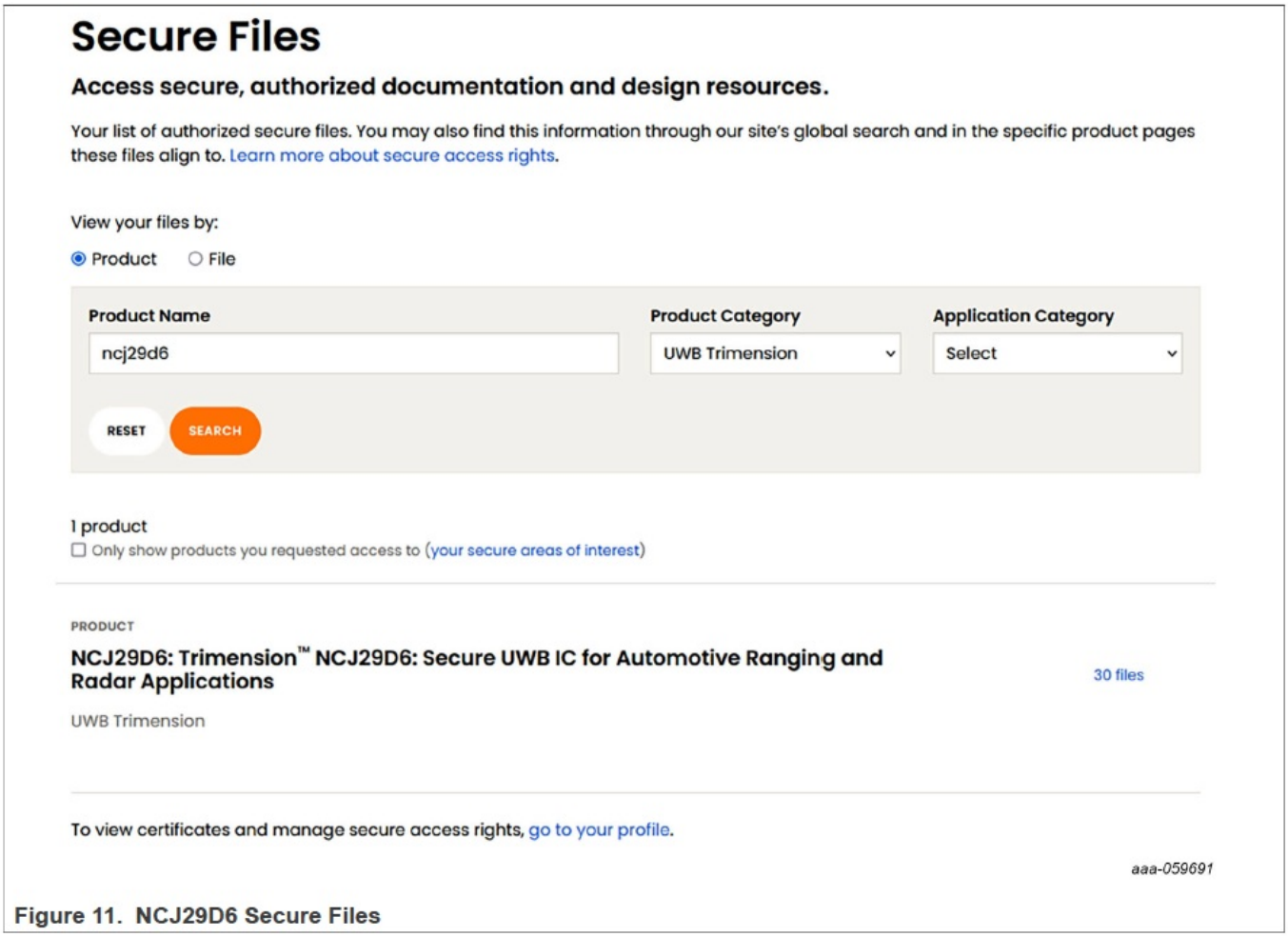


Figure 11. NCJ29D6 Secure Files

You can also access the NCJ29D6 documents over the product website as can be seen in Figure 12.

