ModusToolbox™ tools package release notes

ModusToolbox™ tools package version 3.2.0

[A newer version of this document may be available on the web here.](#)

About this document

Scope and purpose

This document describes the features and known limitations for the ModusToolbox™ software provided as part of the ModusToolbox™ tools package included with the installer.

ModusToolbox™ software is a set of tools that enable you to integrate our devices into your existing development methodology. ModusToolbox™ software consists of various libraries and middleware on GitHub, as well as an IDE and tools package installed on your computer. For more details about what is included with ModusToolbox™ software, refer to the [ModusToolbox™ tools package user guide](#). See also [What's included](#) in this document.

This ModusToolbox™ tools package is a complete release. It includes the latest features from all previous releases, including patches. This release does not replace any existing installed releases; it installs alongside them. If you have more than one release installed, refer to the [ModusToolbox™ tools package user guide](#), "Product versioning" section.

Reference documents

Refer to the following documents for more information as needed:

- [ModusToolbox™ tools package user guide](#)
- [ModusToolbox™ tools package installation guide](#)
- [Training material on GitHub](#)

Table of contents

1 Primary changes

The overall tools package version 3.2.0 release includes the following updates and features:

1.1 Setup program and web login

In conjunction with the release of the ModusToolbox™ 3.2 tools package, there is a new, separate ModusToolbox™ Setup program that will be the primary program used to install ModusToolbox™ tools packages, separate packs, and various related tools. The Setup program is available for download from the Infineon ModusToolbox™ website. You can also install the Setup program from the Dashboard included in the 3.2 tools package.
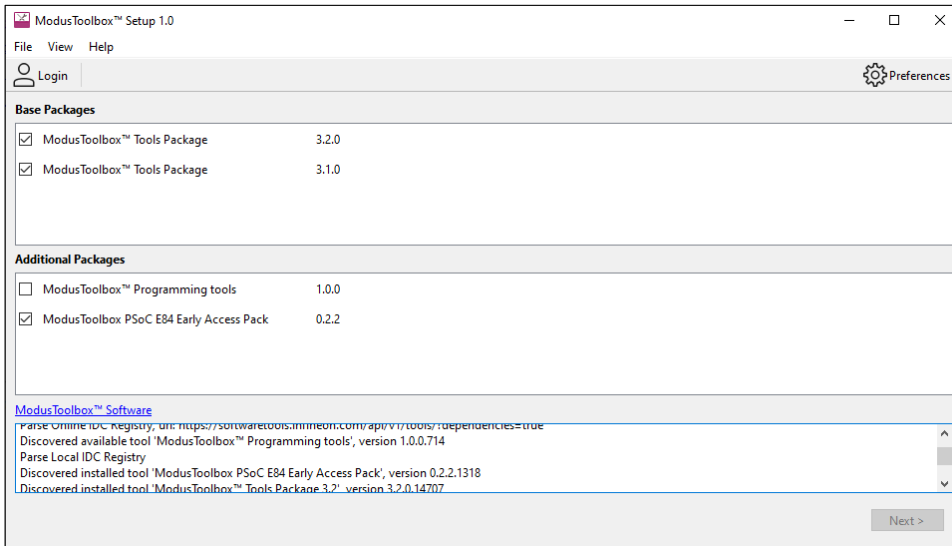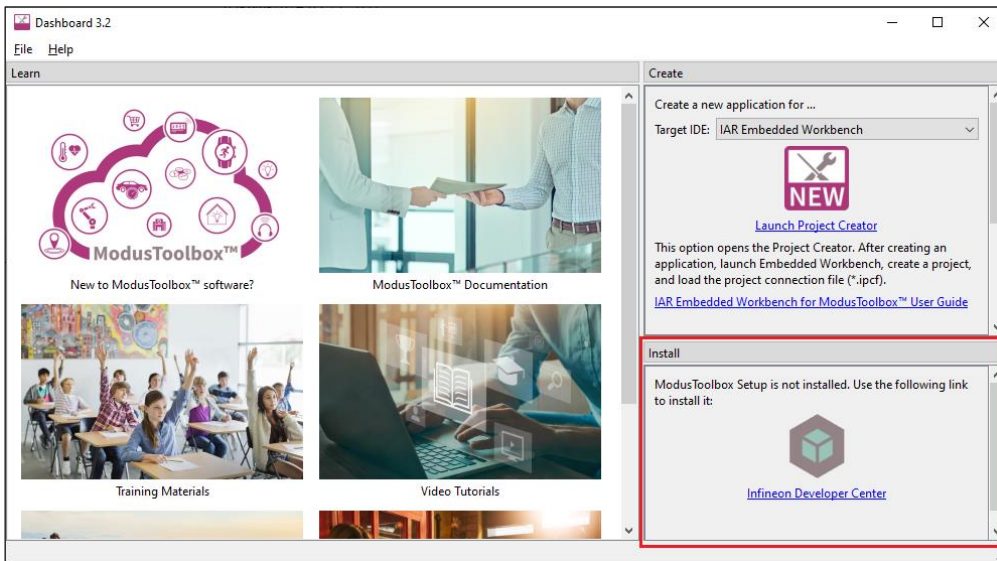
For more information about the Setup program, refer to its user guide.

