

ModusToolbox™ tools package quick start guide

ModusToolbox™ tools package version 3.8.0

About this document

[A newer version of this document may be available on the web here](#)

Scope and purpose

ModusToolbox™ software is a set of tools that support device configuration and application development. These tools enable you to integrate our devices into your existing development methodology. This guide helps you get started using the various tools included with the ModusToolbox™ tools package by providing a quick introduction to creating and building an application.

Document conventions

| Convention | Explanation |
|----------------------|---|
| Bold | Emphasizes heading levels, column headings, menus and sub-menus |
| <i>Italics</i> | Denotes file names and paths. |
| monospace | Denotes APIs, functions, interrupt handlers, events, data types, error handlers, file/folder names, directories, command line inputs, code snippets |
| File > New | Indicates that a cascading sub-menu opens when you select a menu item |

Reference documents

Refer to the following documents for more information as needed:

- [ModusToolbox™ software installation guide](#) – This provides information and instructions about installing the tools package on Windows, Linux, and macOS.
- [Dashboard user guide](#) – This provides specific information about the Dashboard.
- [Project Creator guide](#) – This provides specific information about the Project Creator tool.
- [Device Configurator guide](#) – This provides specific information about the Device Configurator.

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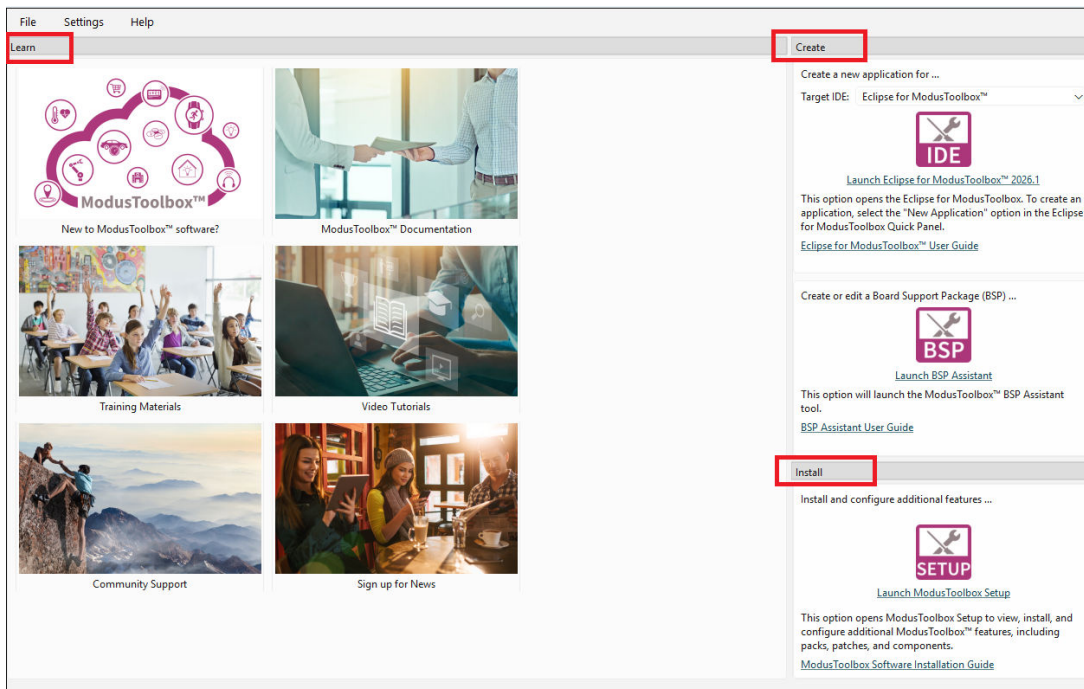
1 Install software and launch Dashboard

1 Install software and launch Dashboard

Refer to the instructions in the [ModusToolbox™ software installation guide](#) for how to download and install ModusToolbox™ software. The Dashboard provides links to various sources of documentation and training materials. It also contains starting points such as: creating a new application, creating/editing a BSP, and installing or launching the ModusToolbox™ Setup program. For more details, refer to the [ModusToolbox™ Dashboard user guide](#). After installation, you can launch the Dashboard to create a new application for the IDE of your choice, such as Eclipse, VS Code, IAR, or µVision. You can also access documentation and training material. The following example shows a new application for Eclipse.