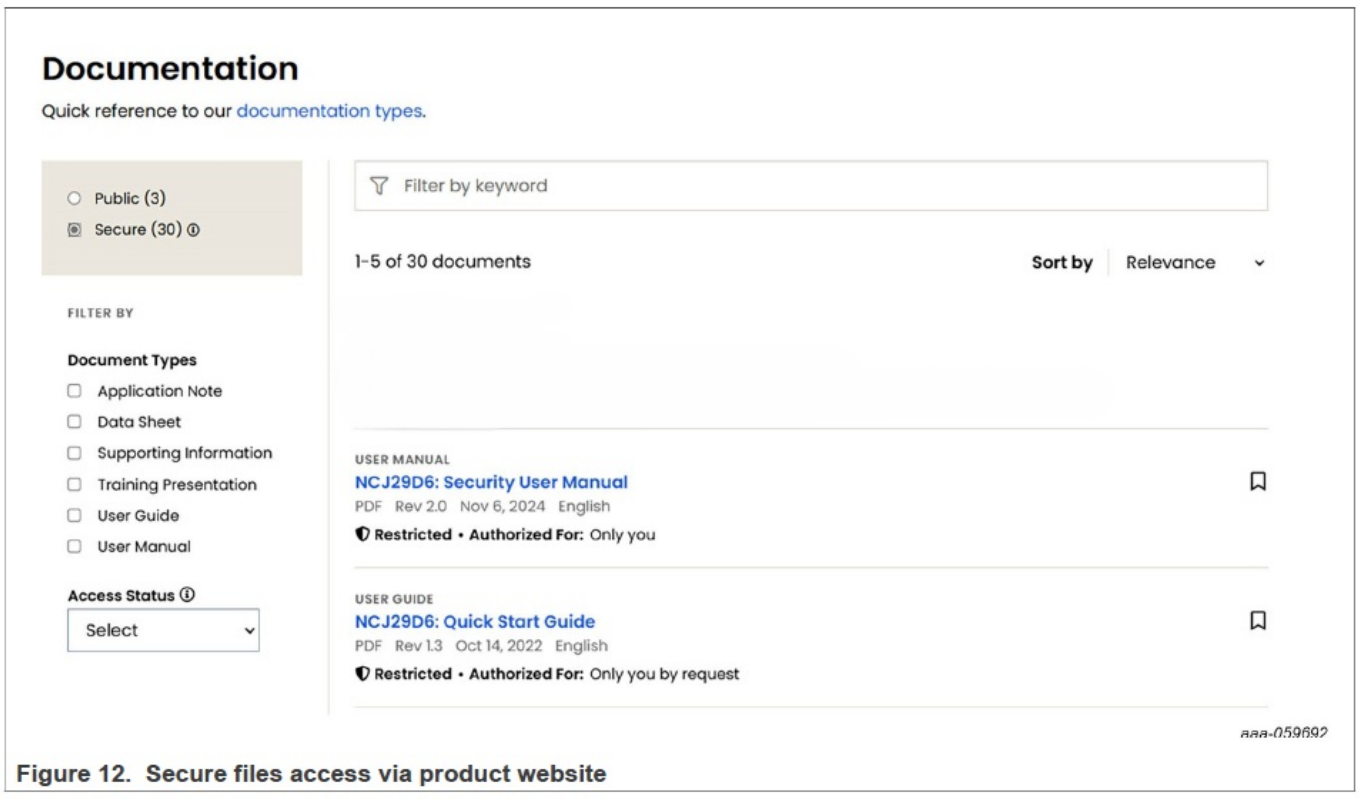


Figure 12. Secure files access via product website

A good practice is to select all files needed and request access to all files right away which will shorten the time for approval.

Note: Email notifications are sent by the system if a document has been updated.

Getting the latest software release package

To retrieve the NCJ29D6 software release package and activate your software account, follow the steps below:

1. Go to **https://www.nxp.com**.
2. Click the SIGN IN button. If you do not have a registered account, choose CREATE AN ACCOUNT option and follow the instruction for registering as a new user described in Section 3.1.
3. Once registration is completed and the account is verified, click My NXP Account → Apps and Services → Software Licensing and Support (see Figure 13). If this option is not visible, use the link **https://www.nxp.com/webapp/swlicensing/swlicensingIntermediate.sp**.

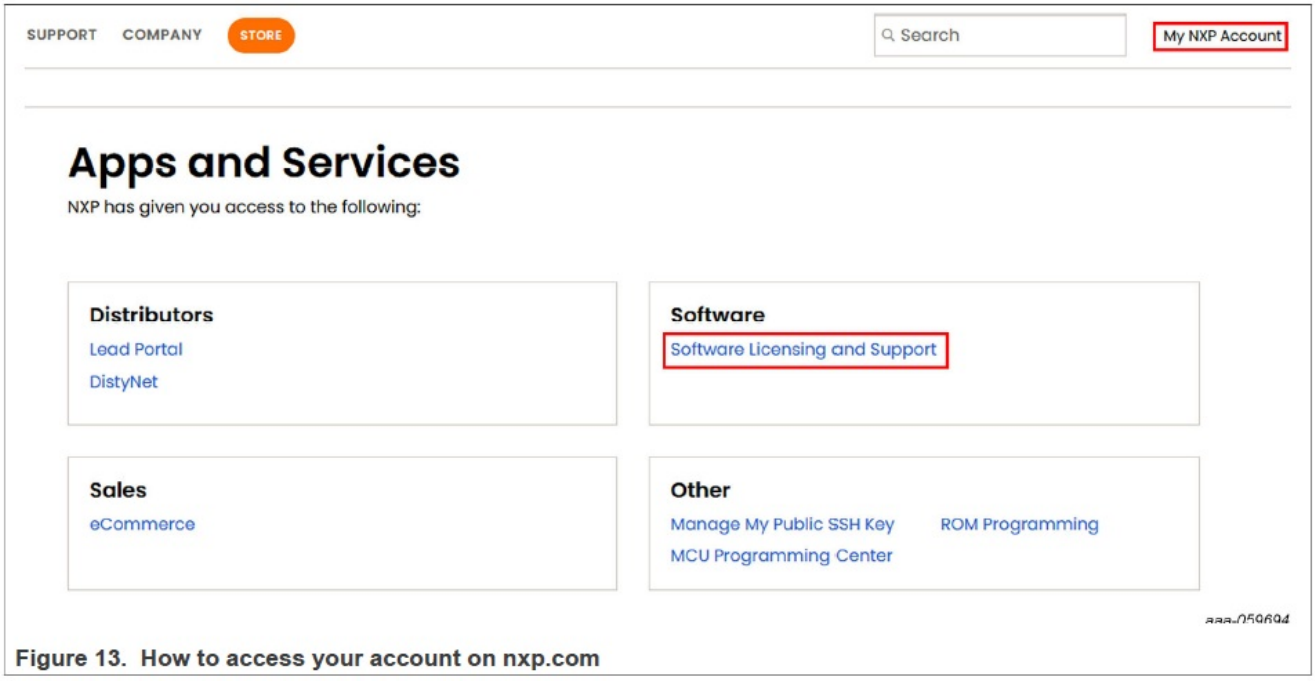


Figure 13. How to access your account on nxp.com

4. Click the Activate registration code button as seen in Figure 14 and use the provided activation code to activate your software account for the specific product (see Figure 15). If you do not have an activation code yet, contact your local NXP representative. We recommend strongly to consider creating a shared account, where you can provide access to several users in your organization.