1.2 Updated versions of Eclipse and related plug-ins

In this tools package release, we have updated the version of Eclipse to v4.28 and updated various associated plug-ins to address several known issues and improve quality in the IDE. We have also modified items in the **Project** menu. For more details, see Design impact.

Primary changes

1.3 Updated BSP Assistant to recognize early access packs

In previous releases, the BSP Assistant was not recognizing that an early access pack was installed and therefore you could not create BSPs for the given early access device. In this release, the BSP Assistant has been updated such that if an enabled early access pack includes a device database (device-db), then the BSP Assistant will use that device-db and ignore any others.

1.4 No longer force fetch library versions by default

In previous releases, when you ran Library Manager update or "make gelibs", the system would do a force fetch of every library, even those that were up to date. In this release, we changed the behavior to only force fetch libraries using the latest tag. For example, the system will fetch mtb-hal-cat1 if set to "Latest 2.X release", but it will not fetch core-make if set to "3.3.0 release".

In cases where you have libraries with tags that change what they point to, you can override this setting and force fetch all libraries by setting this environment variable to "true" or "1". For example:

```
MTB_GETLIBS_FORCE_UPDATE=true
```

1.5 Option to specify device support location

The `-l, --library` CLI option to specify the device support library has been removed from all configurators except the Device Configurator and BSP Assistant. Having this option in those other configurators created possible inconsistencies in the set of libraries were being used in an application. Now, those configurators automatically find the libraries.

1.6 Changes to device database (device-db) and discovering new devices

In order to improve performance, the device-db has been updated to be a library that is dependent on an application's peripheral driver library (PDL). This means that when you create a new application, the device-db will be locked automatically to the latest version with the current set of available devices. If at a later time you want to update your application to use a newer device that is not included in your current device-db, you'll need to update the device-db (and possibly the PDL) to a newer version using the Library Manager. See Design impact for more details.

1.7 Updated process to lock latest library versions

As described in KBA239330, the file (*locking_commit.log*) that was generated by previous ModusToolbox™ releases to keep track of libraries is ignored by Git during the check-in operation to a remote repository. This created the problem that any subsequent clones of this application would not include this file, and thus would not track libraries.

To address this issue, we have updated the mechanism to track libraries using a JSON file named *assetlocks.json*. Further, if you open an older application in the ModusToolbox™ 3.2 ecosystem, any existing *locking_commit.log* file will be converted to an *assetlocks.json* file.

Note: *Make sure you add this assetlocks.json file to source code control.*

1.8 Removed Python from Windows tools package

We no longer provide Python, CySecureTools, and pyocd with the Windows tools package. See Design impact for more details. CySecureTools is being moved to a new package called the Edge Protect Security Suite. This also includes moving the Secure-Policy Configurator to the new suite.

