



S32K SDK ISELED driver installation guide

This document describes in detail the steps to install the necessary components to build the customer application using the NXP S32K SDK ISELED driver.

The S32 Software Development Kit (S32 SDK) is part of the S32 Design Studio (S32DS), representing the tool suite for developing of user applications for NXP Automotive and Ultra-Reliable microcontrollers. S32K SDK ISELED driver is not integrated as part of standard S32SDK installation, thus a few steps need to be done to download and integrate the S32SDK ISELED driver into the application.

The 3 software packages that need to be installed are: S32 Design Studio, S32 SDK and SDK ISELED Driver.

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1. Downloading the S32 Design Studio IDE

The S32 Design Studio IDE is a complimentary integrated development environment for Automotive and Ultra-Reliable Arm based MCUs that enables editing, compiling and debugging of applications. Based on, open-source software including Eclipse IDE, GNU Compiler Collection (GCC) and GNU Debugger (GDB), the S32 Design Studio IDE offers designers a straightforward development tool with no code-size limitations. NXP software, along with the S32 Design Studio IDE provide a comprehensive enablement environment that reduces development time.

Note: Despite this document might refer to particular revision of NXP SW, it is highly recommended to use the latest available versions of the SW. Those versions might not be listed in the screenshots presented in this document at the time of creation.

In order to download the S32 Design Studio IDE, please follow these steps:

1.1. Visit the www.nxp.com/s32ds and download Design Studio v3.3 (or newer) for S32 Platform:

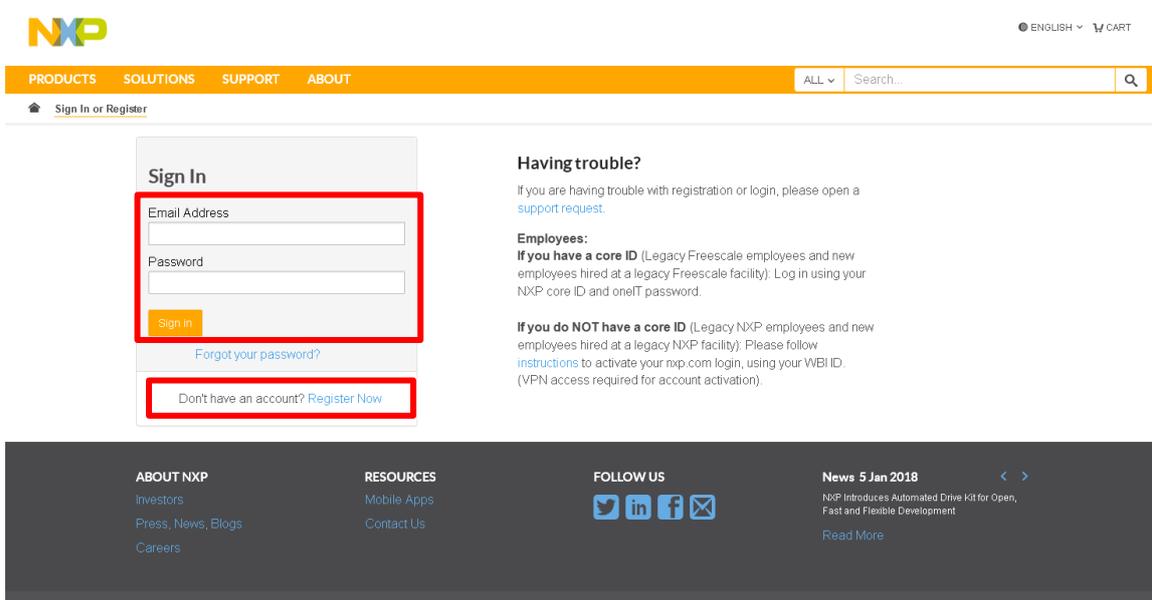
Software Versions	Supported Products	Configuration	Integrated NXP Software	Compilers	Debuggers	Dedicated Tools
S32DS for S32 Platform	S32V, S32S, and S32 Platform devices	Integrated NXP Tools: <ul style="list-style-type: none">• S32 Flash• DDR stress Integrated Configuration Tools: <ul style="list-style-type: none">• S32 Configuration• Pins Wizard• Clocks configuration• Peripheral / Drivers configuration• DCD/IVT configuration• DDR configuration	<ul style="list-style-type: none">• S32 SDK• FreeRTOS• AMMCLib for S32V23x• Vision SDK• Linux BSP	<ul style="list-style-type: none">• NXP GCC 6.3.1*• Green Hills• IAR	Built-in GDB interface: <ul style="list-style-type: none">• S32 Debugger + S32 Debug Probe• P&E• Multilink / Cyclone / Open SDA Lauterbach supported	Vision: <ul style="list-style-type: none">• NXP APU Compiler• ISP Assembler• ISP and APEX graph tools



IDE and Build Tools (2)

	S32 Design Studio 3.3 – Windows/Linux^(REV 3.3) FLEXERA 1 KB S32DS-3-3 2020-06-22 13:28:00	DOWNLOAD
	S32 Design Studio 3.2 – Windows/Linux^(REV 3.2) FLEXERA 1 KB S32DS_3.2 2019-09-27 15:18:00	DOWNLOAD

1.2. To proceed with the download, the user needs to be logged-in using the user account. In case of new user, please proceed with the Register Now option prior logging into the NXP web page.



The screenshot shows the NXP website's 'Sign In or Register' page. The 'Sign In' form is highlighted with a red box, showing fields for 'Email Address' and 'Password', a 'Sign in' button, and a 'Forgot your password?' link. Below the form, a 'Register Now' link is also highlighted with a red box. To the right, there is a 'Having trouble?' section with links for support requests and instructions for employees with and without core IDs. The footer contains navigation links for 'ABOUT NXP', 'RESOURCES', 'FOLLOW US', and a news item dated '5 Jan 2018'.

1.3. Download the installation package of S32 Design Studio by selecting the 3.3 version, based on the operation system on your PC. After download, follow the instruction of the Installation shield to proceed.



Product Download

S32 Design Studio version v.3.3

Files License Keys Notes [Download Help](#)

Show All Files 6 Files

+ File Description	File Size	File Name
+ S32 Design Studio 3.3 release notes	196.3 KB	S32DS_Release_Notes_3.3.0.pdf
+ S32 Design Studio 3.3 development packages for offline use	2.8 GB	S32DS3.3.0_D2006.zip
+ S32 Design Studio 3.3 installation for Linux	1 GB	S32DS3.3_linux_D2006.bin
+ S32 Design Studio 3.3 installation for Windows	1.4 GB	S32DS3.3_win_D2006.exe
+ S32 Design Studio 3.3 Installation guide	1.2 MB	S32DS_Installation_Guide_3.3.0.pdf
+ S32 Design Studio 3.3 S32K1xx development package for offline use	2.2 GB	S32DS.S32K1.3.3.0_D2006.zip

1.4. During the installation of the S32 Design Studio IDE, an Activation code and the license file need to be stored on your computer.

Product Download

S32 Design Studio version v.3.3

Files License Keys Notes [Download Help](#)

Show All Files 6 Files

+ File Description	File Size	File Name
+ S32 Design Studio 3.3 release notes	196.3 KB	S32DS_Release_Notes_3.3.0.pdf
+ S32 Design Studio 3.3 development packages for offline use	2.8 GB	S32DS3.3.0_D2006.zip
+ S32 Design Studio 3.3 installation for Linux	1 GB	S32DS3.3_linux_D2006.bin
+ S32 Design Studio 3.3 installation for Windows	1.4 GB	S32DS3.3_win_D2006.exe
+ S32 Design Studio 3.3 Installation guide	1.2 MB	S32DS_Installation_Guide_3.3.0.pdf
+ S32 Design Studio 3.3 S32K1xx development package for offline use	2.2 GB	S32DS.S32K1.3.3.0_D2006.zip



License Information

S32 Design Studio version v.3.3

[View](#)

Item Description	S32 Design Studio version v.3.3
Order Number	S32DS-3-3_114371747
Purchase Order Number	
Total Number of Licenses:	101
Activation Code	[REDACTED]
License Applicable to Product(s):	
<u>Version</u>	<u>Description</u>
3.3	S32 Design Studio version v.3.3 (View EULA)
100 Available	
License Quantity:	1
Fulfillment ID:	175413747
Expiration Date:	Jul 15, 2024
Product:	S32 Design Studio version v.3.3 <input checked="" type="checkbox"/>
Machine:	[REDACTED]
Activation Code:	[REDACTED]

[View](#)

View Licenses

Below are the licenses you selected to view.