- The **Learn** panel provides several useful links to ModusToolbox™ community support, video tutorials, training materials, and documentation.
- The **Create** panel provides access to the Project Creator and BSP Assistant tools, as well as user guides for each IDE and tool.
- The **Install** panel provides a link to install and use the ModusToolbox™ Setup program.

To create a new application, select the IDE of your choosing from the drop-down menu under the Create tab. Then, click the icon or link to begin the process.



2 Create new application

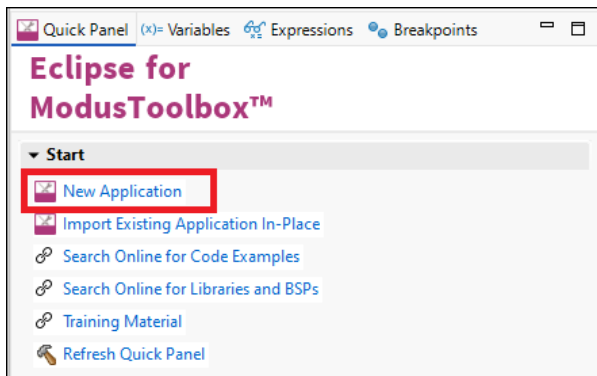
2 Create new application

No matter which IDE you intend to use, you start by creating a ModusToolbox™ application with the Project Creator tool. Creating an application includes several steps, as follows:

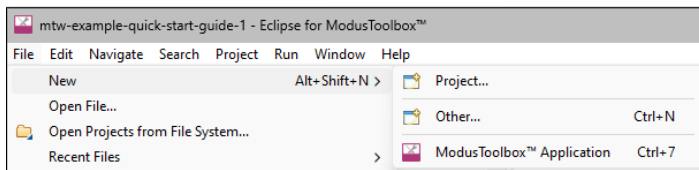
2.1 Step 1: Open Project Creator

You can open Project Creator using the Dashboard as shown in the previous section. However, you can also open the Project Creator using the tool's executable as applicable for your operating system.

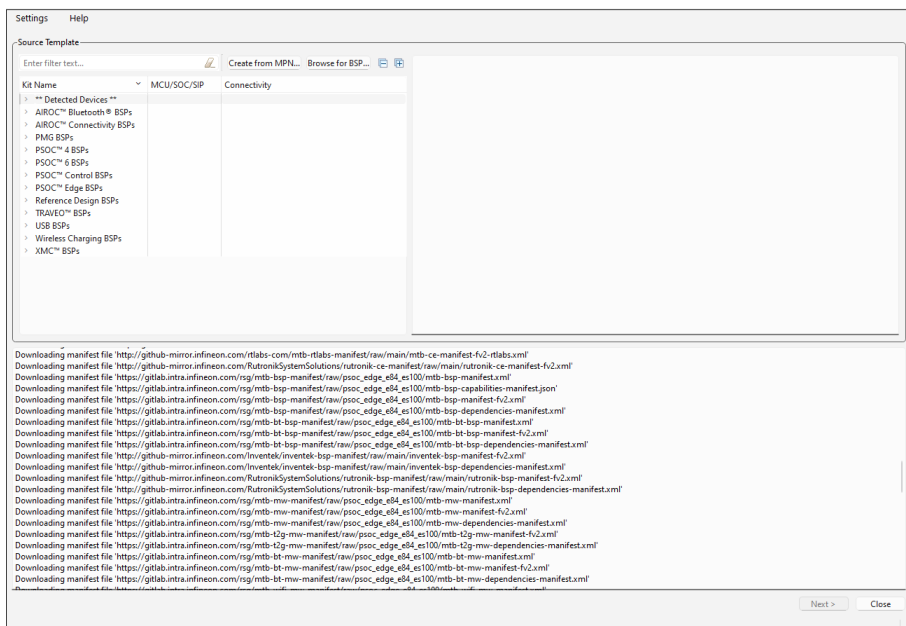
To launch the Project Creator tool with Eclipse, click the **New Application** link in the Quick Panel.