2   What's included

This release includes the following tools and versions:

Tool Name	Current Release	Previous Release
AIROC™ tools	5.0.1	5.0.0
Bluetooth® Configurator	2.90	2.80
BSP Assistant	1.20	1.10
CAPSENSE™ Configurator & Tuner	6.20	6.10
CyBridge	3.6.0	3.5.0
ChipLoad	1.6.2	1.6.1
cymcuelftool	1.0 (no change)	1.0
Dashboard	3.2.0	3.1.0
DetAndID	5.0.1	5.0.0
Device Configurator	4.20	4.10
Device Firmware Update (DFU) Host Tool	2.20	2.0
Eclipse IDE for ModusToolbox™	3.2.0	3.1.0
EZ-PD™ Configurator	1.30	1.21
Firmware Loader (fw-loader)	3.6.0	3.5.0
GCC	11.3 (no change)	11.3
GNU make Build System (tools-make)	2.2	2.1
JRE (OpenJDK)	17.0.7	11.0.10
KitProg3	2.50.1	2.50.0
LCS Manager	1.10.0	1.0.0
Library Manager	2.20	2.10
LIN Configurator	1.30	1.21
MbtP	5.0.1	5.0.0
modus-shell	1.5.0	1.4.0 (Windows) 1.3.1.69 (Linux/macOS)
Core build infrastructure: • mtbgetlibs • mtbideexport • mtblaunch • mtbquery • mtbsearch	1.2.0	1.1.0
OpenOCD (ModusToolbox™-specific)	5.0.1	5.0.0
Project Creator	2.20	2.10
Proxy Helper	1.50	1.40
Python (for Windows) • cysecuretools	N/A (removed from tools package)	3.8.10 • 4.2.0
QSPI Configurator	4.20	4.10
Secure Policy Configurator	N/A (removed from tools package)	1.40
Segment LCD Configurator	1.60	1.51
Smart I/O Configurator	4.20	4.10
SRecord	1.64 (no change)	1.64
USB Configurator	2.60	2.51

What's included

2.1 Supported tool chains

The GCC Arm Embedded toolchain GCC 11 is installed with the ModusToolbox™ software. This toolchain has no use restrictions and does not require license activation (it is distributed under the terms of the GNU Public License).

Although not installed with ModusToolbox™ software, the build system also supports these tool chains for most applications and devices (see the application *README.md* file for applicable support):

- Arm compiler v6 or newer (Windows and Linux hosts)
- IAR Embedded Workbench v9 or newer (Windows only)

2.2 Supported boards

The boards available for use varies with different releases of BSPs and libraries on GitHub. You can see the current list of BSPs in the Project Creator tool using the default manifest URL:

Kit Name	MCU/SOC/SIP	Connectivity
> AIROC™ Bluetooth® BSPs		
∨ AIROC™ Connectivity BSPs		
CYW943907AEVAL1F	CYW43907KWBG	<none>
CYW954907AEVAL1F	CYW54907KWBG	<none>
∨ PMG1 BSPs		
PMG1-CY7110	CYPM1011-24LQXI	<none>
PMG1-CY7111	CYPM1111-40LQXIT	<none>
PMG1-CY7112	CYPM1211-40LQXIT	<none>
PMG1-CY7113	CYPM1311-48LQXI	<none>
∨ PSoC™ 4 BSPs		
CY8CKIT-041-41XX	CY8C4146AZI-S433	<none>
CY8CKIT-041S-MAX	CY8C4149AZI-S598	<none>
CY8CKIT-045S	CY8C4548AZI-S485	<none>
CY8CKIT-145-40XX	CY8C4045AZI-S413	<none>
CY8CKIT-149	CY8C4147AZI-S475	<none>
PSOC4-GENERIC	CY8C4548AZI-S485	<none>
∨ PSoC™ 6 BSPs		
CY8CEVAL-062S2	CY8C624ABZI-S2D44	<none>
CY8CEVAL-062S2-LAI-4373M2	CY8C624ABZI-S2D44	CYW4373EUBGT
CY8CEVAL-062S2-MUR-43439M2	CY8C624ABZI-S2D44	CYW43439KUBG
CY8CKIT-062-BLE	CY8C6347BZI-BLD53	<none>
CY8CKIT-062S2-43012	CY8C624ABZI-S2D44	CYW43012C0WKWBG
CY8CKIT-062S4	CY8C6244LQI-S4D92	<none>
CY8CKIT-062-WIFI-BT	CY8C6247BZI-D54	CYW4343WKUBG
CY8CKIT-064B0S2-4343W	CYB0644ABZI-S2D44	CYW4343WKUBG
CY8CKIT-064S0S2-4343W	CYS0644ABZI-S2D44	CYW4343WKUBG
CY8CPROTO-062-4343W	CY8C624ABZI-S2D44	CYW4343WKUBG
CY8CPROTO-062S3-4343W	CY8C6245LQI-S3D72	CYW4343WKUBG
CY8CPROTO-063-BLE	CYBLE-416045-02	<none>
CY8CPROTO-064B0S1-BLE	CYB06447BZI-BLD53	<none>
CY8CPROTO-064B0S3	CYB06445LQI-S3D42	<none>
CY8CPROTO-064S1-SB	CYB06447BZI-D54	<none>
CYBLE-416045-EVAL	CYBLE-416045-02	<none>
CYSBSYSKIT-01	CY8C624AFNI-S2D43	CYW43012TC0KFFBH
CYSBSYSKIT-DEV-01	CY8C624AFNI-S2D43	CYW43012TC0KFFBH
CYW9P62S1-43012EVB-01	CY8C6247FDI-D52	CYW43012TC0EKUBG
CYW9P62S1-43438EVB-01	CY8C6247BZI-D54	CYW43438KUBG
PSOC6-GENERIC	CY8C6347BZI-BLD53	<none>
∨ XMC™ BSPs		
KIT_XMC14_BOOT_001	XMC1404-Q064x0200	<none>
KIT_XMC47_RELAX_V1	XMC4700-F144x2048	<none>
XMC-GENERIC	XMC1404-Q064x0200	<none>

Note: Additional boards will be made available on an ongoing basis.

2.3 Open source

Portions of this software package are licensed under free and/or open source licenses such as the GNU General Public License. Such free and/or open source software is subject to the applicable license agreement and not our license agreement covering this software package. The applicable license agreements are available online:

https://www.infineon.com/cms/en/design-support/software/free-and-open-source-software-foss/modustoolbox-foss-packages/

3 Design impact

This section includes issues and solutions for changes that may impact various designs.

3.1 Python no longer installed for Windows

For several reasons (such as openssl 1.1.1 end of life and future improvements), we removed Python from the Windows installer of the ModusToolbox™ 3.2 tools package (and all future releases). Python was never included with the macOS or Linux tools packages, and those users were required to install it as appropriate for their OS. The primary impact of the removal of Python from the Windows tools package would be for older applications being migrated to 3.2 that require Python. For example, when running a "make <IDE>" command on older applications you may see this error:

```
Python 3 was not found in the user's PATH and it was not explicitly defined in the
CY_PYTHON_PATH variable. This target requires a python 3 installation. You can obtain
python 3 from "https://www.python.org" or you may obtain it using the following
alternate methods.
```

In this case, you can update your version of core-make using the Library Manager or set the CY_PYTHON_PATH variable as instructed in the error message. to resolve the issue. For details about how and when to install Python, refer to KBA239118.

3.2 Error using local content storage (LCS) feature

Due to the update to the device database, older versions of LCS data will no longer work. When building the application, you'll see an error such as: `Error loading file. No 'device support library' information found`.