[License Overview](#)

[Print Friendly](#)

[Save All](#)

License Applicable to Product(s):

Version Description

3.3 S32 Design Studio version v.3.3

License Quantity: 1

Fulfillment ID: [REDACTED]

Expiration Date: Jul 15, 2024

Product: S32 Design Studio version v.3.3

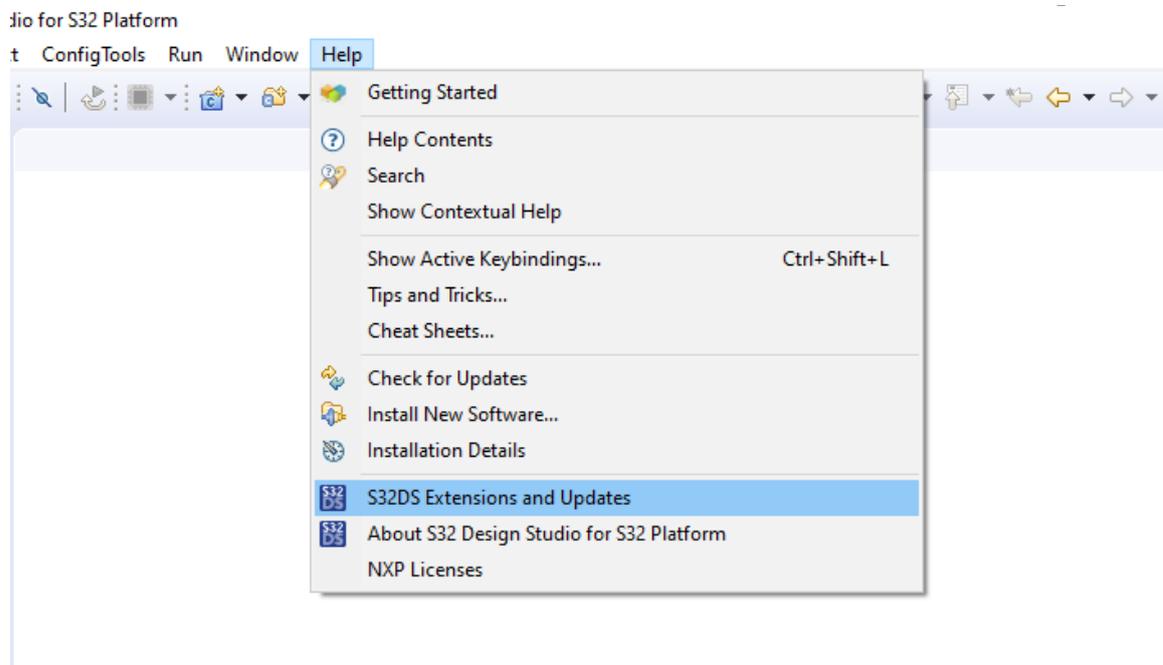
Machine: [REDACTED]

Activation Code: [REDACTED]



After successfully installing S32 Design Studio it's necessary to update the S32 Software Development Kit (S32SDK), which comes pre-installed with the S32 Design Studio. To proceed, please follow the instructions in next chapter.

Note: If you already have the S32 Design Studio installed on your computer, please make sure you update your installation, prior proceeding to next chapter.

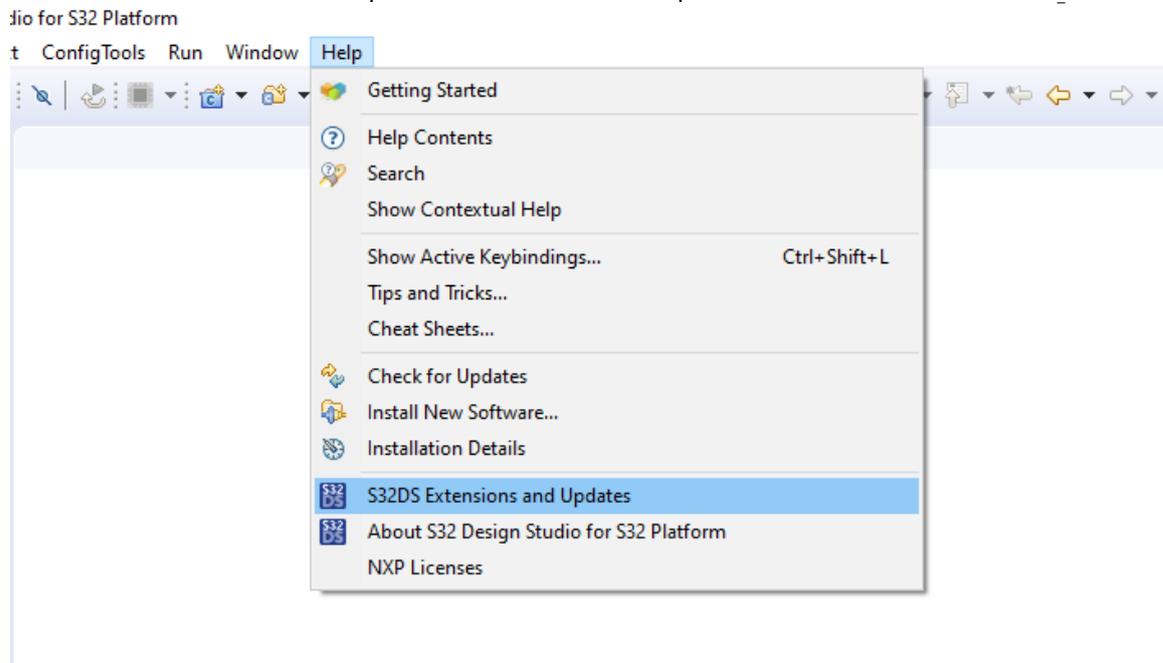




2. Updating the S32 Software Development Kit

The S32 Software Development Kit (S32 SDK) is an extensive suite of robust hardware interface and hardware abstraction layers, peripheral drivers, RTOS, stacks, and middleware designed to simplify and accelerate application development on NXP S32K microcontrollers. As the S32K SDK ISELED driver was tested with S32K SDK revision RTM 4.0.0, the following steps need to be proceed in order to update to S32K SDK, revision RTM 4.0.0:

- 2.1 Run the S32K Design studio
- 2.2 Select Help->Extensions and updates





2.3 Select and install S32SDK S32K1XX RTM 4.0.0

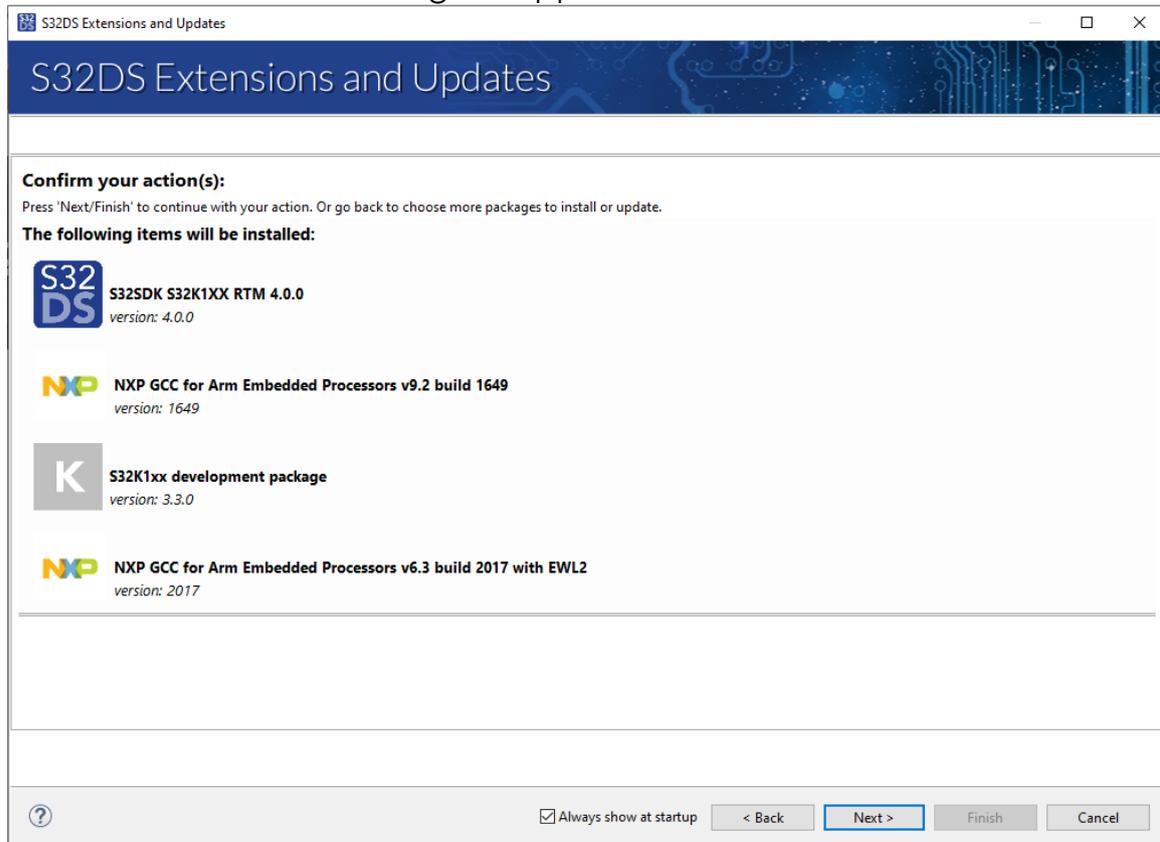
The screenshot shows the 'S32DS Extensions and Updates' window. The title bar reads 'S32DS Extensions and Updates'. The main area is divided into a list of extensions on the left and a details pane on the right. The list includes:

- S32DS S32G274 BETA 0.9.0 (version: 0.9.0)
- S32DS S32K1XX RTM 4.0.0 (version: 4.0.0)
- K S32K1xx development package (version: 3.3.0)
- K S32K2xxTV development package (version: 3.3.0)
- K S32K3xx development package (version: 3.3.0_EAR1)

The details pane for the selected package shows the title 'S32SDK S32K1XX RTM 4.0.0' and version '4.0.0'. The 'Overview' section states: 'The S32 Software Development Kit (S32 SDK) is an extensive suite of peripheral drivers, RTOS, stacks and middleware designed to simplify and accelerate application development on NXP S32K ARM based microcontrollers. This S32 SDK supports development with the following devices: - S32K116 - S32K118 - S32K142 - S32K142W - S32K144 - S32K144W'. At the bottom, the 'Install/Update 1 item(s)' button is highlighted with a red box.



2.4 The next dialog will appear

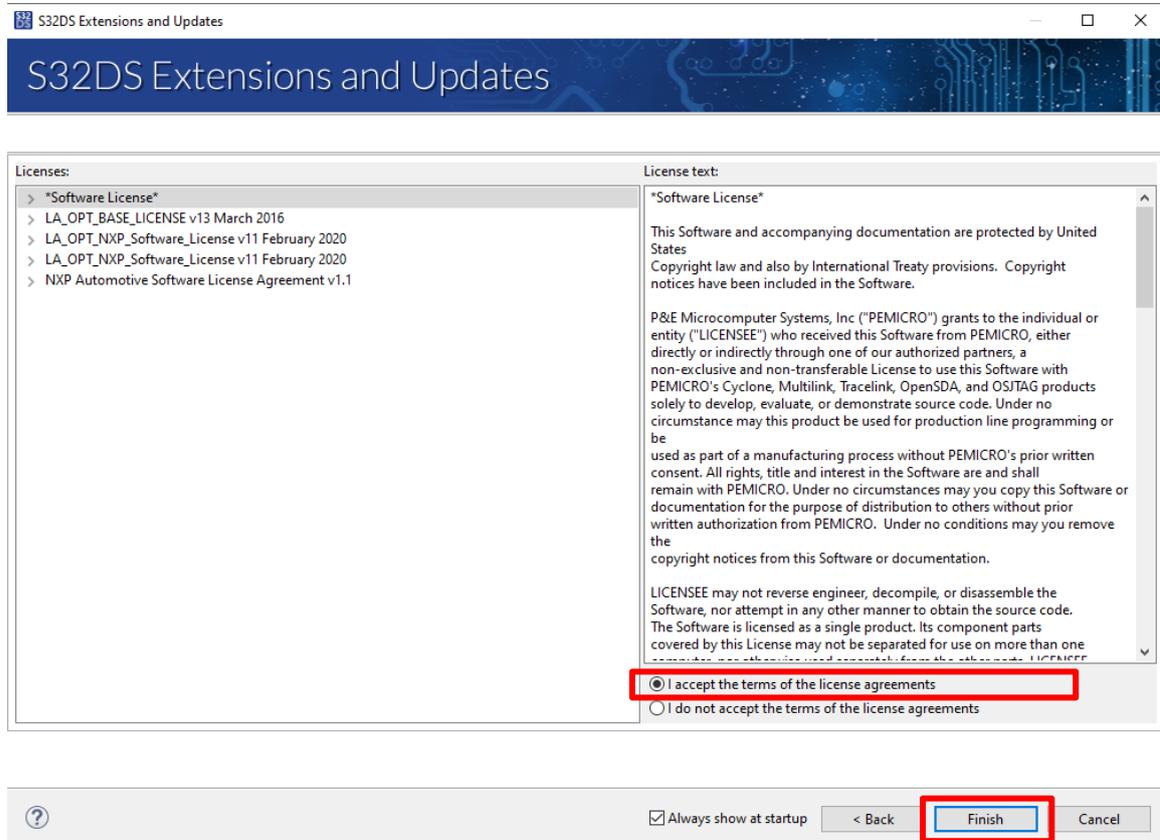


2.5 Click on Next

Note: The list of available packages may differ as new support is added. Please select all S32SDK S32K1xx RTM_4.0.0 related packages in the list above.



2.6 Accept the license agreement and click on Finish



2.7 Wait for installation finish. Once the updates are installed, please proceed to the next stage, download and installation of the S32K SDK ISELED driver, described in next section.



3. Installation of S32K SDK ISELED driver

The S32K SDK ISELED driver EAR 4.8.0 provides the user with necessary API to initialize and drive the ISELED LEDs. It provides two options for communication interface, highly effective FlexIO interface and standard LPSPI interface. The S32K SDK ISELED driver is not part of standard S32K SDK installation and a special activation code is needed to download the installation package from NXP web. Please follow the instructions to proceed:

- 3.1 Contact gpis.software@nxp.com or your NXP Sales representative to get an Activation Code to register for the Software.
- 3.2 Visit www.nxp.com/activation web page and log in using your NXP web account. In case you do not have the NXP web account, please proceed with the registration first.

Sign In

Email Address

Password

[Sign in](#)

[Forgot your password?](#)

Don't have an account? [Register Now](#)

Having trouble?

If you are having trouble with registration or login, please open a [support request](#).

Employees:

If you have a core ID (Legacy Freescale employees and new employees hired at a legacy Freescale facility): Log in using your NXP core ID and oneIT password.

If you do NOT have a core ID (Legacy NXP employees and new employees hired at a legacy NXP facility): Please follow [instructions](#) to activate your nxp.com login, using your WBI ID. (VPN access required for account activation).



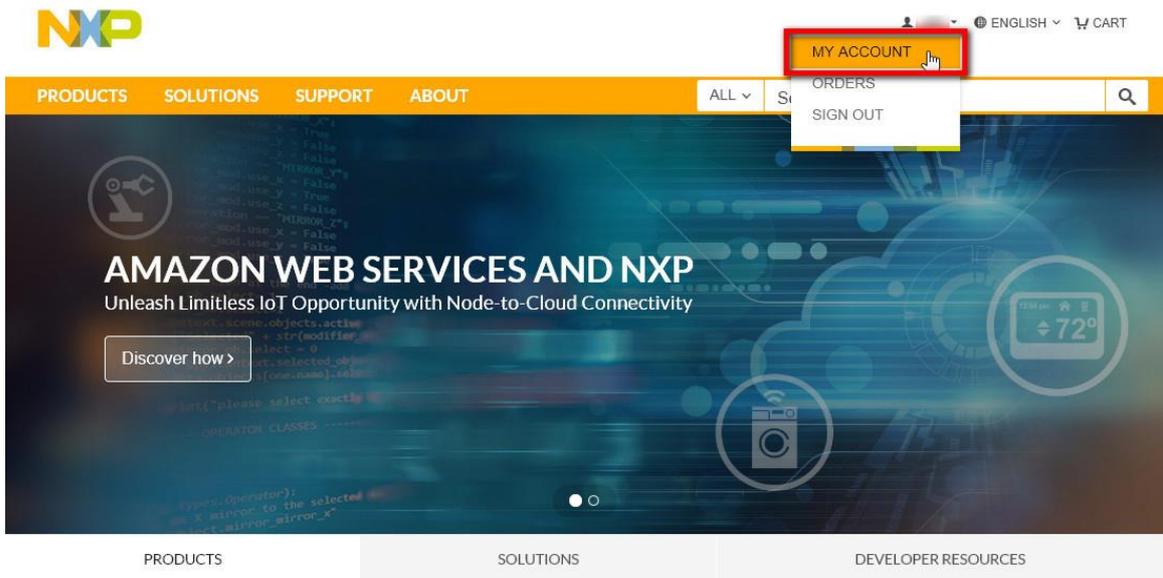
Software and Support Activation

Product

Enter Registration Code:

Example:
CWP-PRO-NL_1-387604471

3.3 Once the activation of the S32K SDK ISELED driver is done, please navigate to My account option under your login name.



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3.4 Select the Software Licensing and Support option.