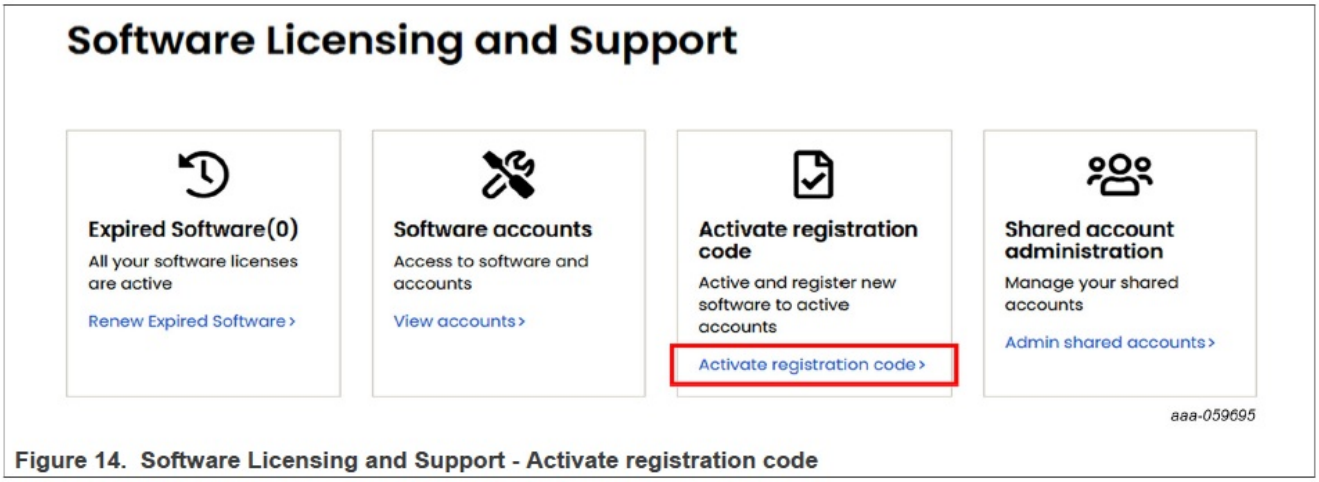


Figure 14. Software Licensing and Support - Activate registration code

Figure 15. Enter the registration code

5. After you have entered your registration code and pressed the Register Product button, you will be redirected to the list of accounts, which should be linked to the product key, where you can select the account where to add the product (see Figure 16). It is recommended to create a New Shared Account and add multiple members from your team working for the same project.

