ModusToolbox™ Project Creator user guide

ModusToolbox™ tools package version 3.9.0
Project Creator version 2.80.0

About this document

A newer version of this document may be available on the web here

Scope and purpose

This guide provides information and instructions for using the ModusToolbox™ Project Creator tool.

Document conventions

Convention	Explanation
Bold	Emphasizes heading levels, column headings, menus and sub-menus
Italics	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™ tools package user guide
- Library Manager user guide

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1 Overview

The Project Creator tool is used with the ModusToolbox™ software to create applications based on Board Support Packages (BSPs) and code examples found in the manifest files. The tool is provided as a graphical interface (see GUI description) and a command-line tool (see CLI description) to create applications for use in any software environment you prefer. The GUI provides a simple interface for users who do not want to use the CLI.

***Note**: ModusToolbox version 3.x BSPs and applications have been structured differently than version 2.x. For more details about those structure changes, see App Note AN235297. When creating an application, the BSP you select or import in the Project Creator tool determines the compatible template applications available. If they are not formatted to be compatible, 3.x BSPs will not work with 2.x applications and vice-versa.*

1.1 GitHub Manifest files

Manifest files determine which BSPs and code examples are available for use in the Project Creator tool in order to create applications. These files are located by default on GitHub. If for some reason your system cannot access these manifest files, then you will not be able to create an application.

KBA230953 describes methods for working around this issue.

1.2 Created application(s)

The Project Creator tool essentially runs a "git clone" command to create one or more applications onto your computer from a remote server. It also runs the "make getlibs" command to import the necessary libraries.

Different types of applications will have different files and directory structures. After creating the application(s), navigate to the specified root directory. Inspect the files and directories located there. Use these files to modify your application(s) as necessary in your preferred environment.

***Note**: The Project Creator tool generates a log file named project-creator.log in the **Application(s) Root Path**. This log file captures all commands run by the tool. It will be overwritten if you create a new application in the same path.*

Refer to the ModusToolbox™ tools package user guide for more details about make commands, BSPs, and the overall structure of ModusToolbox™ applications.

2 Launch the Project Creator

You can launch the Project Creator in various ways based on your operating system and how you work.

2.1 As a stand-alone GUI tool

Launch the Project Creator as a stand-alone GUI tool by running its executable for your operating system (for example, select it using the Windows **Start** menu or the macOS Finder). By default, it is installed here:

<install_dir>/ModusToolbox/tools_<version>/project-creator

2.1.1 GUI command-line options

The Project Creator GUI provides several useful command-line options that you can use when launching the GUI. The following table shows each option and its corresponding purpose:

Option	Description
`--close`	Closes the GUI once the project creation is complete.
`--ide <IDE Name>`	Sets the value of the **Target IDE** field on the Application page. The <IDE Name> can be one of the following: eclipse, vscode, ewarm, uvision, none.
`--ide-readonly`	Causes the **Target IDE** field in the project-creator to be read-only.
`--machine-interface`	Outputs project creation status in a JSON format to the standard output.
`--verbose[0-3]`	When launching from the executable, you can add this option to specify more or less messaging in the message console. The default level is 1.

2.2 From the Dashboard

Starting with the ModusToolbox™ 3.1 tools package, there is a Dashboard tool that allows you to launch the Project Creator for a given IDE. Refer to the Dashboard user guide for more details.

2.3 VS Code and Eclipse

VS Code and Eclipse have tools to launch the Project Creator tool. Refer to the applicable user guide for more details:

- VS Code for ModusToolbox™ user guide
- Eclipse for ModusToolbox™ user guide

2.4 As a command-line tool

To run the Project Creator as a command-line tool, navigate to the install location and run the `project-creator-cli` executable from a command-line prompt. By default, it is installed here:

<install_dir>/ModusToolbox/tools_<version>/project-creator

For more information about command-line options, run the `project-creator-cli` executable using the `-h` option. Refer to the CLI description section later in this document for more details and an example.

3 GUI description

The Project Creator GUI provides a series of pages used to create a project.

