ModusToolbox™ CAPSENSE™ and Multi-Sense Pack quick start guide

About this document

Scope and purpose

This document is the ModusToolbox™ CAPSENSE™ and Multi-Sense Pack quick start guide.

ModusToolbox™ is a set of multi-platform development tools and a comprehensive suite of GitHub-hosted firmware libraries. Together, they enable an immersive development experience for customers creating converged MCU and wireless systems. ModusToolbox™ software includes configuration tools, low-level drivers, libraries, and operating system support, as well as other packages that enable you to create applications.

ModusToolbox™ also includes support for Visual Studio Code and Eclipse that run on Windows, macOS, and Linux platforms along with various tools such as stand-alone device and middleware configurators. The ModusToolbox™ Multi-Sense Pack provides device support for the CY8CPROTO-040T-MS evaluation kit.

PSOC™ 4000T is a member of the PSOC™ 4 MCU family with fifth-generation CAPSENSE™ and multi-sense technology offering ultra-low power touch HMI solution. Now enabled with Inductive sensing (ISX) and Liquid level sensing (LLS).

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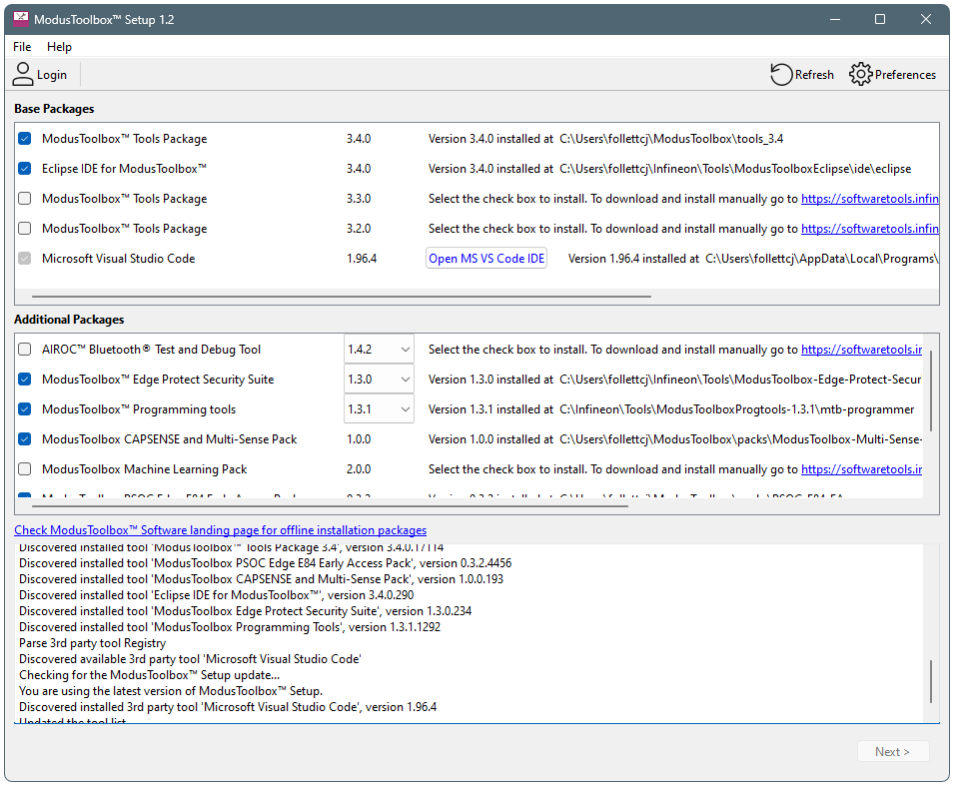
1 Installing the pack

The easiest way to install the pack is to use the ModusToolbox™ Setup program. If you do not already have ModusToolbox™ software installed, download it from here:

https://softwaretools.infineon.com/tools/com.ifx.tb.tool.modustoolboxsetup

After installation is complete, launch the Setup program and select the following (as needed):

- ModusToolbox™ Tools Package 3.4.0
- Eclipse IDE for ModusToolbox 3.4.0 (optional)
- ModusToolbox Edge Protect Security Suite 1.3.0
- ModusToolbox™ Programming tools 1.3.1
- ModusToolbox™ CAPSENSE™ and Multi-Sense Pack