You can also launch it by selecting **File > New > ModusToolbox™ Application**.



Project Creator provides several applications for use with different development kits, as shown in the example image below.

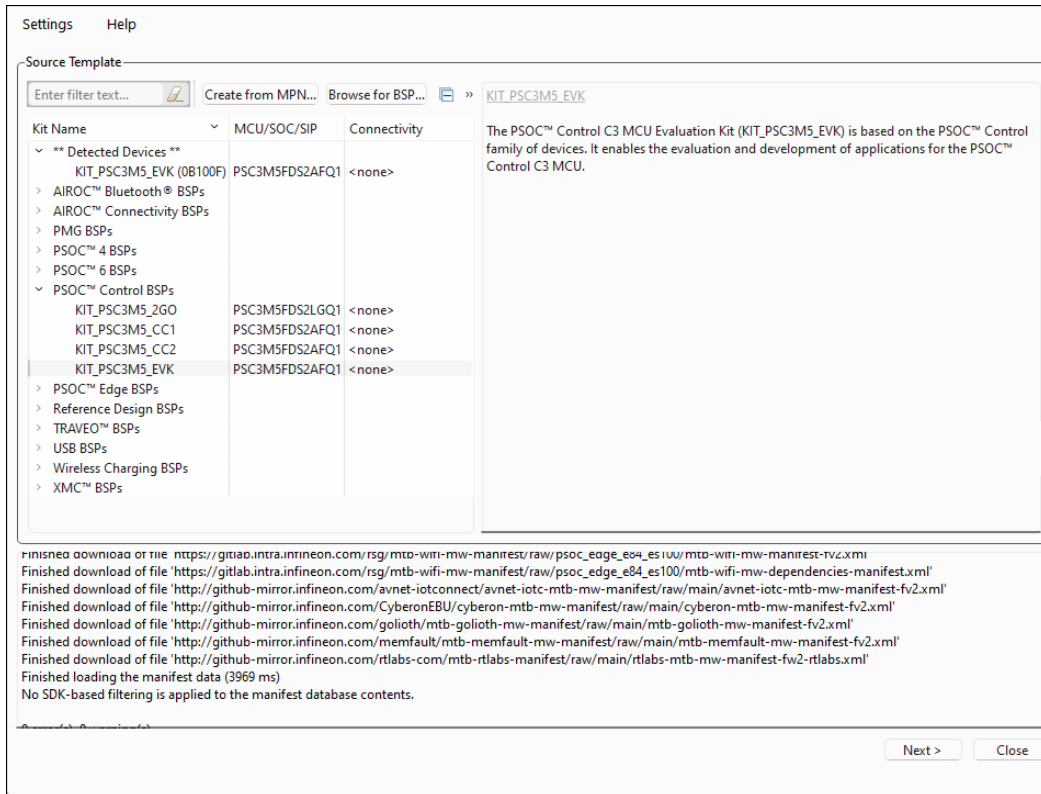


Refer to the [Project Creator user guide](#) for more information.

2 Create new application

2.2 Step 2: Choose Board Support Package (BSP)

When the Project Creator tool opens, expand one of the BSP categories under Kit Name and select an appropriate kit; see the description for it on the right. For this example, select the PSC3M5_EVK kit. The following image is an example; the precise list of boards available in this version will reflect the platforms available for development.