3.1 Menus

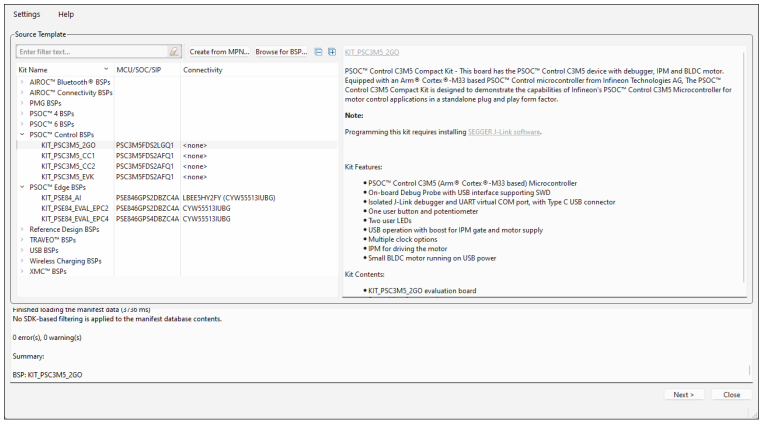
The Project Creator has the following menus:

- **Settings**
  - **ModusToolbox™ Settings** –

    This opens the Settings tool, an editor that allows you to configure a wide range of settings for your environment, such as proxy settings, content modes, and manifest DB settings. See the Settings tool user guide for more details on specific features.
- **Help**
  - **View Help** – Opens this document.
  - **About Project Creator** – Displays tool version information.

3.2 Choose BSP page

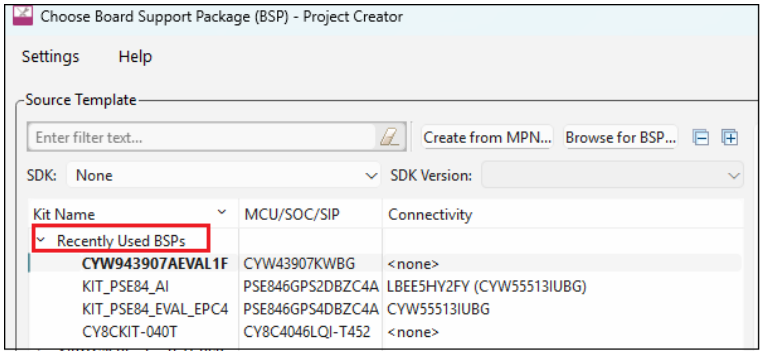
When you first launch the GUI, it displays the "Choose Board Support Package (BSP)" page that lists the available BSPs by various types, such as AIROC™, PSOC™, and XMC™.



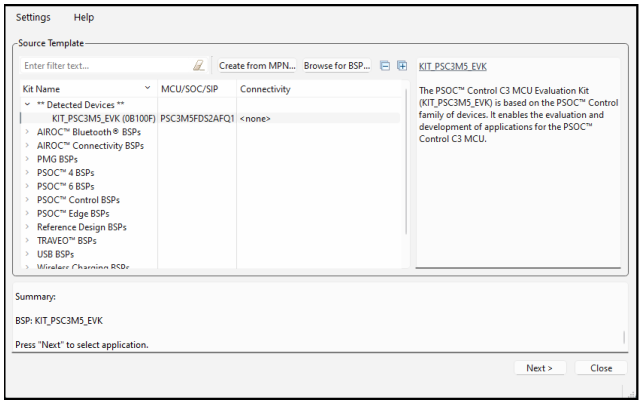
Expand one or more categories to view the BSPs, and select the desired BSP by clicking it. A description for the selected BSP displays in the right pane.

Use the **Expand All** or **Collapse All** options as needed to show or hide all the BSPs.

***Note**: The Choose BSP page also includes "Recently Used BSPs," listing up to 10 of your most recently selected BSPs at the top of the list for faster access. If no BSP selection history exists, this section is hidden.*



***Note**: Project Creator will automatically detect when you have a kit connected to your computer and select the correct BSP.*