To resolve this, connect to the Internet and update the LCS content. For example, run this command:

```
$HOME/ModusToolbox/tools_3.2/lcs-manager-cli/lcs-manager-cli --update-existing
```

After it finishes, you can disconnect from the Internet and either update using Library Manager or "make getlibs". Then, build the application again and it should succeed.

3.3 Building/programming with Eclipse

We have removed some menu items from the ModusToolbox™ perspective in Eclipse. The native commands were causing projects in multi-core applications to build several times, resulting in very long build times. When building and programming in Eclipse, use the commands in the Quick Panel to avoid these issues.
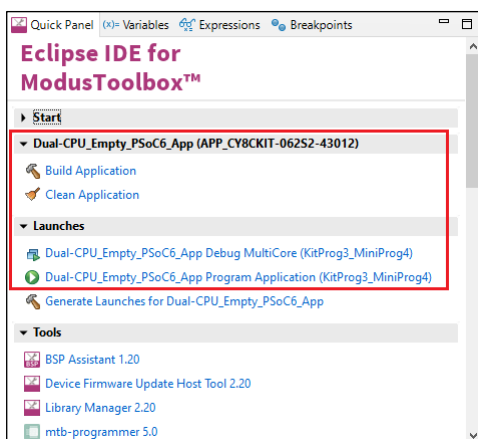
3.4 Older applications in updated Eclipse

We updated base Eclipse rich client platform (RCP) in our Eclipse IDE for ModusToolbox™ to the latest version (4.28). Base Eclipse RCP contains a new feature that explicitly sets encoding for each new project that it creates and warns that the project has no encoding set if encoding is not set explicitly.

This fix sets encoding to each newly created and newly imported ModusToolbox™ project. So, for new projects added to the workspace there will be no warning about the encoding issue, and encoding will be set automatically based on default workspace encoding. Encoding will be set for projects that have no encoding set explicitly. Encoding in a project that already has it set explicitly does not change during import.

All our legacy projects that were created prior to Eclipse IDE for for ModusToolbox™ 3.2 have no encoding explicitly set. So, when you open a workspace with apps that were created and imported with Eclipse IDE for ModusToolbox™ 3.1 or earlier, you'll see the warning: "Project <project name> has no explicit encoding set". There are a few ways to resolve with issue:

- Delete the project from the workspace and import it again.

- Select the warning in the **Problems** tab and press **Ctrl+1** (or open the pop-up menu and select the "Quick Fix" option). In the Quick Fix dialog, select the "Set project encoding to …." option and click **Finish**.

- Open the Preferences dialog from **Window -> Preferences** menu. Select **General > Workspace** and change **Report missing project encoding as**: to "Ignore." This option just ignores the issue and does no change a project itself.

- Manually create/update project the configuration file *<project>/.settings/org.eclipse.core.resources.prefs* setting :
  - eclipse.preferences.version=1
  - encoding/<project>=UTF-8

  By default, all our projects are intended to use UTF-8 encoding. When different encoding is set, say UTF-16, you will see some Chinese or other symbols when opening the *README.md* of a project inside the Eclipse IDE for for ModusToolbox™.