The screenshot shows the NXP My Account page. At the top, there is a navigation bar with 'PRODUCTS', 'SOLUTIONS', 'SUPPORT', and 'ABOUT' tabs. A search bar is located on the right side of the navigation bar. Below the navigation bar, the page displays a welcome message: 'Welcome, [User Name]' and 'You logged in at [Date/Time]'. A grey box contains a message: 'For the most up-to-date technical documents, select Documentation and Tools Updates below. The tool is updated daily and is searchable and sortable by type, revision date and product.' Below this, there are two main sections: 'PROFILE' and 'SECURE APPLICATIONS'. The 'PROFILE' section includes links for 'Change My Password', 'Orders', 'Subscription Center', and 'Documentation and Tools Updates'. The 'SECURE APPLICATIONS' section includes links for 'Cross Check - Part Finder With Pricing', 'Cross Check - Competitor Cross Reference', 'eCommerce', 'Compass Extranet', 'MCU Programming Center', 'Moderated Downloads', 'ROM Programming', 'Software Licensing and Support', and 'My LPCXpresso activations'. The 'Software Licensing and Support' link is highlighted with a red rectangular box.



3.5 Select Automotive SW – Middleware for General Purpose and Integrated Solutions

The screenshot shows the NXP website's 'Product List' page. At the top left is the NXP logo. To the right, there is a user account icon and a language dropdown set to 'English'. Below this is a search bar with a dropdown menu currently set to 'ALL'. A navigation bar contains the links: PRODUCTS, APPLICATIONS, SUPPORT, and ABOUT. The breadcrumb trail reads 'NXP > Software & Support > Product List'. On the left side, there are several menu categories: 'Software & Support' (with sub-items: Product List, Product Search, Order History, Recent Product Releases, Recent Updates), 'Licensing' (with sub-items: License Lists, Offline Activation), and 'FAQ' (with sub-items: Download Help, Table of Contents, FAQs). The main content area is titled 'Product List' and contains a welcome message: 'Welcome to the premier delivery, update, and software management service; designed to help you effectively manage your rapidly changing software from a secure, personalized website.' Below this, it says 'To access an item, select a product below.' A list of products is shown, with one item highlighted in a red box: 'Automotive SW – Middleware for General Purpose and Integrated Solutions'. Below this item, the text 'NXP Software' is partially visible.

3.6 Select Automotive SW – ISELED Software

The screenshot shows the NXP website's 'Product Information' page for 'Automotive SW – Middleware for General Purpose and Integrated Solutions'. At the top left is the NXP logo. To the right, there are links for 'Account', 'English', and 'Cart', along with a search bar containing 'ALL' and a search icon. A navigation bar contains the links: PRODUCTS, APPLICATIONS, SUPPORT, and ABOUT. The breadcrumb trail reads 'NXP > Software & Support > Product Information : Automotive SW – Middleware for General Purpose and Integrated Solutions'. On the left side, there are several menu categories: 'Software & Support' (with sub-items: Product List, Product Search, Order History, Recent Product Releases, Recent Updates), 'Licensing' (with sub-items: License Lists, Offline Activation), and 'FAQ' (with sub-items: Download Help, Table of Contents, FAQs). The main content area is titled 'Product Information' and features the sub-heading 'Automotive SW – Middleware for General Purpose and Integrated Solutions'. Below this, it says 'Your choice contains a suite of products. Please select one of the product lines below: To register a New Product please click on the button below'. There is a 'Register' button. A list of product lines is shown, with one item highlighted in a red box: 'Automotive SW – ISELED Software'. Below this item, the text 'Automotive SW – Touch Sense Software' is visible.



- 3.7 Select the SW32K1-ISELED-EAR-4.8.0 or newer package. Below is an example screenshot for RTM 3.0.0, a previous release.

NXP > Software & Support > Product Information : Automotive SW - ISELED Software

Software & Support

- Product List
- Product Search
- Order History
- Recent Product Releases
- Recent Updates

Licensing

- License Lists
- Offline Activation

FAQ

- Download Help
- Table of Contents
- FAQs

Product Information

Automotive SW - ISELED Software

To register a New Product please click on the button below

[Register](#)

Current Previous

Version	Description	
3.0.0	SW32K1-ISELED-RTM-3.0.0 ISELED middleware stack for control of Digital LEDs using the ISELED protocol.	Download Log



3.8 Accept the Software Terms and Conditions



Products Applications Support About

NXP > Software & Support > Software Terms and Conditions

Software & Support

- Product List
- Product Search
- Order History
- Recent Product Releases
- Recent Updates

Licensing

- License Lists
- Offline Activation

FAQ

- Download Help
- Table of Contents
- FAQs

Software Terms and Conditions

SW32K1-ISELED-RTM-3.0.0

Please read the following agreement and click "I AGREE" at the bottom before downloading your software.

NXP ISELED® SOFTWARE LICENSE AGREEMENT v1.0

IMPORTANT. Read the following NXP ISELED® Software License Agreement ("Agreement") completely. By selecting the "I Accept" button at the end of this page, or by downloading, installing, or using the Software, you indicate that you accept the terms of the Agreement and you acknowledge that you have the authority, for yourself or on behalf of your company, to bind your company to these terms. You may then download or install the file(s). In the event of a conflict between the terms of this Agreement and any license terms and conditions for NXP's proprietary software embedded anywhere in the Software file(s), the terms of this Agreement shall control. If a separate license agreement for the Software has been signed by you or your company and NXP, then that agreement shall govern your use of the Software and shall supersede this Agreement.

This is a legal agreement between your employer, of which you are an authorized representative, or, if you have no employer, you as an individual ("you" or "Licensee"), and NXP Semiconductors Netherlands B.V. on behalf of its affiliates ("NXP"). It concerns your rights to use the NXP ISELED® software provided to you in binary or source code form and any accompanying written materials (the "Software"). The Software may include any updates or error corrections or documentation relating to the Software provided to you by NXP under this Agreement. In consideration for NXP allowing you to access the Software, you are agreeing to be bound by the terms of this Agreement. If you do not agree to all of the

3.9 Download the SCR, Release notes and installation package by selecting the packages



Products Applications Support About

NXP > Software & Support > Automotive SW - ISELED Software > SW32K1-ISELED-RTM-3.0.0 : Files

Software & Support

- Product List
- Product Search
- Order History
- Recent Product Releases
- Recent Updates

Licensing

- License Lists
- Offline Activation

FAQ

- Download Help
- Table of Contents
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Product Download

SW32K1-ISELED-RTM-3.0.0

Files License Keys Notes

[Download Help](#)

Show All Files

3 Files

<input type="checkbox"/>	+	File Description	File Size	File Name
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0.exe	1.5 MB	S32K1_ISELED_RTM_3.0.0.exe
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0_ReleaseNotes.pdf	602.6 KB	S32K1_ISELED_RTM_3.0.0_ReleaseNotes.pdf
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0_SCR.xls	10.4 KB	S32K1_ISELED_RTM_3.0.0_SCR.xls



3.10 Generate the license file for the S32K SDK ISELED driver by selecting the License Keys tab.



Products Applications Support About

NXP > Software & Support > Automotive SW - ISELED Software > SW32K1-ISELED-RTM-3.0.0 : Files

Software & Support

- Product List
- Product Search
- Order History
- Recent Product Releases
- Recent Updates

Licensing

- License Lists
- Offline Activation

FAQ

- Download Help
- Table of Contents
- FAQs

Product Download

SW32K1-ISELED-RTM-3.0.0

Files License Keys Notes

[Download Help](#)

Show All Files

3 Files

<input type="checkbox"/>	+	File Description	File Size	File Name
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0.exe	1.5 MB	S32K1_ISELED_RTM_3.0.0.exe
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0_ReleaseNotes.pdf	602.6 KB	S32K1_ISELED_RTM_3.0.0_ReleaseNotes.pdf
<input checked="" type="checkbox"/>	+	S32K1_ISELED_RTM_3.0.0_SCR.xls	10.4 KB	S32K1_ISELED_RTM_3.0.0_SCR.xls

Download Selected Files



Account English Cart

ALL Search

PRODUCTS APPLICATIONS SUPPORT ABOUT

NXP > Software & Support > License Information

Software & Support

- Product List
- Product Search
- Order History
- Recent Product Releases
- Recent Updates

Licensing

- License Lists
- Offline Activation

FAQ

- Download Help
- Table of Contents
- FAQs

License Information

SW32K1-ISELED-RTM-3.0.0

Generate

Item Description: S32K1x ISELED Controller Middleware (Binary) Internal Evaluation License

Order Number: [XXXXXXXXXX]

Purchase Order Number: [XXXXXXXXXX]

Total Number of Licenses: 1

License Applicable to Product(s):

Version	Description
[XXXXXXXXXX]	[XXXXXXXXXX]

1 Available

Generate



- 3.11 Store the license file on your computer. Use this license file during the installation of the NXP S32K ISELED Driver. Important: the S32SDK_S32K1xx_RTM_4.0.0 installation directory must be selected for the NXP S32K ISELED Driver installation.