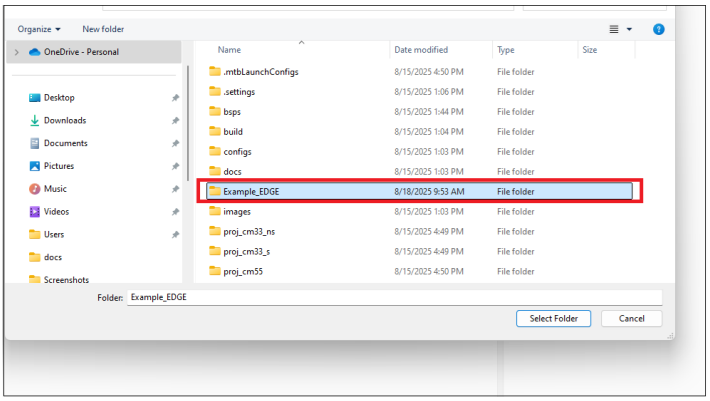


3.2.1 Create BSP from MPN

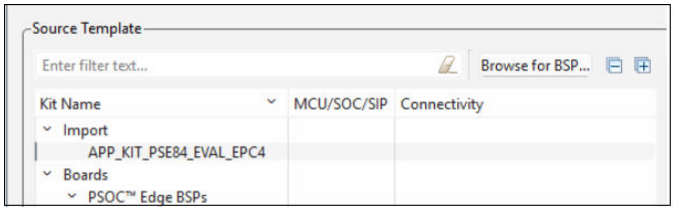
This command opens the BSP Assistant tool to create a BSP based on device part numbers. Refer to the BSP Assistant user guide for more details about how to create a BSP from MPNs. When you close the BSP Assistant, the new BSP will show up in the list under **Import**.

3.2.2 Browse for BSP

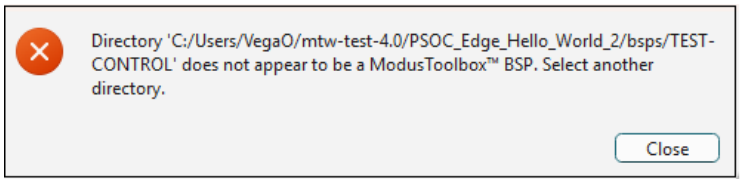
Use the **Browse for BSP** button to select any BSPs you may have created or received from a colleague. You can then create a new application for that imported BSP. After clicking the **Browse for BSP** button, the Select Folder dialog opens to select the appropriate BSP.



Navigate to and select the appropriate folder containing the BSP to import and click **Select Folder**. The tool checks that the BSP begins with the name "TARGET_" and that it has a makefile, but it does not validate the makefile for correctness. If the selected BSP is correct, it is added to the list with all the other BSPs.

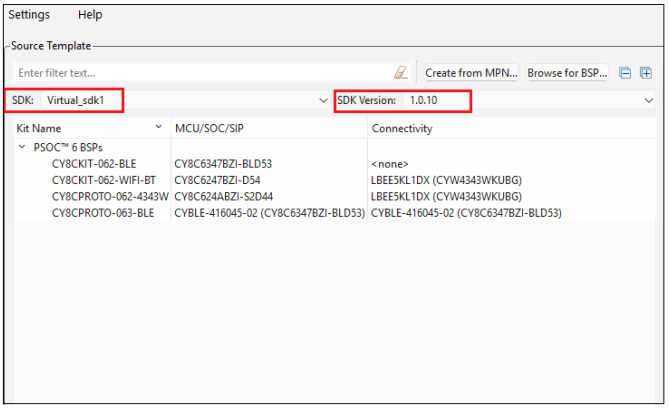


If the selected BSP is not correct, a message displays indicating that it is not valid. Close the message, and either navigate to another directory to find the BSP or cancel the import operation.



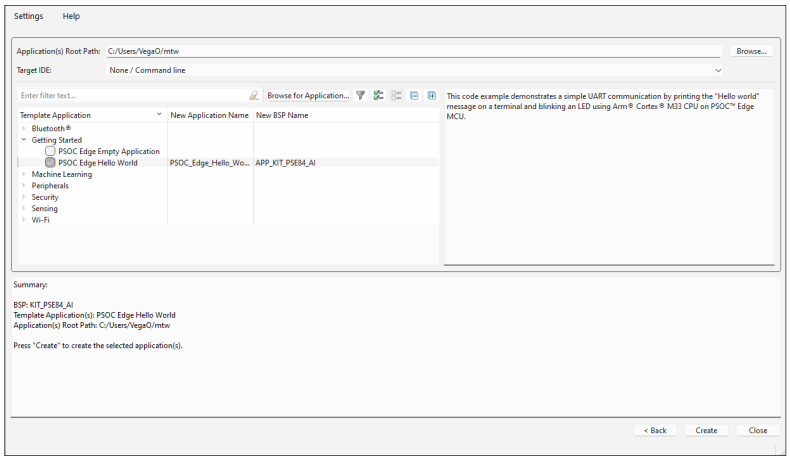
3.2.3 Using virtual SDKs

If any virtual SDKs are available to you, the SDK and SDK Version fields display to select one and its version. You can use the Settings tool to specify an SDK that will always be selected by default. A virtual SDK is a list of assets (kits, applications, libraries, etc.) and specific versions of those assets. This setting allows you to filter available BSPs and applications based on the information in those files. It limits the available BSPs, example projects, and libraries to provide a more streamlined development process.