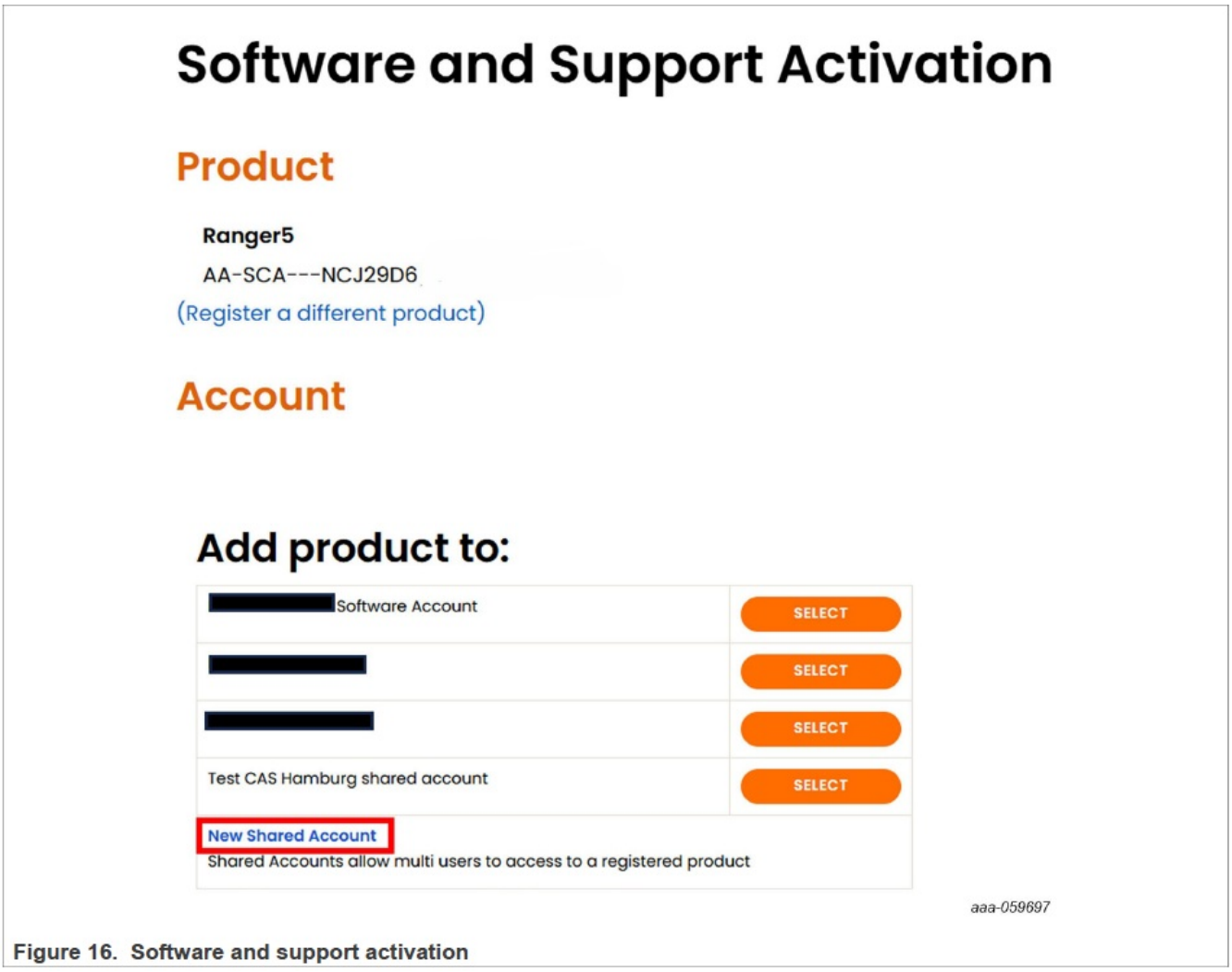


Figure 16. Software and support activation

6. Click the New Shared Account button or select an existing shared account. You are forwarded to the page as in Figure 17. Here you have the possibility to invite your team colleagues to the shared account by adding their email addresses. You are forwarded to a shared account creation page, as shown in Figure 17.

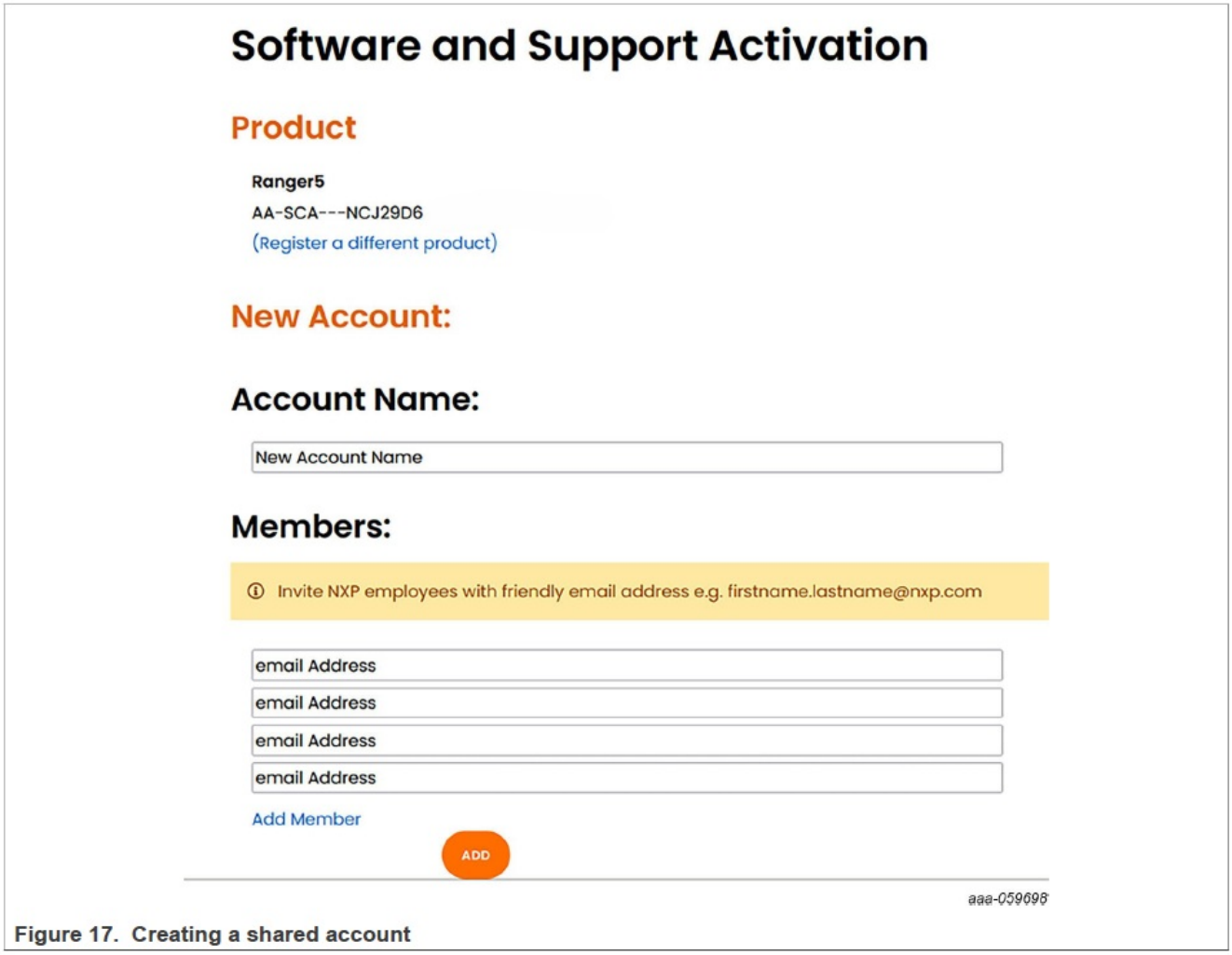


Figure 17. Creating a shared account

7. Once you have activated your software account and created a shared account, you can manage the shared account by clicking the Shared account administration button in Figure 18.