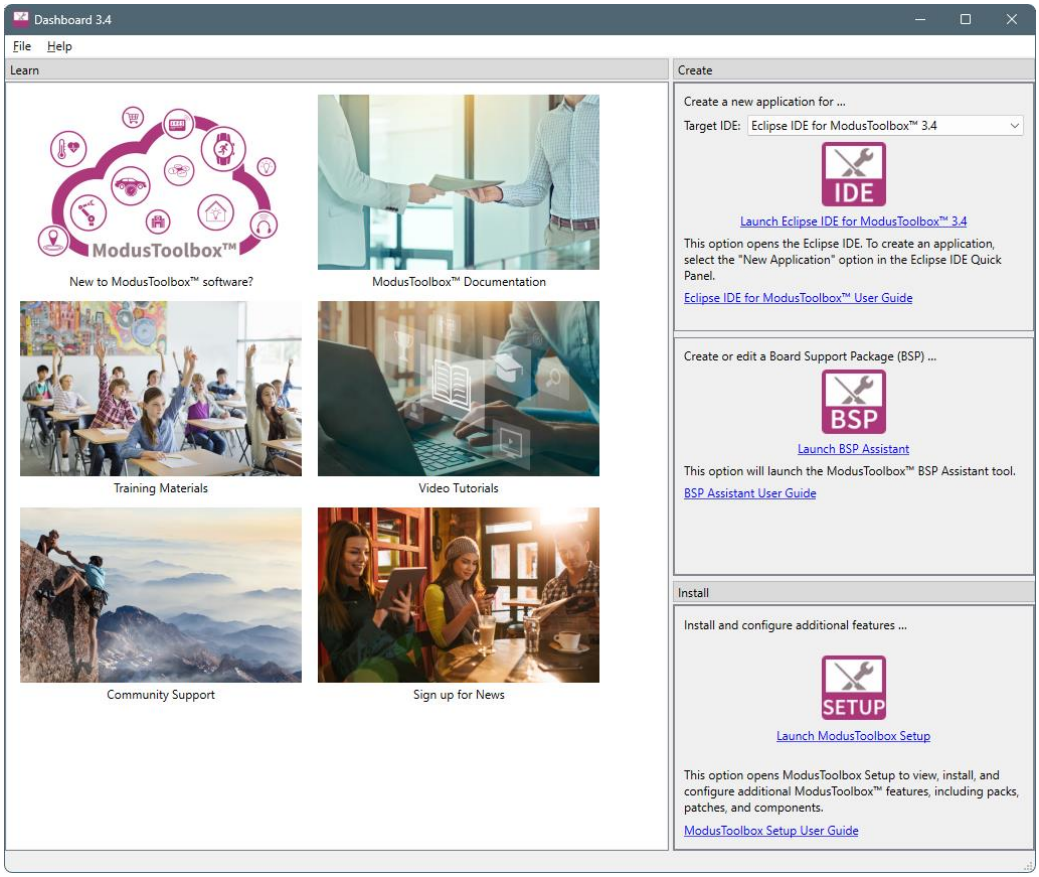


Attention: ***If you previously used a Multi-Sense early access pack, deselect it to uninstall it. You will also need to remove or disable the `MTB_EARLY_ACCESS_PACK` environment variable.***

Follow the prompts on the Setup program to install/uninstall the selected items. You may be prompted for the Administrator user name and password. When complete, click **Finish**.

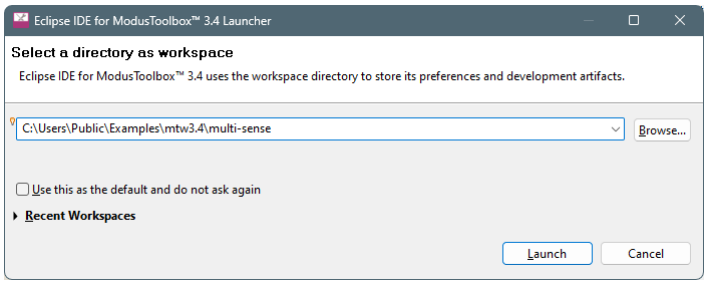
2 Creating an application

The easiest way to start creating an application is to use the ModusToolbox™ Dashboard. This may start automatically after using the Setup program. If not, you can launch it as appropriate for your operating system.