NXP Semiconductors Account English Cart

ALL Search

PRODUCTS APPLICATIONS SUPPORT ABOUT

NXP > Software & Support > View Licenses

Software & Support
Product List
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View Licenses

Below are the licenses you selected to view.

License Overview Print Friendly **Save All**

License Applicable to Product(s):

Version	Description
3.0.0	S32K1-ISELED-RTM3.0.0

License Quantity: 1

Host ID: ANY

```
#S32K1x ISELED Controller Middleware (Binary) Internal Evaluation License -  
#S32K1-ISELED-  
# License for ANY
```

License Overview Print Friendly Save All

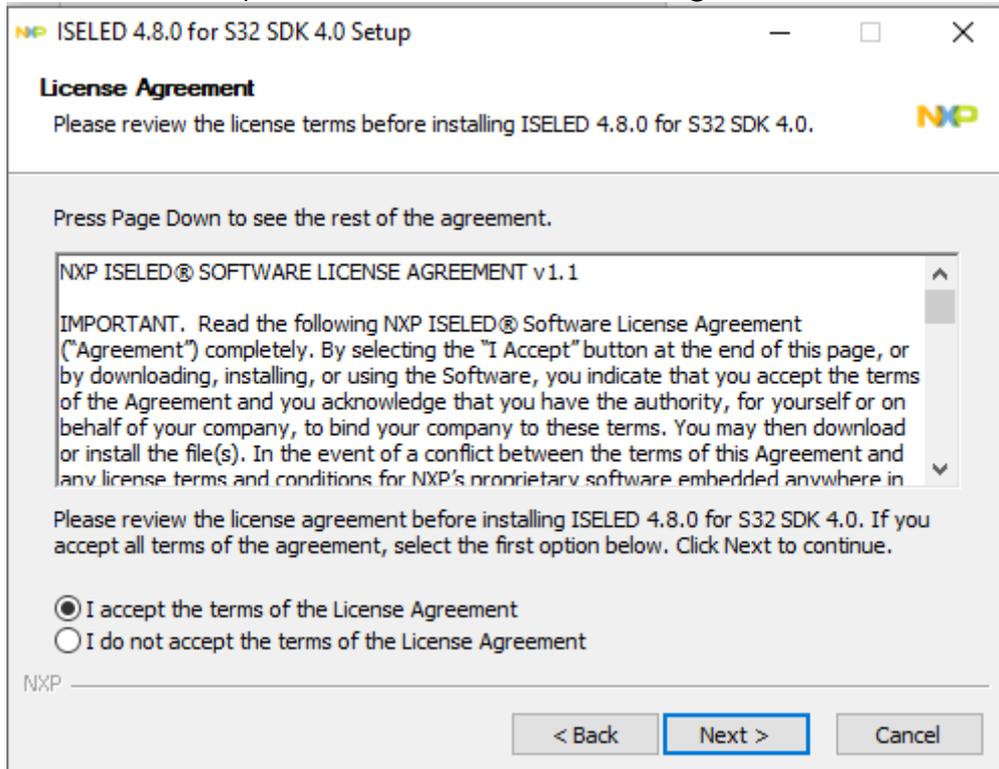


3.12 Run the ISELED Driver installer and click "Next"



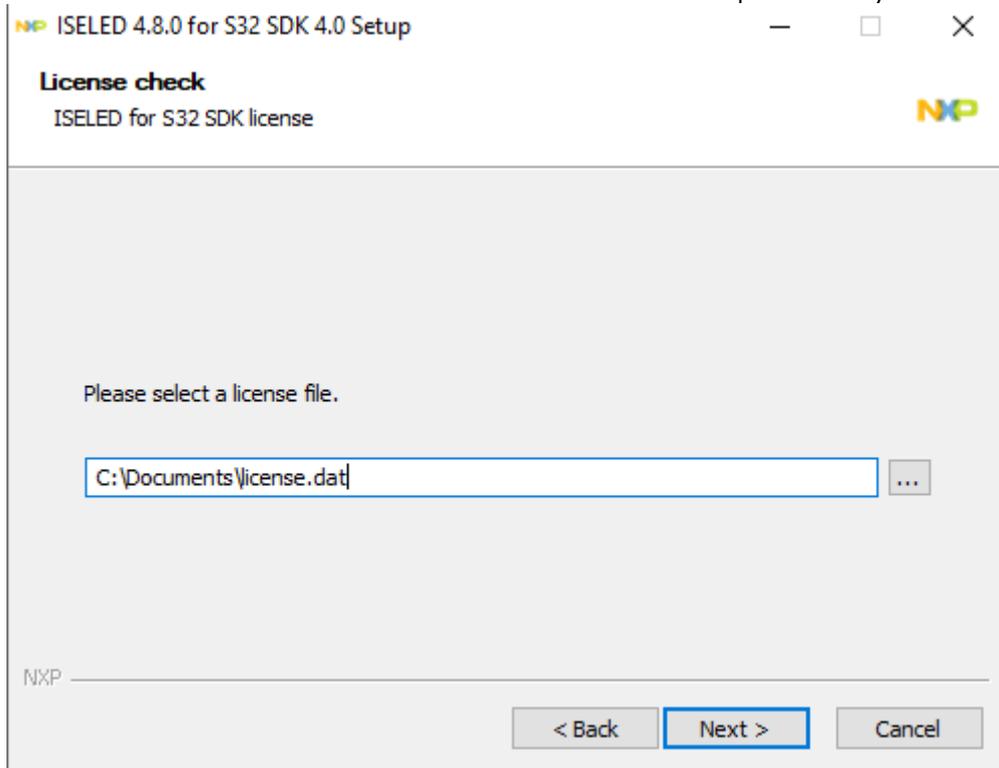


3.13 Accept the terms of the License Agreement and continue





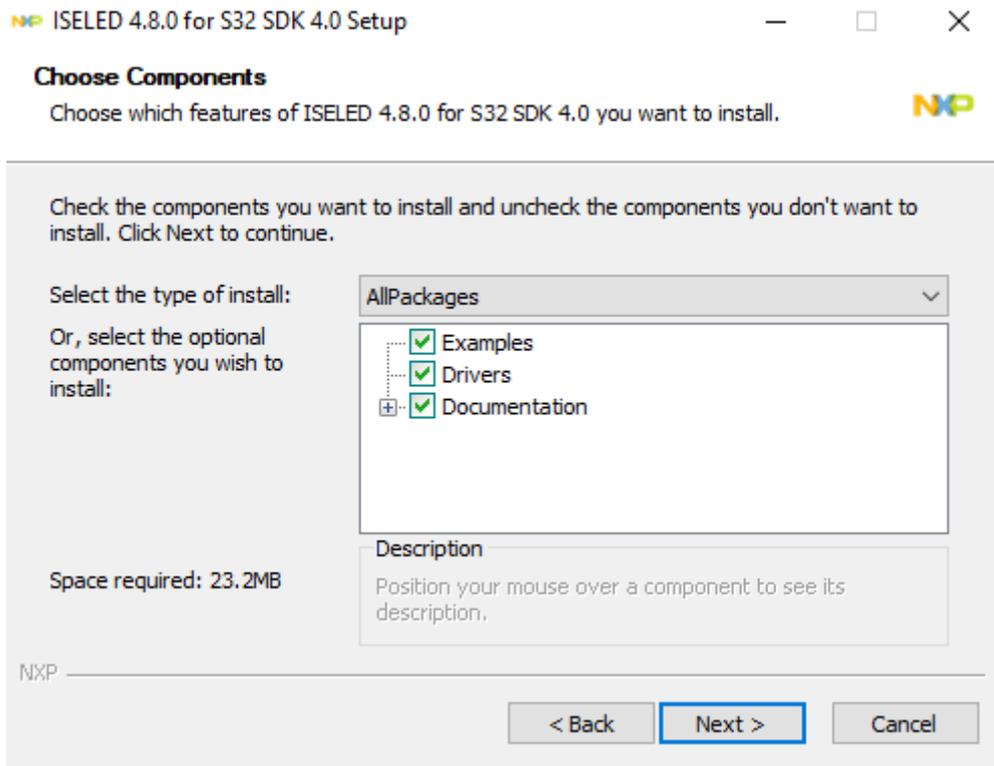
3.14 Select the license file that was saved previously



3.15 If the license expires, please contact gpiis.software@nxp.com or your NXP sales representative and ask for an Activation Code to register the software