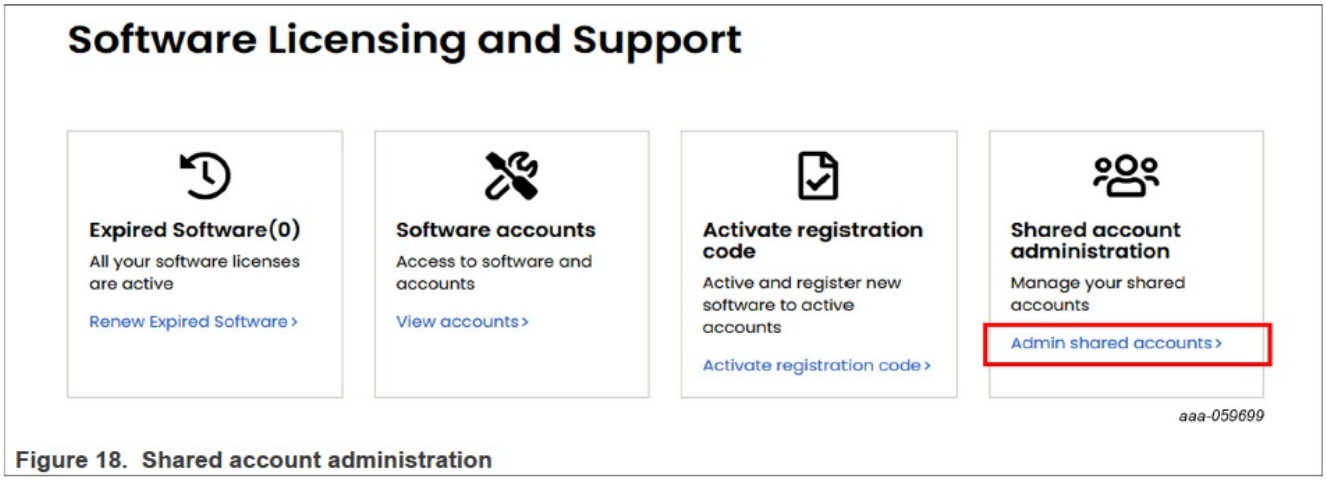


Figure 18. Shared account administration

Consider changing the role of one or more of your team members from Member to Admin, as can be seen in Figure 19. This ensures that the account can still be managed in the event of an absence.

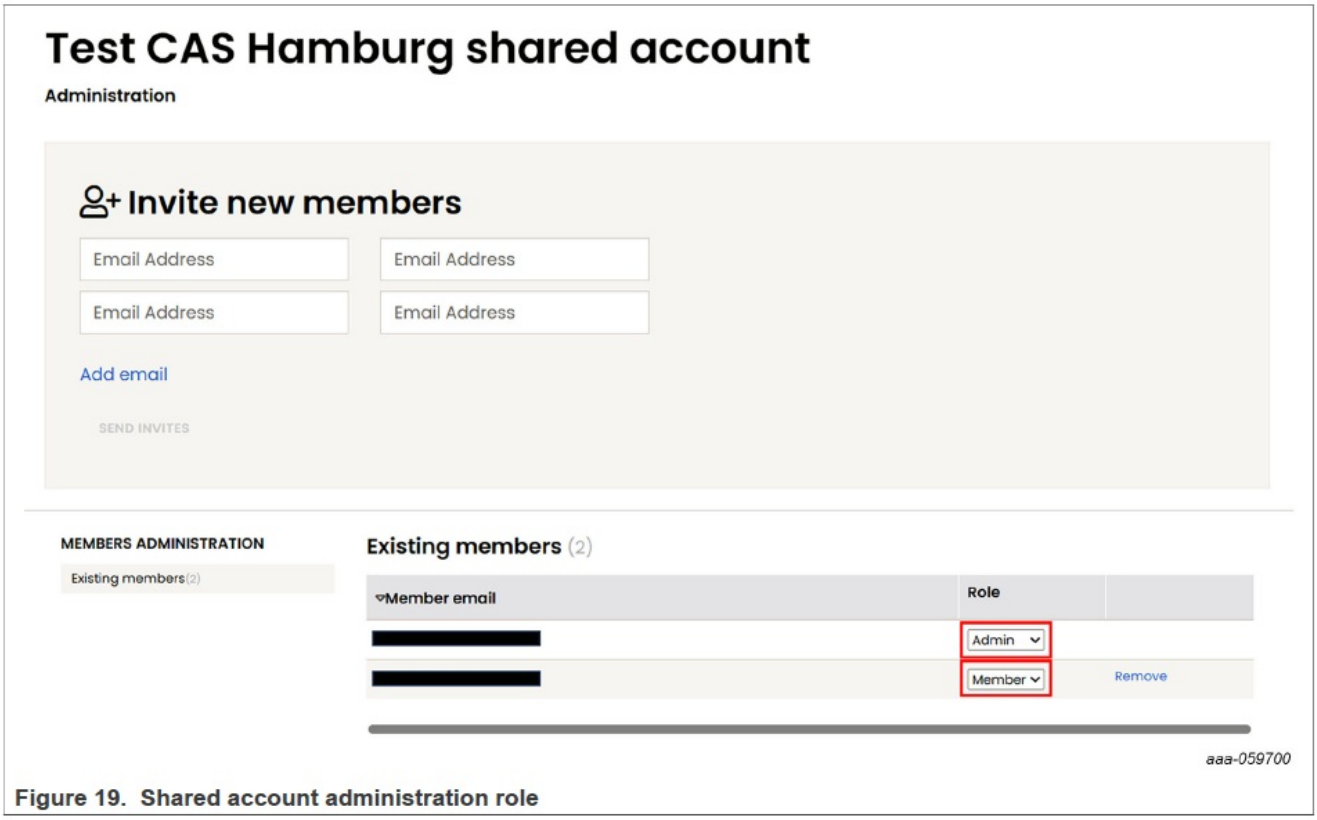


Figure 19. Shared account administration role

8. Once you have activated your software account for the product successfully, you can select the “View accounts” button as shown in Figure 20.