3.5 New CAPSENSE™ middleware version

The CAPSENSE™ middleware has been updated to a newer version. In includes several new featires. Refer to KBA239563 for more details.
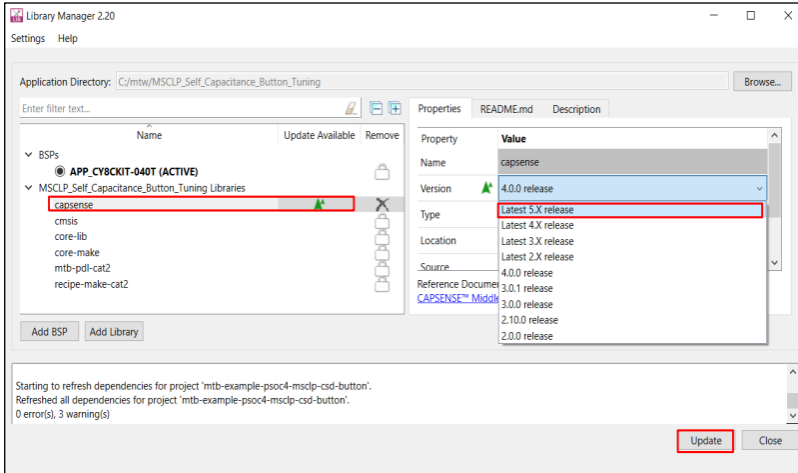
If you try to update and save parameters in the CAPSENSE™ Configurator, you will see a pop-up message as follows:
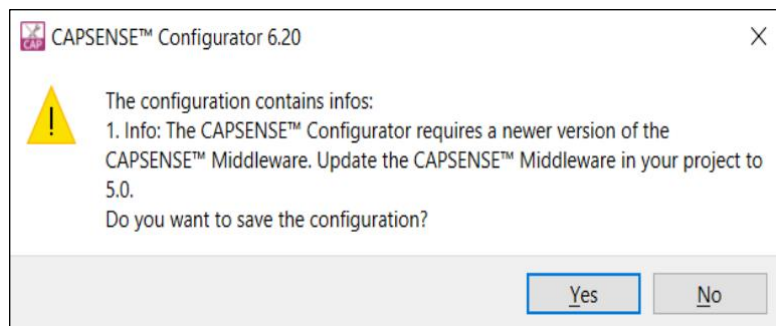
Design impact

If you click **Yes** and save changes, you must also open the Library Manager and update the middleware to the newer version:

4 Known issues, limitations, and workarounds

This section describes the known issues and limitations of this release, and provides workarounds for them:

4.1 ModusToolbox™ issues from previous releases

This document contains only recent issues pertinent to ModusToolbox™ version 3.x. All issues noted in previous ModusToolbox™ version 2.x releases have been made available online here: KBA236147.

4.2 Proxy

Problem	Workaround
When trying to use any of the ModusToolbox™ tools, you may see an error message similar to the following about not able to connect to the Internet: *Unable to open file at [URL]*	This can happen if you are behind a firewall and do not have your proxy settings configured. You must set your HTTP_PROXY and HTTPS_PROXY environment variables, as appropriate for your site. In previous versions of the ModusToolbox™ tools package, these types of errors only affected the Library Manager and Project Creator. In version 3.x, these errors apply to all tools.

4.3 Device database error

Problem	Workaround

Various tools report an error with the device-db similar to this:
 	
```fatal:'C:/test/ModusToolbox/packs/ModusToolbox-Early-Access-Pack/libs/device-db' does not appear to be a git repository```
```fatal: Could not read from remote repository.```
	Remove the .modustoolbox/global directory from user home and remove the mtb-shared directory from your application. Then, retry the failing operation.