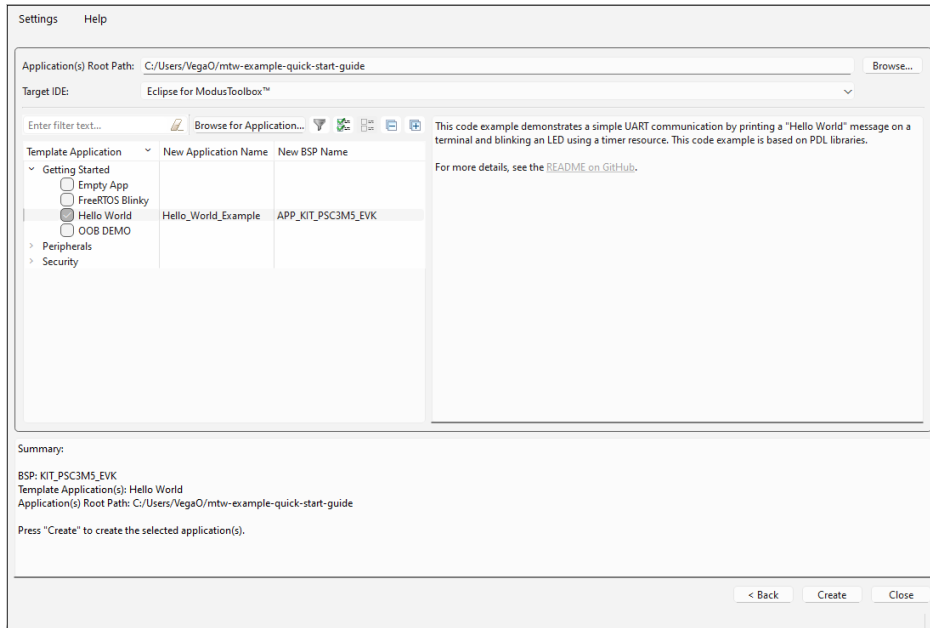


Note: You can create your own BSP using the **Create from MPN** feature, or add a BSP using the **Browse for BSP** feature.

2.3 Step 3: Select application

Click **Next >** to display the "Select Application" page. This page displays the Template Applications available for the selected BSP, organized by categories.

2 Create new application



Use the **Application Root Path** field to select the location for your application.

Use the **Target IDE** drop-down to select your chosen IDE from the drop-down menu, in this case the example IDE selected is Eclipse.

Note: If you used the Dashboard to open the Project Creator tool, **Target IDE** will already be selected.

For this example, expand **Getting Started** and select **Hello World** from the list. This example uses the PSOC™ Control MCU to blink an LED.

Note: The actual application names available might vary.

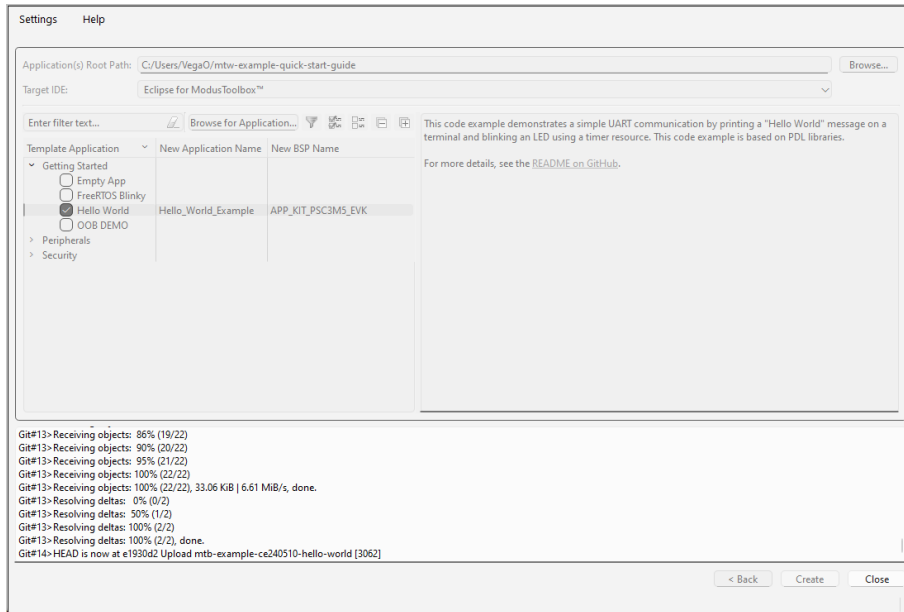
Type a name for your application and/or BSP or leave the default names. Do not use spaces. Also, do not use common illegal characters, such as:

* . " ' / \ [] : ; | = ,

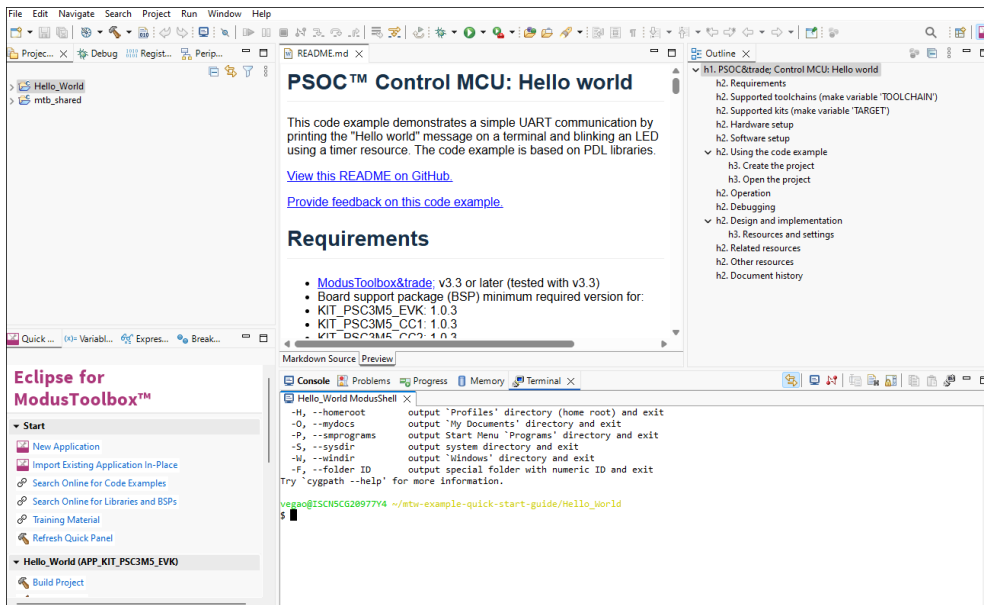
2.4 Step 4: Create application

Click **Create** to start the process of creating a ModusToolbox™ application, and the GUI will display various messages showing the progress.

2 Create new application

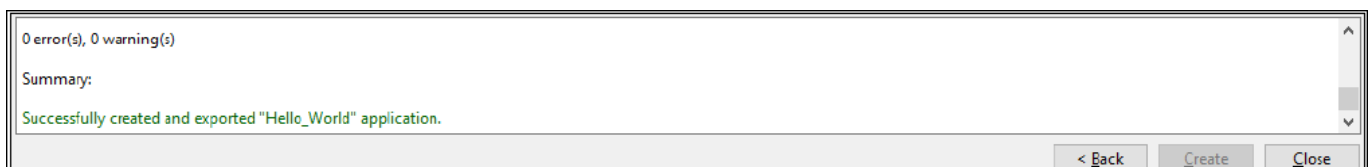


When complete, the Project Creator tool closes automatically if there are no errors or warnings. If there are warnings only, click **Close** and the application will open in Eclipse. After several moments, the application opens with the `Hello_World` in the Project Explorer, and the `README.md` file opens in the file viewer:



Note: *If there are errors, project creation will fail.*

Note: *If you choose to use an IDE other than Eclipse, the tool will display a message stating that the application was created. To close the tool, click the **Close** button or the **X** button at the top-right of the GUI and confirm.*