3.3 Select application page

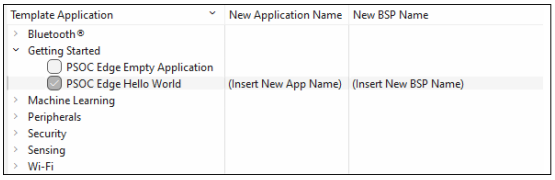
Select a BSP on the Choose BSP page and either click **Next >** or simply double-click on the BSP to advance to the "Select Application" page. This page displays the **Template Applications** available for the selected BSP, organized by categories.



On this page, do one or more of the following:

- Specify the **Application(s) Root Path**, or leave it as the default. All files and folders from the application(s) with a selected check box will be copied to this location in a folder with the **Application Name(s)**.
- Optionally pick an item from the **Target IDE** pull-down menu, which will generate the necessary files for the selected target. For more details, refer to the applicable user guide for the desired IDE.
- Expand one or more categories to see the applications available. Use the **Expand All** or **Collapse All** options as needed to show or hide all the applications.

- Select one or more check boxes for applications in the list. You can click on the check box or use the right-click context menu. See Select multiple applications for more details.
- Type a **New Application Name** or **New BSP Name** for the application(s) by double-clicking on the selected field, or leave the name as the default.



3.3.1 Toolbar options

The "Select Application" page contains a toolbar with several options to assist with the process, including:



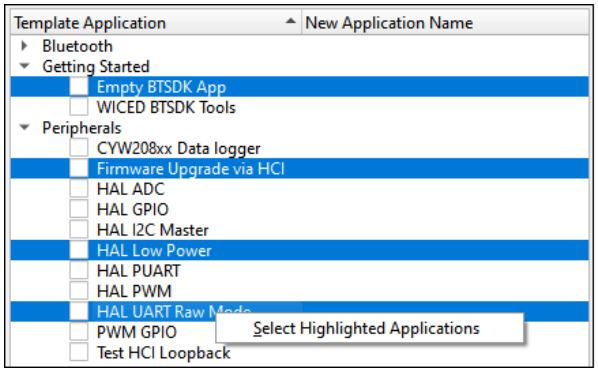
- **Filter text** – Field used to show only the applications that match the text entered.
- **Browse for Application** – Allows you to add other applications to the list. See Browse for application.
- **Show/Hide** – Toggle to show only the applications with check boxes selected or show all applications. If there is search text, then only applications with check boxes selected and applications with matching search text will be shown instead of all.
- **Select All** – Select the check boxes for all applications currently shown in the list.
- **Deselect** – Deselect the check boxes for all applications currently shown in the list.
- **Expand All** – Click to expand all item trees.
- **Collapse All** – Click to collapse all item trees.

3.3.2 Select multiple applications

The "Select Application" page allows you to select multiple applications, as follows:

- Click multiple check boxes next to the applications.
- Click to highlight an application, then press and hold [**Ctrl**] and click additional applications.
- Click to highlight an application, then press and hold [**Shift**] to select a range of applications.

When you have multiple applications highlighted, right-click to open the context menu **Select Highlighted Applications**.

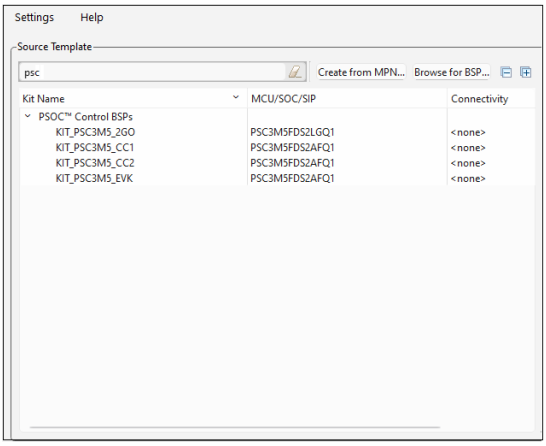


3.3.3 Using filter text

Enter text in the **Enter filter text** field above the list of applications to limit the number of applications shown. This can make it easier to decide which application(s) to select. Text entered in this field is searched against

keywords in the application's manifest, title, and description. Along with applications that match the search, any imported applications are included at the beginning of the list, and any applications with a selected check box are included at the end of the list.

You can enter text with spaces, and they are treated as separate search terms. You can also use a quoted phrase, such as "psc", which is treated as a single term.