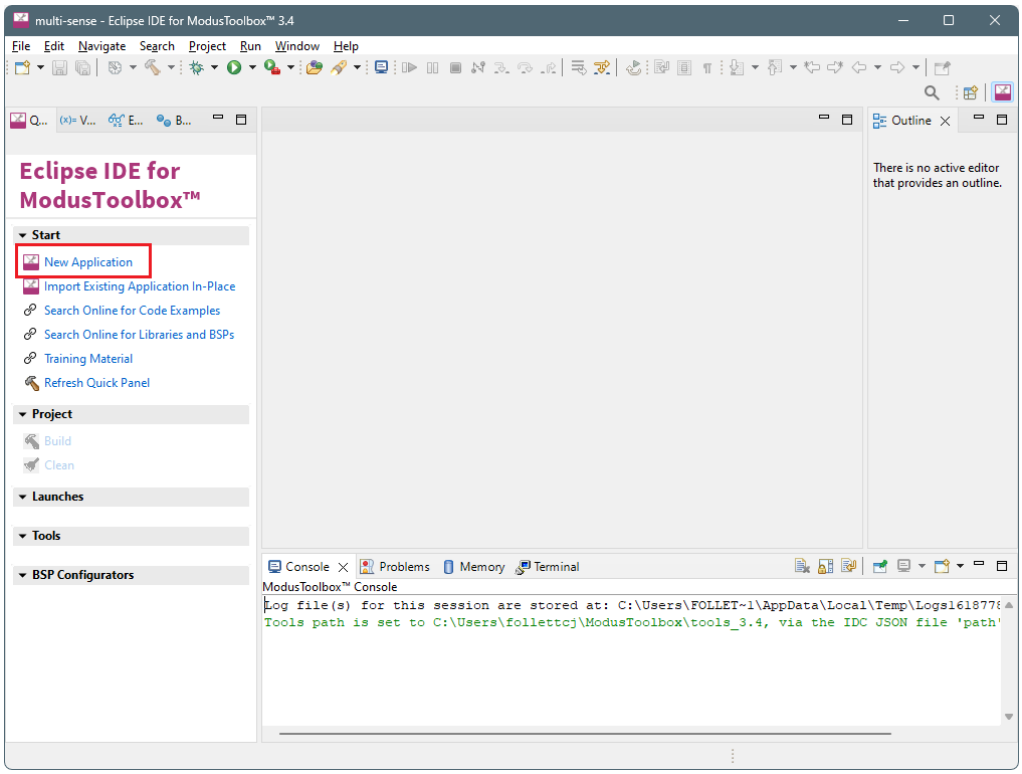
Under **Create > Create a new application for …**, select your desired **Target IDE** and click on the link to open either Eclipse or Project Creator. For this example, we'll use Eclipse.

When Eclipse loads, specify the Workspace and click **Launch**:

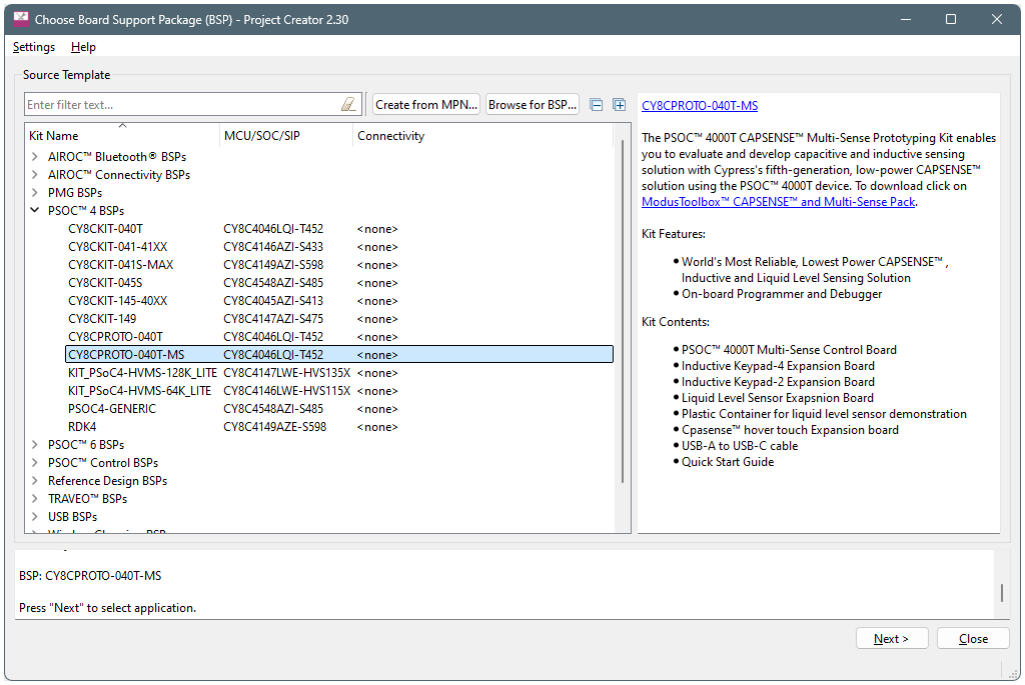


Creating an application

Then, click **New Application** in the Quick Panel:

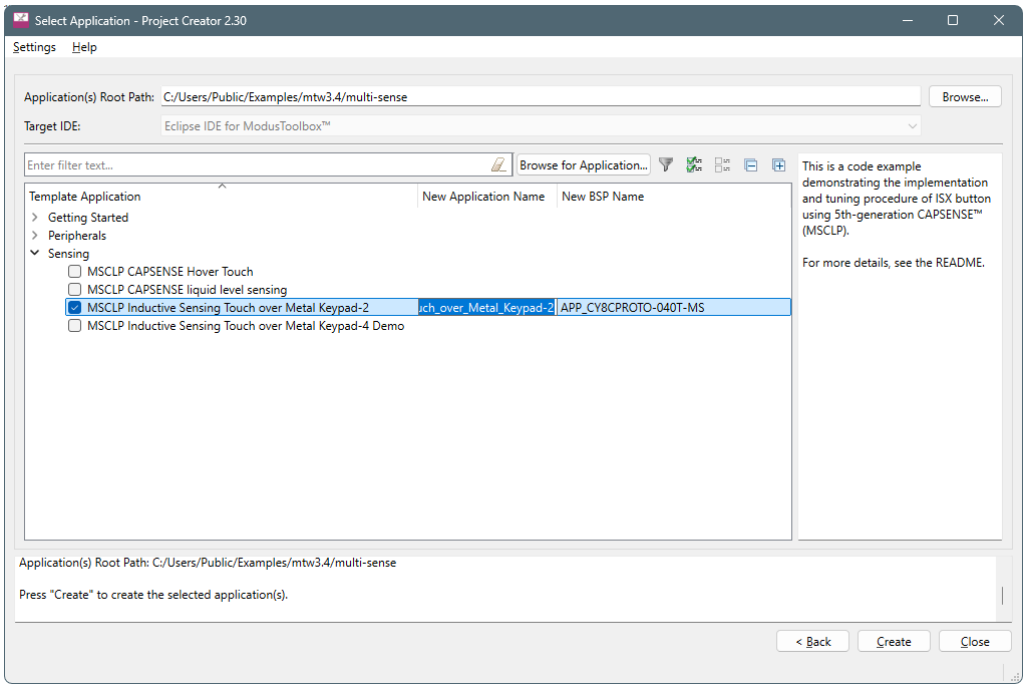


This opens the Project Creator tool. Under PSOC™ 4 BSPs, select the CY8CPROTO-040T-MS kit, and click **Next >**.