3 Add/modify application code

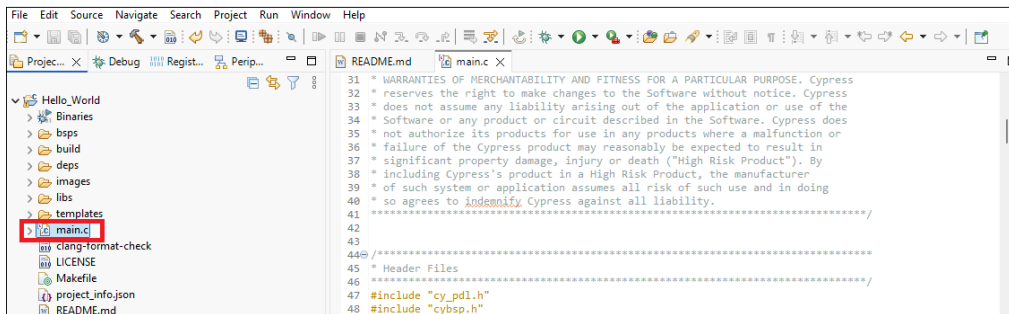
3 Add/modify application code

After creating the application, open it in your desired IDE or command line. For more details about each option, refer to the following user guides:

- [Eclipse for ModusToolbox™ user guide](#)
- [VS Code user guide](#)
- [IAR user guide](#)
- [µVision user guide](#)
- [ModusToolbox™ tools package user guide](#) (for details on command line)

Code example applications work as they are, and there is no need to add or modify code in order to build or program them. However, if you want to update and change the application to do something else, open the appropriate file in your preferred code editor.

For Eclipse as an example, double-click the *main.c* file in Project Explorer to open it.



Note: As you type into the file, an asterisk (*) will appear in the file's tab to indicate changes were made. The **Save/Save As** commands will also become available to select.