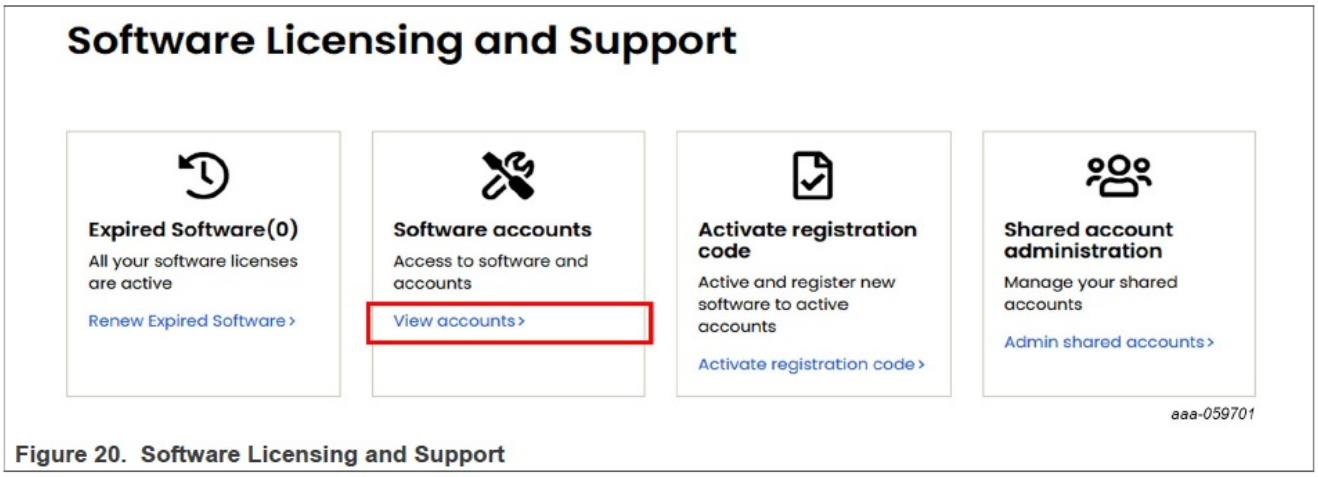


Figure 20. Software Licensing and Support

9. After selecting the View accounts button, you will see the list of registered accounts in Figure 21. The next step is to select your Shared Account that you have created for the registered product, as shown in Figure 21.

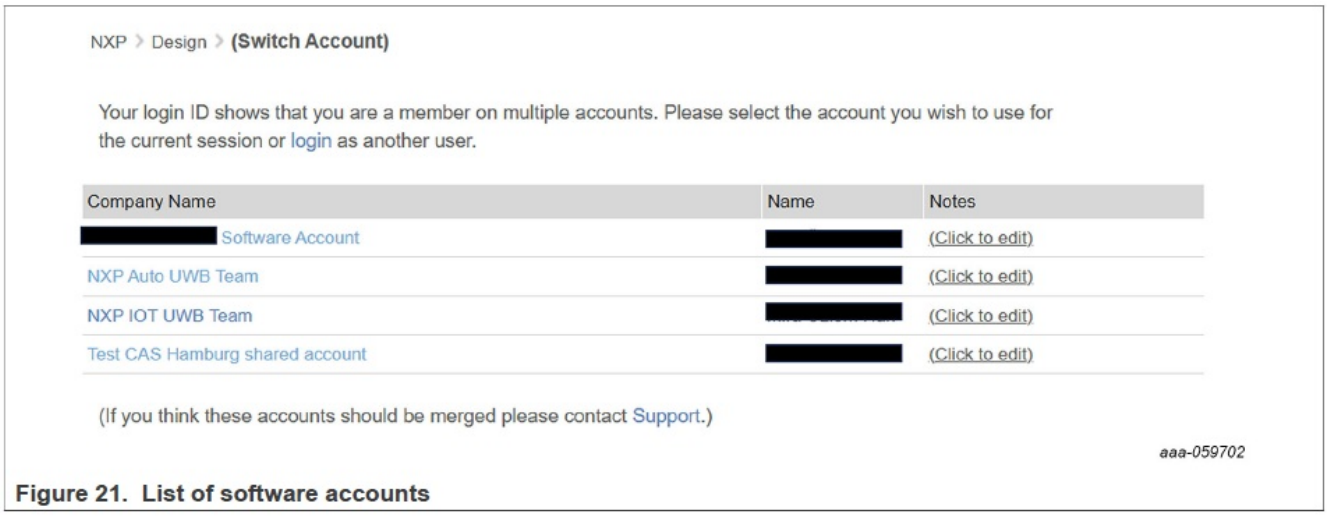


Figure 21. List of software accounts

10. After selecting your Shared Account, you will be forwarded to all your registered products, as can be seen in

Figure 22. Choose Ultra wideband (UWB).