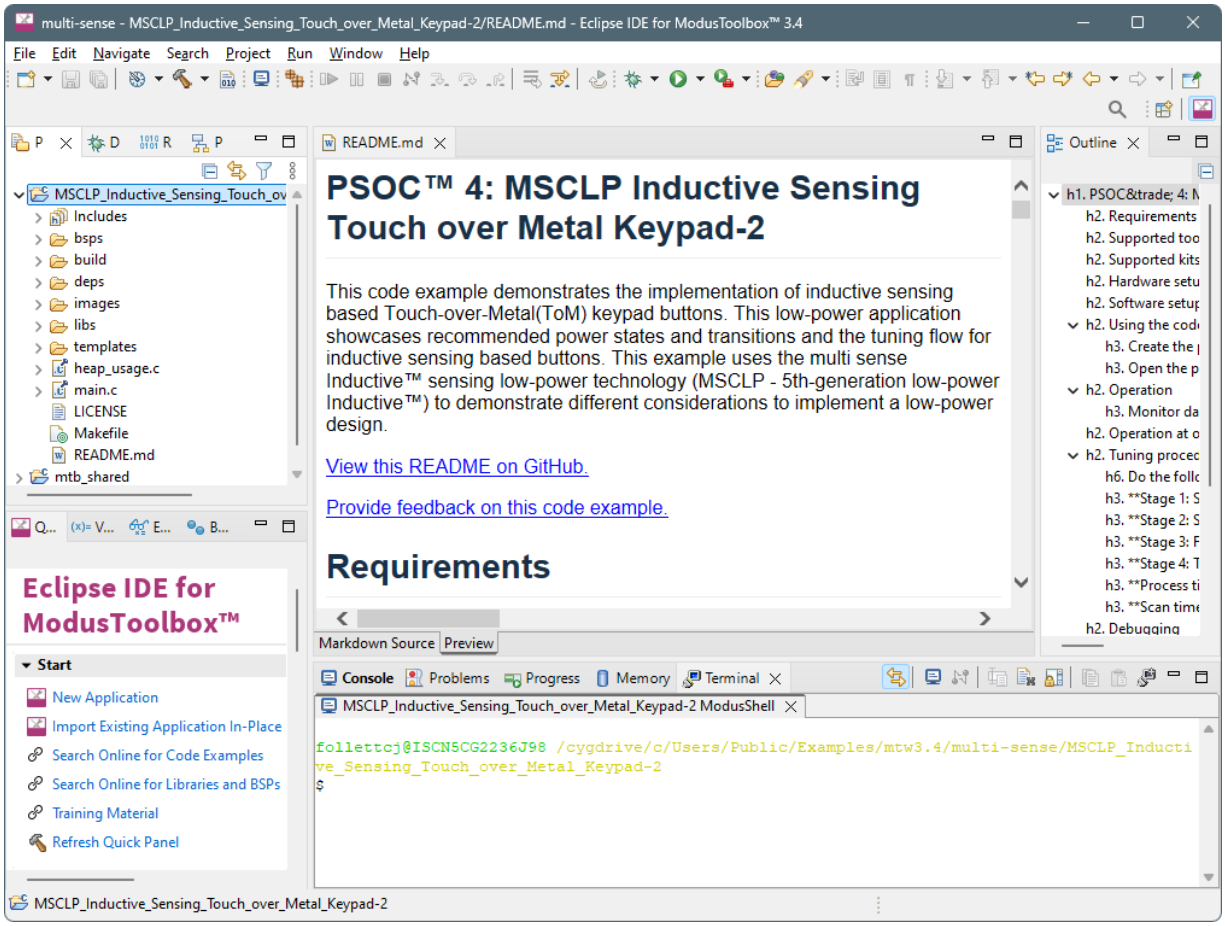


Creating an application

On the next page, select the Template Application to start with and click **Create**.



When the creation process completes, the application is opened in Eclipse.



3 Device Documentation

Datasheet

002-33949: CY8C40X5, CY8C40X6 PSOC(TM) 4 MCU: PSOC(TM) 4000T datasheet based on Arm® Cortex®-M0+ CPU (Rev *J)

Technical Reference Manuals

- 002-34474 - PSOC™ 4000T Architecture Technical Reference Manual (Rev *C)
- 002-34467 - PSOC™ 4000T MCU Registers Technical Reference Manual (Rev *E)
- 002-34694 - PSOC™ 4000T MCU Supplement Architecture Reference Manual v0C.pdf (Rev *C)
- 002-34542 - PSOC™ 4000T MCU Supplement Registers Reference Manual v0E.pdf (Rev *E)

Application Notes

- AN239751 - Flyback Inductive Sensing Design Guide.pdf (Rev *A)
- AN239805 - Liquid-Level Sensing PSOC™ 4 CAPSENSE™.pdf (Rev *B)
- AN88619 - PSOC™ 4 MCU Hardware Design Considerations.pdf (Rev *N)
- AN79953 - Getting started with PSOC™ 4 MCU.pdf (Rev AA)
- AN234231 - PSOC™ 4 CAPSENSE™ ultra-low-power capacitive sensing techniques.pdf (Rev *H)
- AN85951 - PSOC™ 4 and PSOC™ 6 MCU CAPSENSE™ design guide.pdf (Rev AG)
- AN234185 - PSOC™ 4 CAPSENSE™ touchpad design guide.pdf (Rev *A)
- AN92239 - Proximity sensing with CAPSENSE™.pdf (Rev *F)

4 Known issues

For a full list of known issues, see *ModusToolbox-CAPSENSE-Multi-Sense-RN.pdf* included with the Pack installation. The default location for this file is *<user-home>/ModusToolbox/packs/ModusToolbox-Multi-Sense-Pack/help.*

Known issues

Revision history

Document revision	Date	Description of changes
**	2024-12-11	Initial version.
*A	2025-02-05	Updated for production release.

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