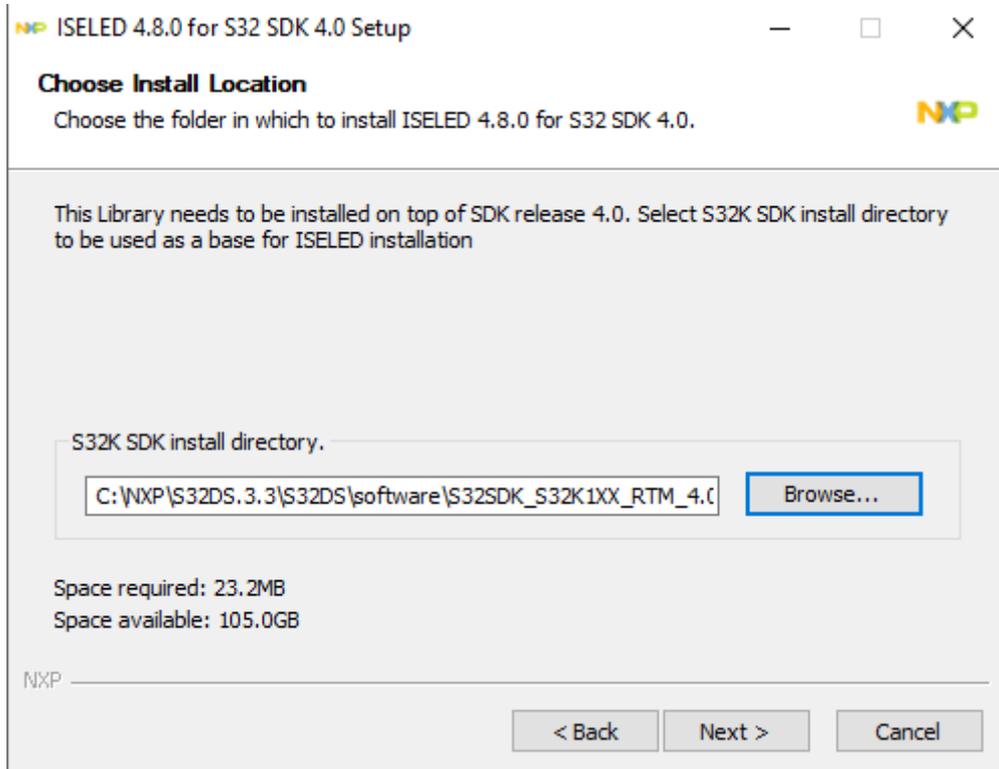


3.16 Select the components for the installation



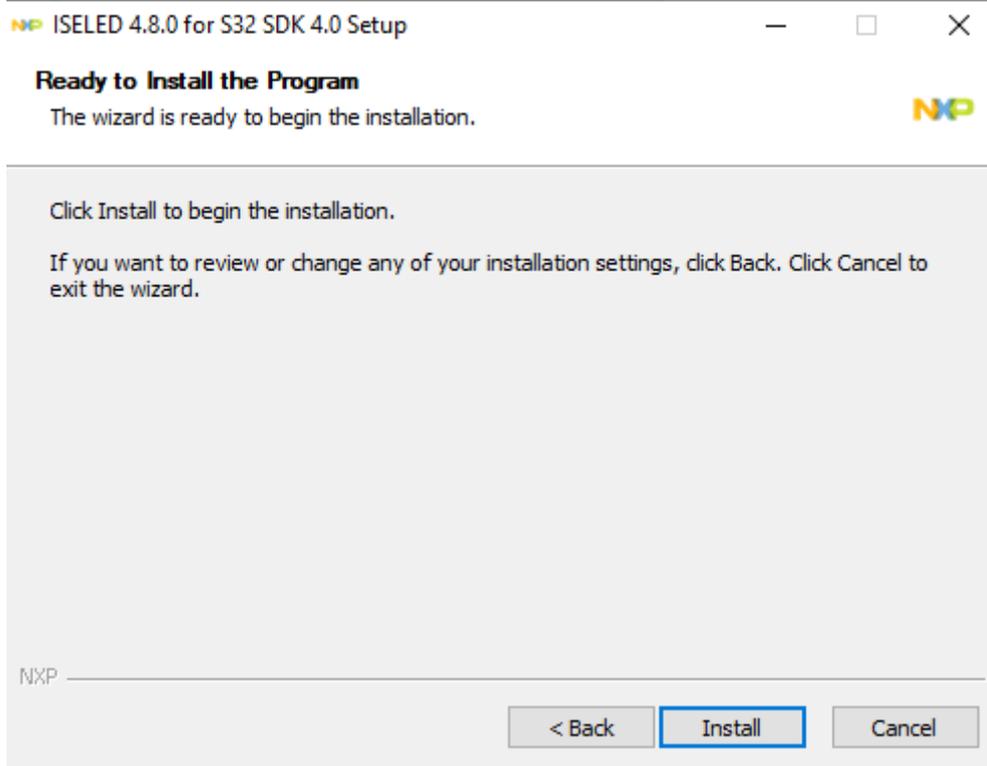


- 3.17 Select the installation path. Make sure that the installation path is the same as the S32K SDK RTM 4.0.0 installation folder