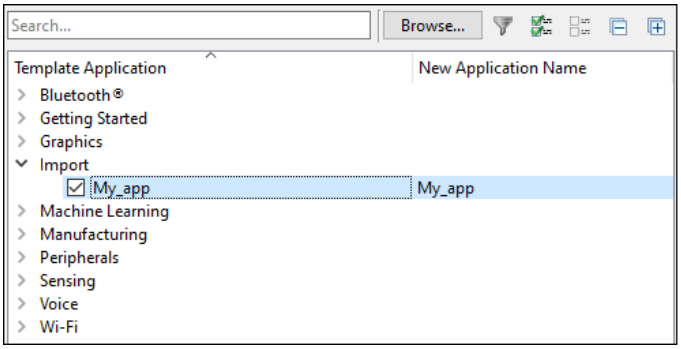


3.3.4 Browse for application

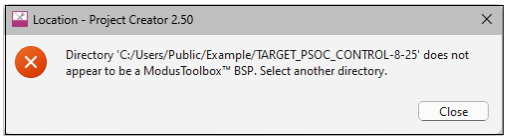
The Select Application page provides a **Browse for Application** button to select other applications you may have created or received from a colleague. After clicking the button, the Select Folder dialog opens. Navigate to the appropriate directory containing the application to import and click **Select Folder**.

***Note**: Ensure that you only select an application supported by the BSP you selected on the Choose BSP page.*

The tool checks that the application to be imported has a makefile, but it does not validate the makefile for correctness. If the selected application has a makefile, it is added to the list with the other applications.



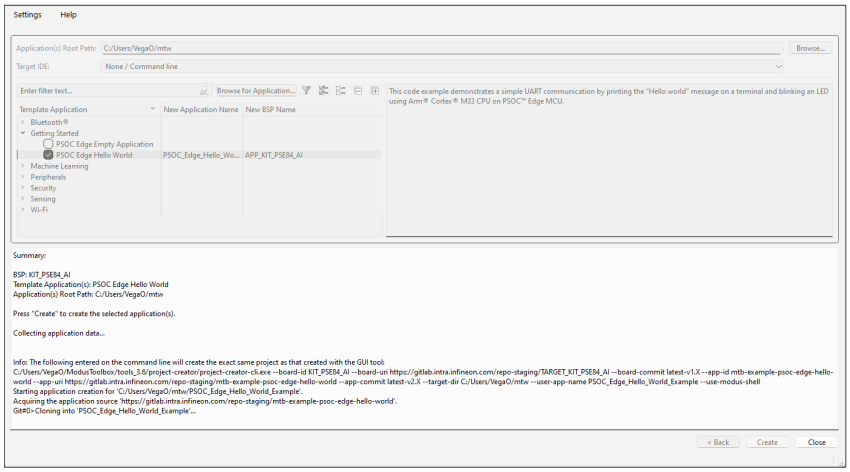
If the application does not have a *Makefile*, a message displays indicating the application is not a valid ModusToolbox™ application.



3.4 Create an application

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

3 GUI description



***Note**: During the project creation process, the tool automatically selects the best pair of BSP and application versions from the manifest file. Release versions are preferred over any custom name versions.*

Using the command line (see CLI description), you can manually select which version to use. If the BSP and application flow versions match, then the project-creator tool will create a project. If not, then it will show an error.

The GUI always shows applications that have at least one application version that is supported by at least one BSP version.

When the process competes, the tool will display a message similar to the following:

```
================================================================================
= Import complete =
================================================================================

Successfully created "Hello_World" application.
```

You can continue creating new projects from the "Select Application" page by selecting a new application and then clicking the **Create** button again. You can also go back to the "Choose BSP" page to select another BSP and then continue the project creation process as usual.

To close the tool, click the **Close** button or the **X** button at the top-right of the GUI.

***Note**: If you launched the Project Creator tool from the Eclipse IDE, the Project Creator tool closes automatically upon completion, and the IDE will import the created application(s).*

4 CLI description

You can also use the `project-creator-cli` executable to create applications from a command-line prompt or from within batch files or shell scripts. The exit code for the CLI is zero if the operation is successful, or non-zero if the operation encounters an error. For Windows, use the modus-shell bash installed in the ModusToolbox™ "tools" directory. For macOS and Linux, use the appropriate bash for your system.

The `project-creator-cli` executable is located in the same directory as the GUI version of the tool (*<install_dir>/ModusToolbox/tools_<version>/project-creator/*). To see all the options available, run the tool with the `-h` option:

```
$ project-creator-cli -h
```

The following example shows running the tool with the basic options to specify a BSP and application:

```
$ project-creator-cli \
    --board-id KIT_PSC3M5_EVK \
    --app-id mtb-example-ce240510-hello-world
```

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