4 Using the Device Configurator

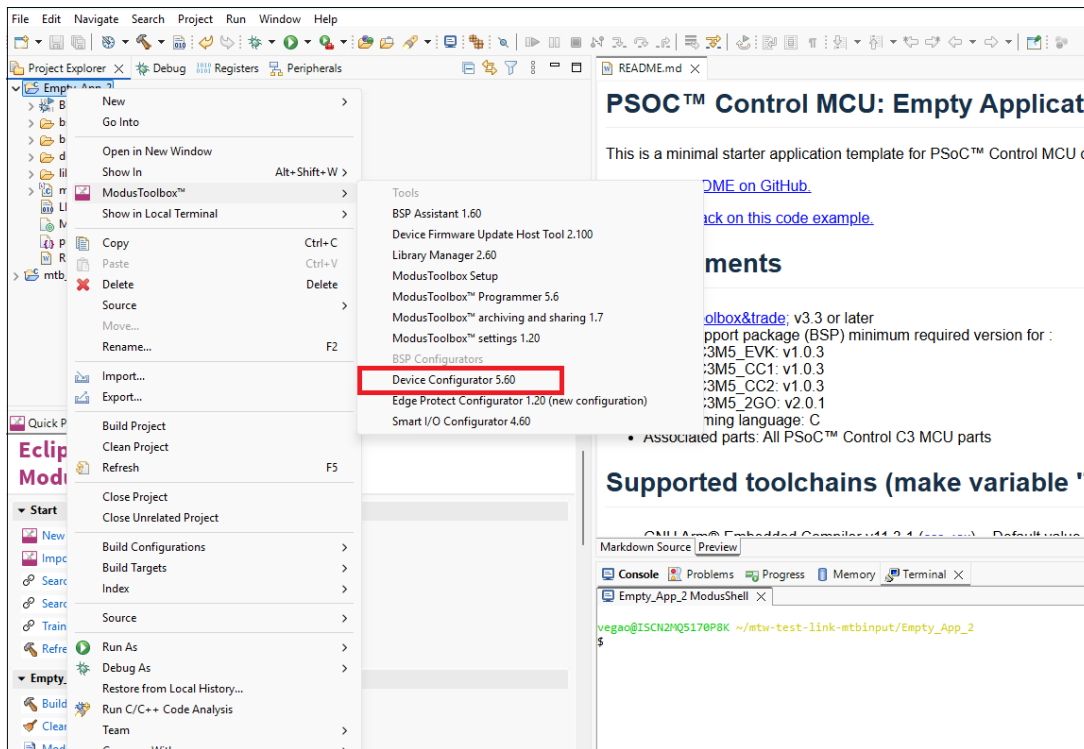
4 Using the Device Configurator

The Device Configurator provides a graphical view of device peripherals and it generates macros, data structures, and initialization functions based on your selections. The BSP function `cybsp_init()` calls the generated functions to set up the clocks, pins, and internal routing. It is typically called from the `main ()` function before using on-chip peripherals such as serial blocks and timer/counters.

When you launch the Device Configurator from Eclipse, you are opening the project’s `design.modus` file, which is responsible for holding all of the BSP configuration information. It contains the following:

- Selected device
- Resource parameters
- Constraints

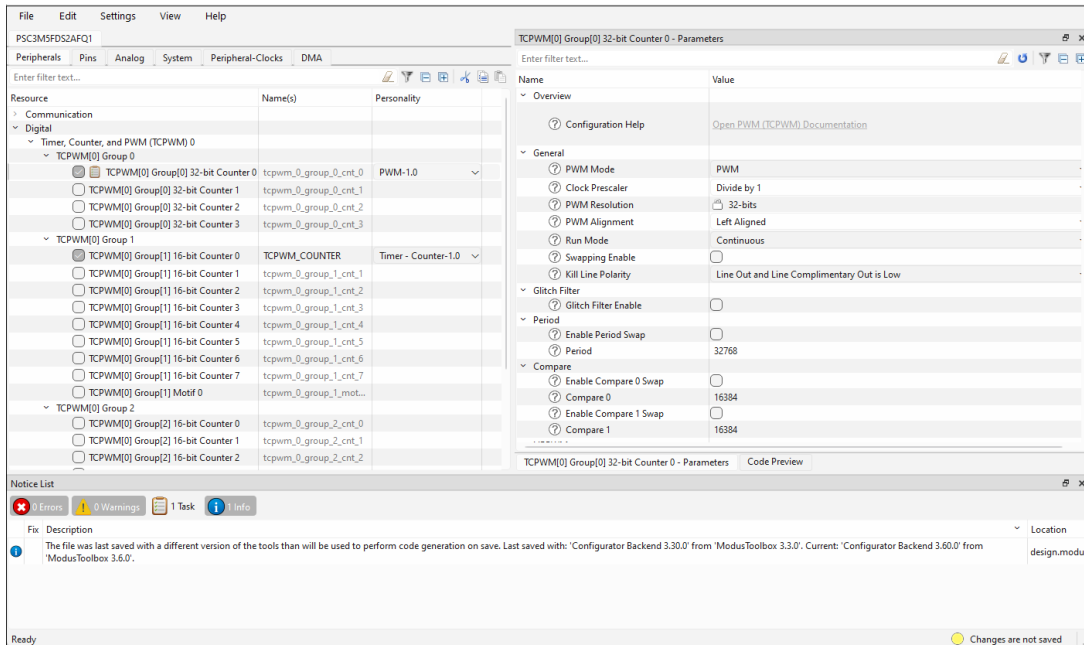
To launch Device Configurator from Eclipse, right-click on the <app-name> project in the Project Explorer, select **ModusToolbox™**, and then select the configurator.



For each peripheral, Device Configurator has a Parameters panel, where the initial state of the block is defined, and a Code Preview panel, where you can see the code that will be written to the `config/GeneratedSource` folder of the BSP.