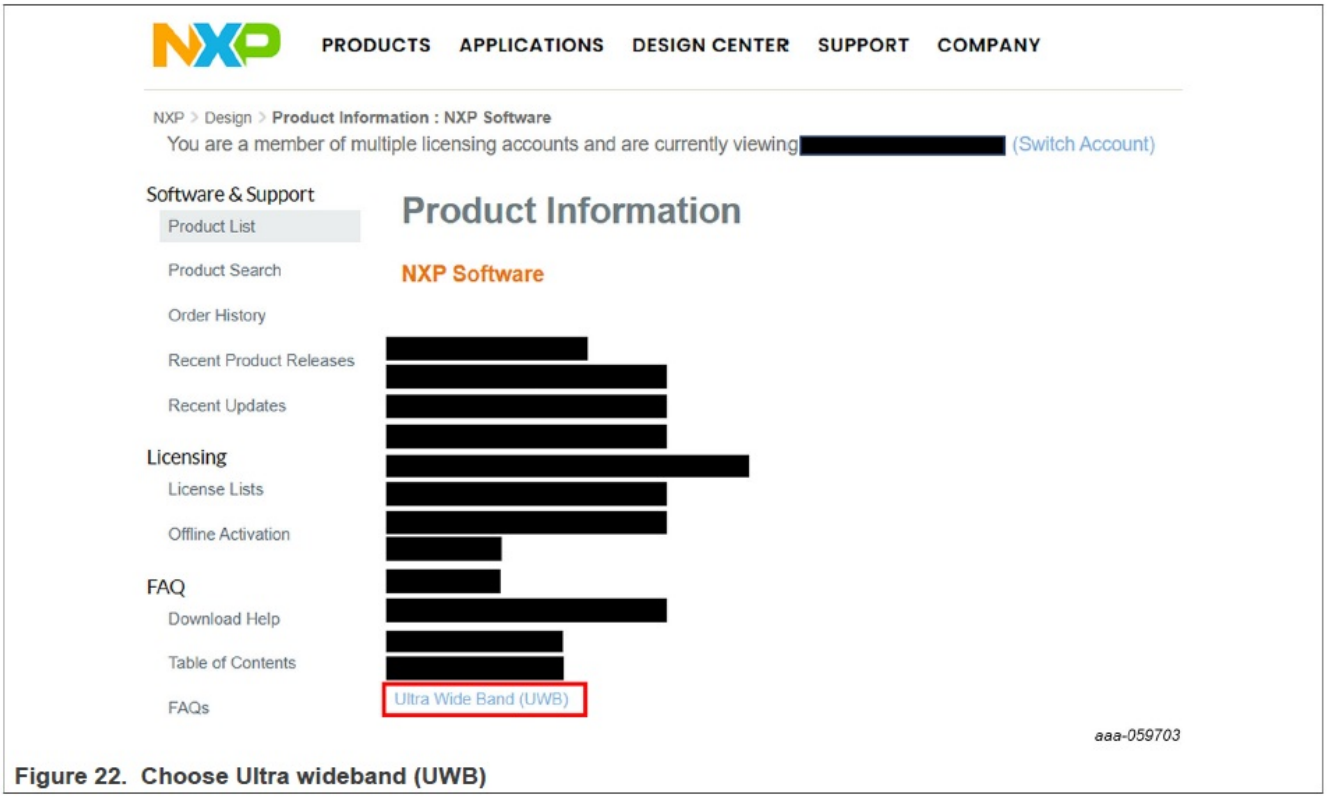


Figure 22. Choose Ultra wideband (UWB)

11. You are forwarded to a list of available software packages for the NCJ29D6 product (see Figure 23). Choose the latest software release from the list.

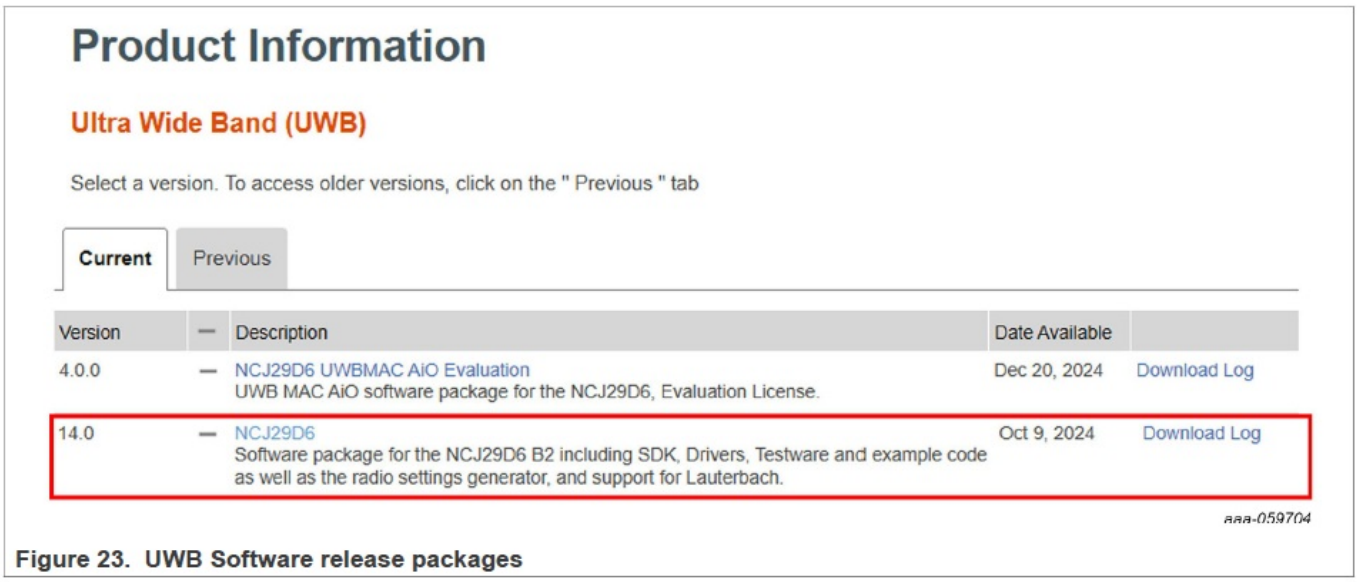


Figure 23. UWB Software release packages

Note: We are also providing other software packages for NCJ29D6 like the NCJ29D6 UWBMAC AiO as can be seen in upper figure. Contact your NXP representative for more information.