3.18 Finally click Install to start the setup

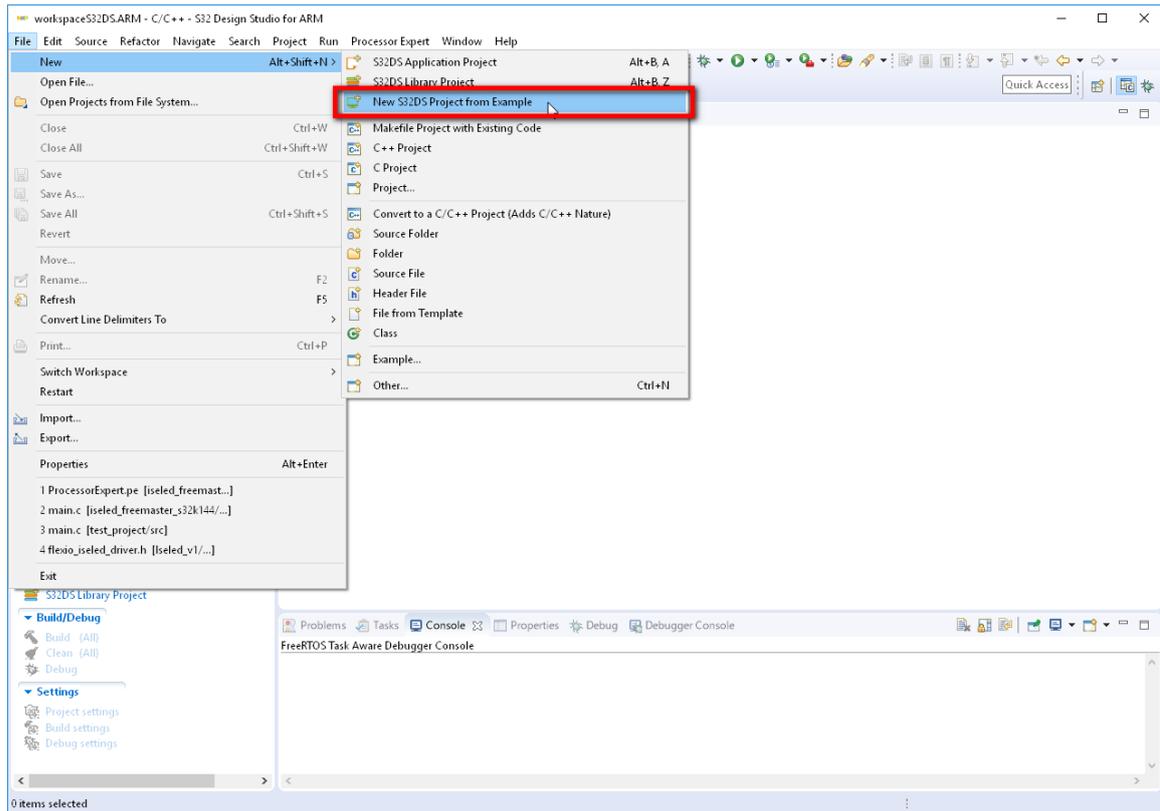




4. Troubleshooting

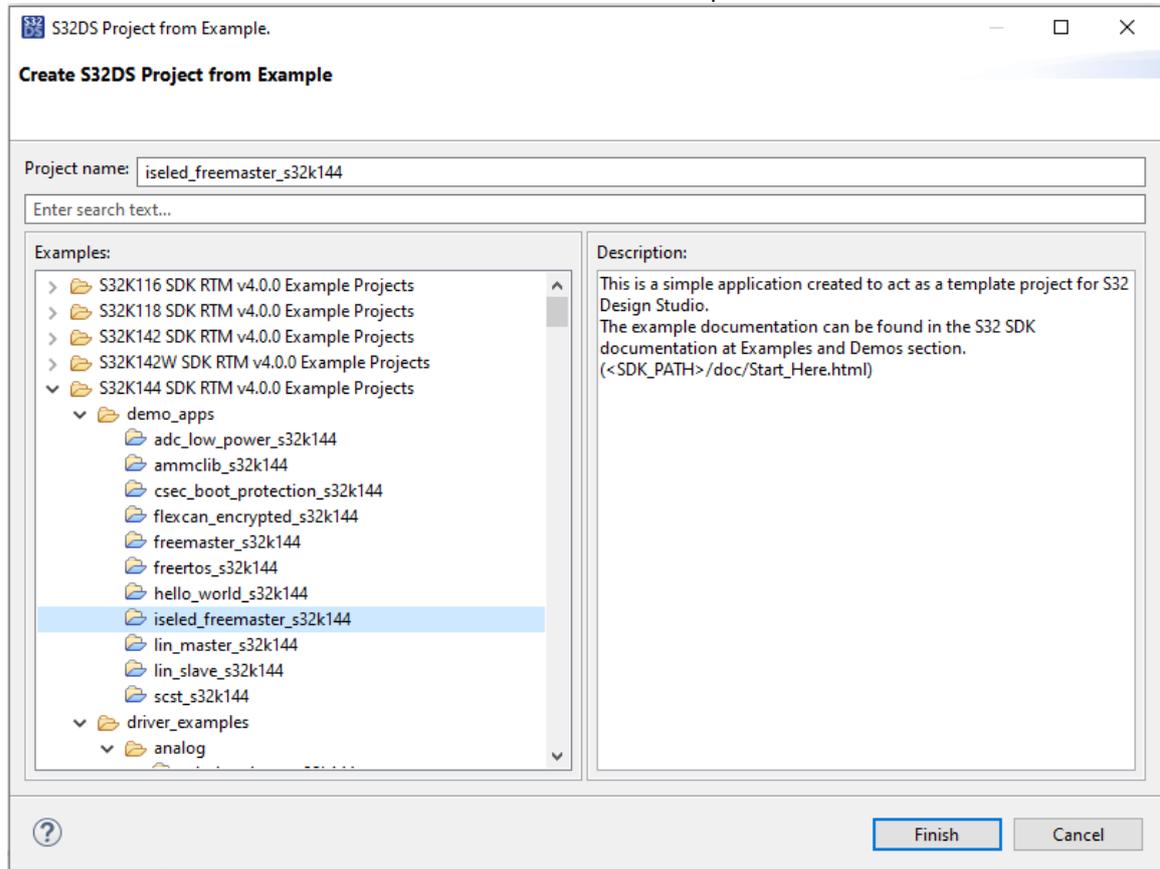
To verify the ISELED Driver installation please follow the next steps:

- 4.1 Start the S32 Design studio and select New S32DS Project from Example in File menu.





- 4.2 If the ISELED Driver example application does not appear in the examples list, it means that the installation path for the ISELED Driver did not match the S32K SDK RTM 4.0.0 installation folder. Please see step 3.16.





4.3 Another way to verify the ISELED Driver installation is to check if the ISELED libraries are present in the S32K SDK installation folder

Name	Date modified	Type	Size
libiseled_S32K11x.a	11/27/2018 5:48 PM	A File	42 KB
libiseled_S32K14x.a	11/27/2018 5:48 PM	A File	42 KB

5. Starting from S32K SDK ISELED example application

The S32K SDK ISELED driver is provided with the example application. The example application uses FreeMASTER SW component from NXP, used for data visualization and operation of project flow. In case the FreeMASTER SW component is not installed on your computer, please visit the

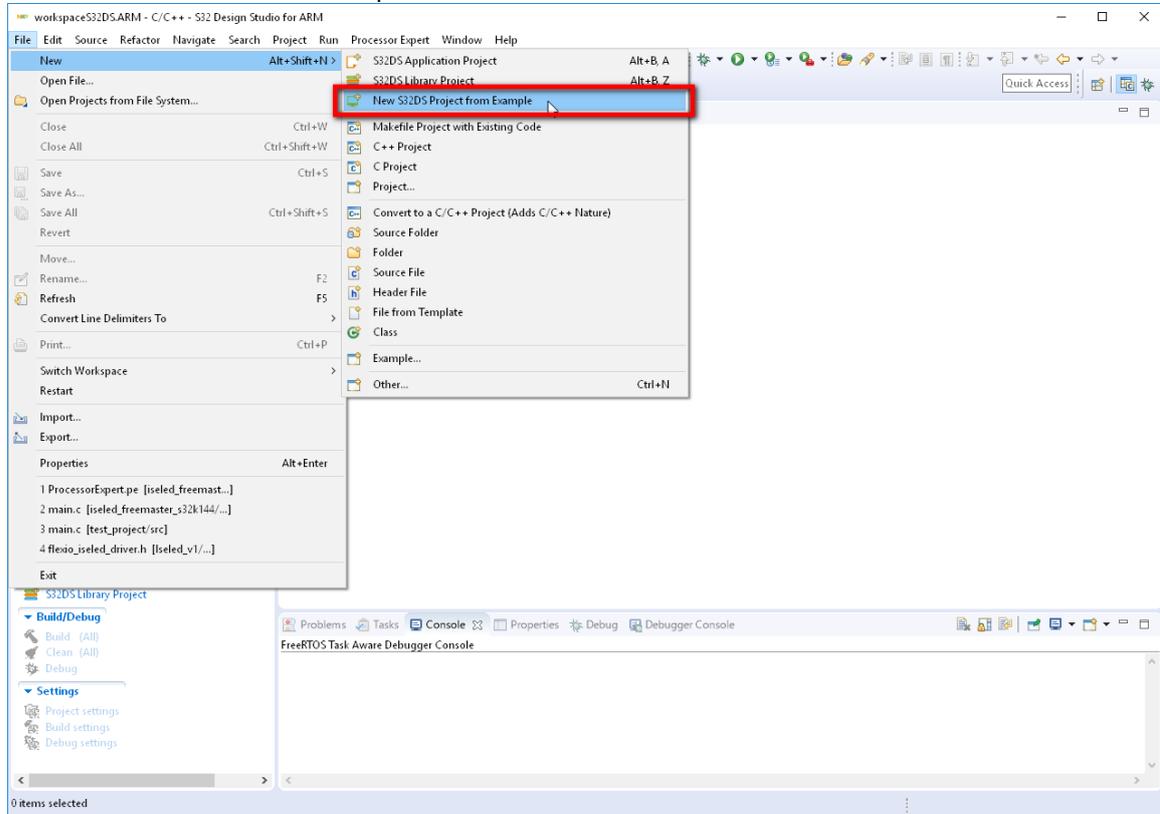
www.nxp.com/freemaster website to download the installation package of the FreeMASTER component.

For a detailed description of the ISELED Driver example application, please refer to the ISELED_UserGuide document that can be found in the installation path under the “doc” folder.

To start the user application based on this example, please follow these instructions:

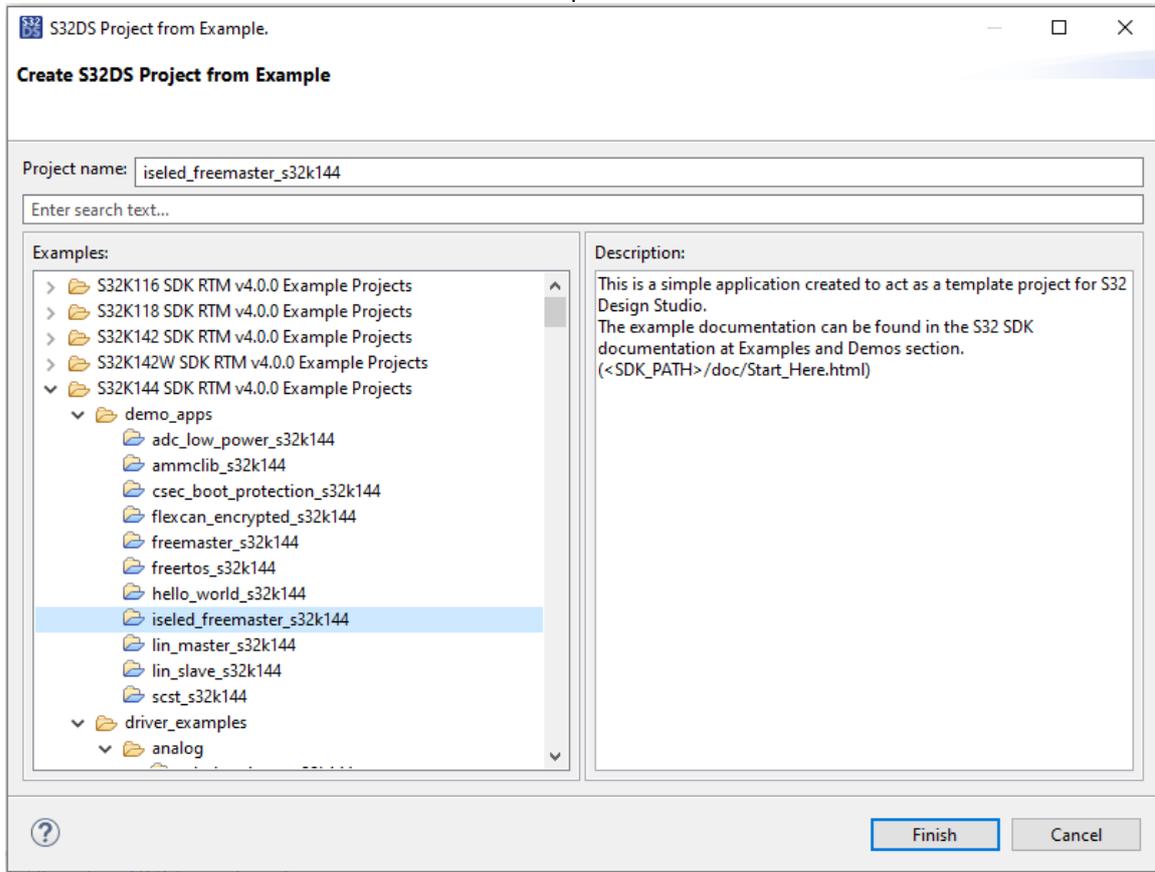


5.1 Start the S32 Design studio and select New S32DS Project from Example in File menu.



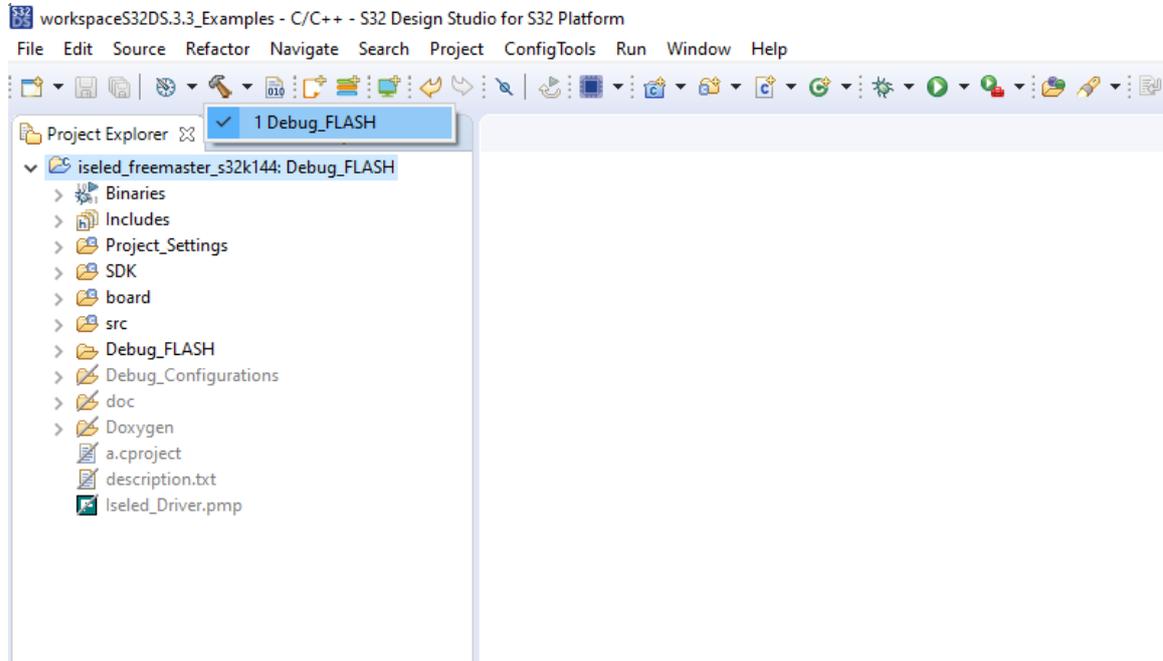


5.2 Select the `iseled_freemaster_s32k144` example application from the S32K144 examples list.



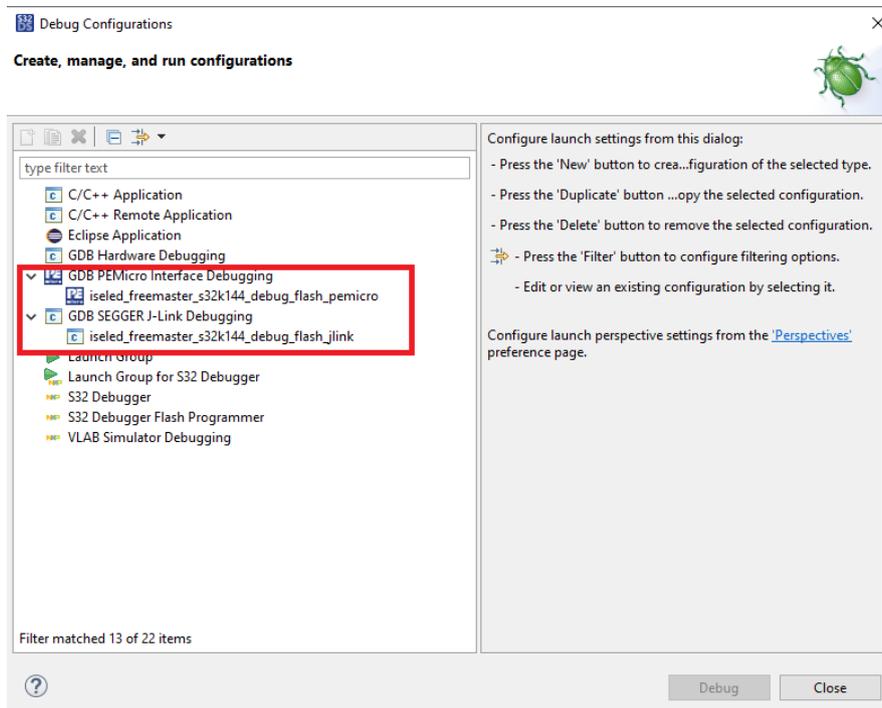
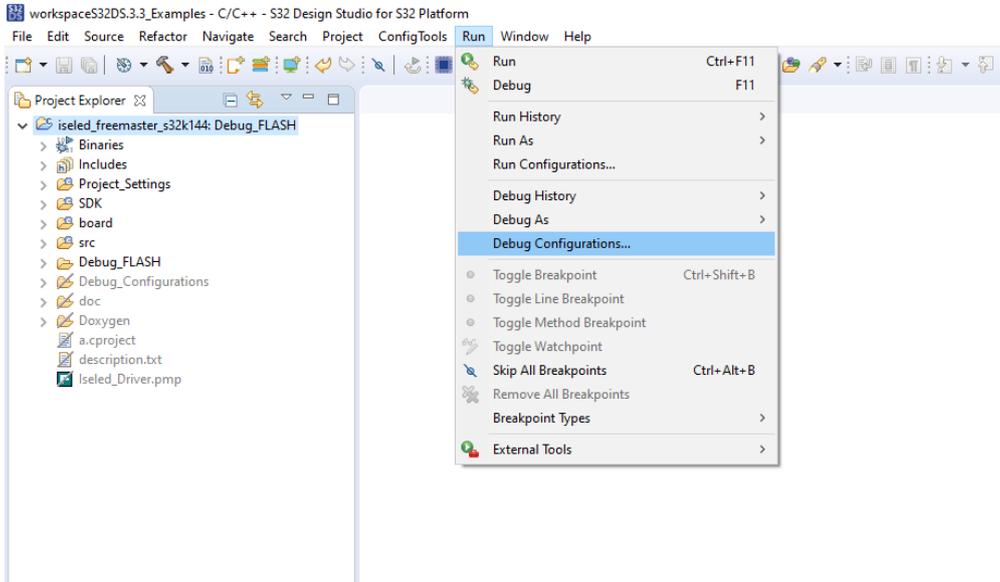


5.3 Build the project by selecting the build command from the menu bar and selecting the Debug_FLASH option.





5.4 Choose the debugging option by selecting Run menu and Debug Configuration item. Here you can select the Debug interface option.





For more details about the S32K SDK ISELED driver, please open the driver documentation, stored in the installation folder.
For a detailed description of the ISELED Driver example application please read the ISELED_UserGuide document that can be found in the installation path under the “doc” folder.

Note: The S32K SDK ISELED example project is using FreeMASTER SW component from NXP, used for data visualization and operation of project flow. In case the FreeMASTER SW component is not installed on user computer, please visit the www.nxp.com/freemaster to download the installation of the FreeMASTER component.