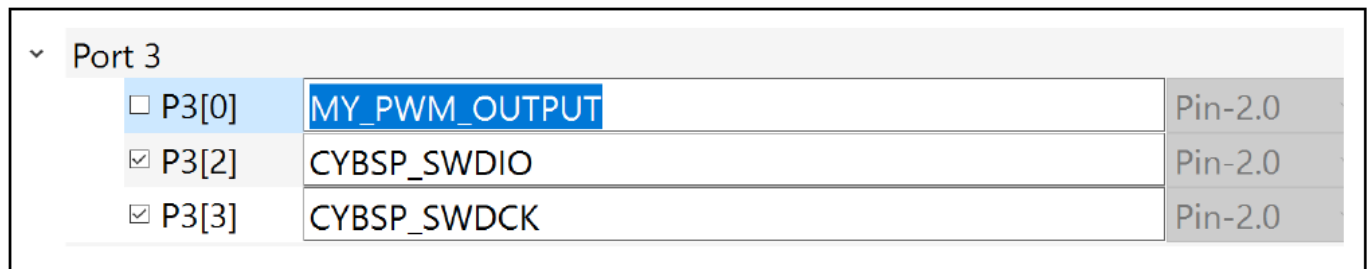
Each enabled resource presents links to API documentation at the top of the Parameters panel. In some cases, it is also possible to launch other BSP configurators for CAPSENSE™, QSPI, Smart I/O, etc.

4 Using the Device Configurator



Note: The tool automatically opens the design.modus file for the active BSP.

To name a pin or other peripheral block, use the Device Configurator to replace the default names. However, leave the resource unselected, as shown in the example image.



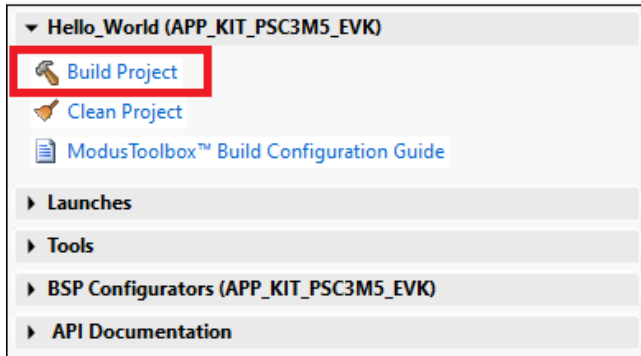
For more information on launching Device Configurator with other IDEs, refer to the [Device Configurator guide](#), which is also available by selecting **View Help** from the tool's **Help** menu.

5 Build, program, and debug

5 Build, program, and debug

Building the application is not specifically required, because building is generally performed as part of the programming and debugging processes. However, if you are running your chosen IDE without any hardware attached, you may wish to build your application to ensure all the code is correct.

Each IDE has different ways to do this, but using Eclipse as an example, click the **Build Project/Application** link in the Quick Panel after selecting a project/application. The following image shows the Quick Panel for a typical PSOC™ Control project/application.



Messages will then display in the Console, indicating whether the build was successful or not.

For programming and debugging, each IDE has specific steps for the various development kits and starter applications. Refer to the applicable user guide shown in the [Add/modify application code](#) section of this document.

Revision history

Revision history

| Revision | Date | Description |
|----------|------------|--|
| ** | 2023-05-05 | New document. |
| *A | 2024-01-15 | Updated for ModusToolbox™ version 3.2. |
| *B | 2024-09-27 | Updated for ModusToolbox™ version 3.3. |
| *C | 2024-12-06 | Updated for ModusToolbox™ version 3.4. |
| *D | 2025-03-21 | Updated for ModusToolbox™ version 3.5. |
| *E | 2025-08-29 | Updated for ModusToolbox™ version 3.6. |
| *F | 2025-12-09 | Updated for ModusToolbox™ version 3.7. |
| *G | 2026-03-21 | Updated for ModusToolbox™ version 3.8. |

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