In Figure 23, you see a list of all available software and documents for that specific software release package. Download the latest release for your NCJ29D6 as a zip file.

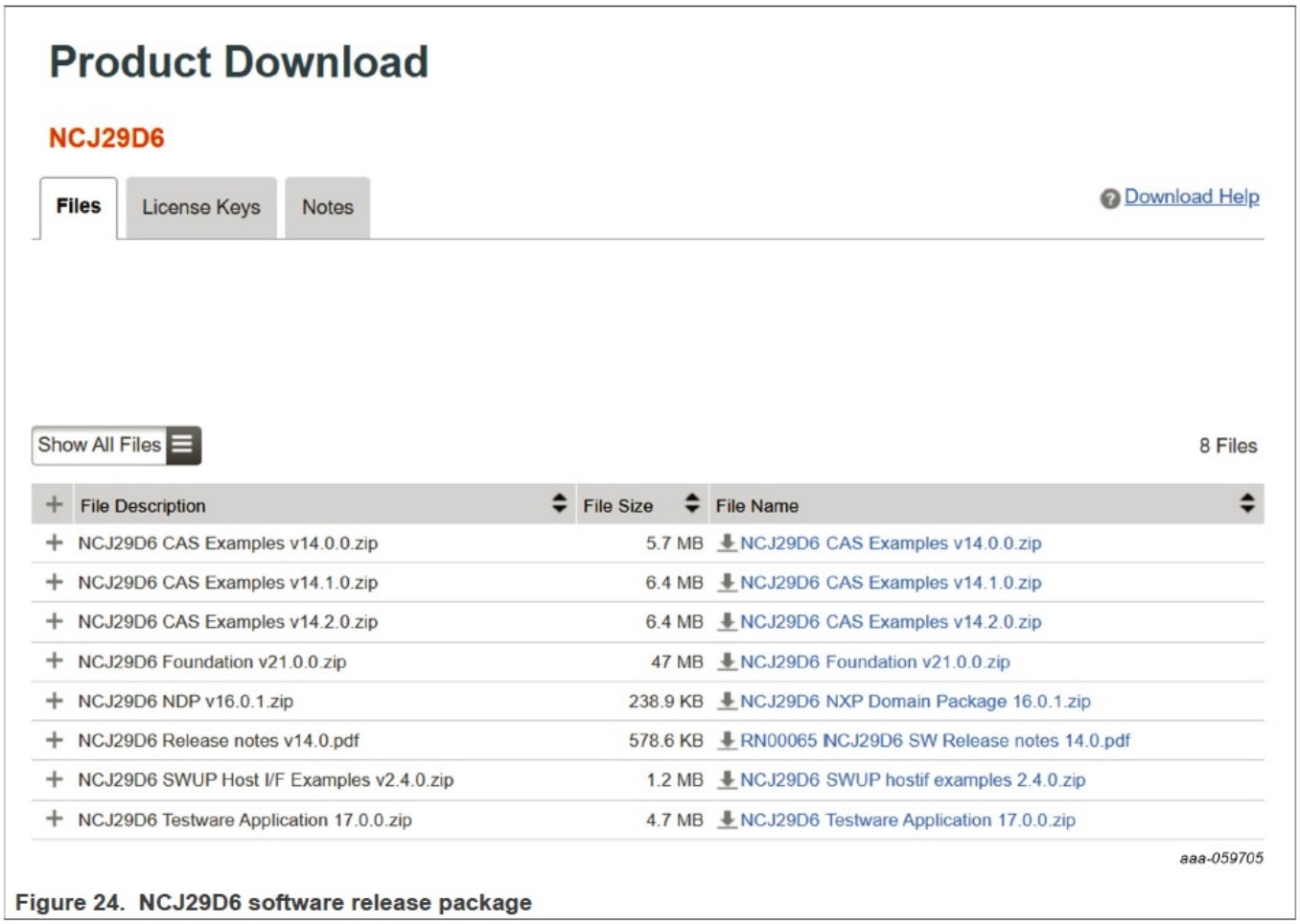


Figure 24. NCJ29D6 software release package

Notes:

- The product registration code is provided by NXP on request and is only valid for one user account. However, the registration code can also be used by multiple users as a shared account.
- Registered users receive email notifications whenever new releases are available.

Abbreviations

Table 2. Abbreviations

Acronym	Description
CE	Consumer Electronics
EMC	Electromagnetic Compatibility
NDA	Non Disclosure Agreement

References

The following documents and webinars are all available at the following link. Use the newest available version: https://www.nxp.com/mynxp/secure-files?view=product&ticket=ST-3146-b-Nb9DfO-xLl6KmYXhkKM9hj53U-www.nxp.com.

1. NCJ29D6: Customer Demo Board Release Package

2. NCJ29D6: Quick Start Guide
3. UM12152 LID2580 NCJ29D6 & FS24 customer demo board user manual

Revision history

Rev	Date	Description
1.0	09 April 2025	Initial version

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Date of release: 9 April 2025 Document identifier: UM12283

FAQ

Q: Where can I download the latest version of the user manual?
A: You can download the latest version of the user manual at https://www.nxp.com/products/NCJ29D6.

Documents / Resources

	NXP NCJ29D6 Demo Board [pdf] User Manual LID2580, NCJ29D6 Demo Board, NCJ29D6, Demo Board, Board

References

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- User Manual

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