4.4 BSP Code generation error

Problem	Workaround

When generating code after adding one or more BSPs to a ModusToolbox™ 3.x application, the system displays error messages similar to the following:
 	
```ERROR:Generating code failed. Code generation errors:```
```ERROR:- Errors exist in the project's configuration:```
```ERROR:There may be an inconsistency between the *.modus file and the makefile target configuration device sets.```
```ERROR:Current Devices: CY8C624ABZI-S2D44, Sterling-LWB+/CYW43439KUBG```
```ERROR:Expected Devices: CY8C624ABZI-S2D44```
```make: *** [../mtb_shared/core-make/release-v3.2.0/make/core/search.mk:45: C:/c/Switching_Power_Modes/build/APP_CY8CEVAL-062S2-LAI-43439M2/Debug/cyforcebuild.mk] Error 1```
```ERROR:"make eclipse" failed```
	This occurs when you have two or more BSPs with different MCUs and/or companion devices, and they have BSP names that begin with the exact same characters, such as:
	
	• MyBSP (CY8C6247BZI-D54 + LBEE5KL1DX)
	• MyBSP2 (CY8C6347BZI-BLD53 + None)
	
	To resolve this problem, open the Library Manager and either rename or remove the non-active BSP(s) with the same beginnings of names.
	
	This issue will be addressed in a future release.

4.5   LCS Manager CLI

Problem	Workaround
The LCS Manager CLI tool does not use the ModusToolbox™ proxy settings that other tools use. Depending on your system environment, the LCS Manager CLI tool might not be able to access and download data from external repositories (such as GitHub).	Ensure that your system can access the desired external repositories by setting up proxy information before using the LCS Manager CLI tool. If you need assistance, contact your IT department.

4.6   Crashes on Mac M1/M2

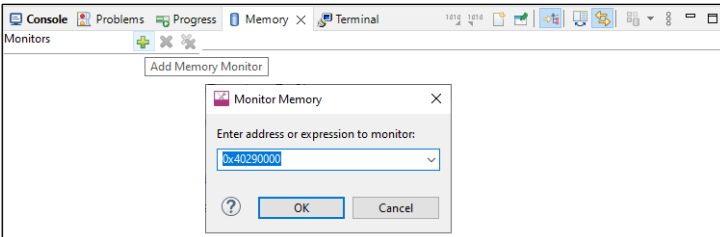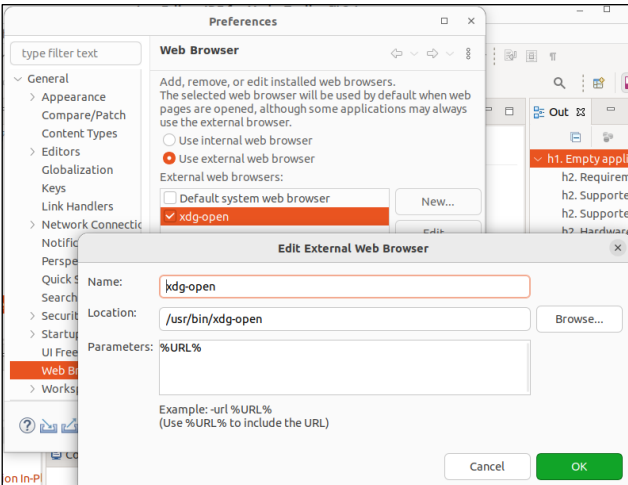| Problem	Workaround
On Mac computers with ARM cores using Rosetta (M1/M2 processors), various ModusToolbox™ tools (library-manager, project-creator, device-configurator, Eclipse, etc.) consistently crash.	Reboot the computer. This issue seems to occur for a variety of software, not just ModusToolbox™ tools. Many users have reported that simply rebooting the computer resolves the issue.

4.7   HTML on Ubuntu 22.04

Problem	Workaround
On Ubuntu 22.04, sometimes HTML documentation links do not work anywhere. This issue can occur as documentation not opening at all or opening in the wrong program (e.g., Notepad, Office Writer, etc.)	Reset the default browser from the Ubuntu 22 Settings UI (**Settings > Default Applications > Web**). Changing this setting via the BROWSER environment variable, or the xdg-settings/xdg-mime commands does not work.

4.8   Eclipse IDE

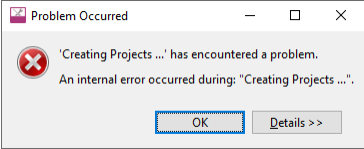| Problem	Workaround
Launching Project Creator from Eclipse intermittently generates the following error: Unable to detect Project Creator startup after 10000 ms. If this problem continues, try starting Project Creator stand-alone, then import the project using ModusToolbox import. And then Project Creator eventually loads.	Close Project Creator and launch it again. The error should not be generated again.
In the Eclipse IDE for ModusToolbox™ when setting TOOLCHAIN=ARM, the call stack does not show while debugging some multithreaded applications (e.g., applications that use FreeRTOS).	Add the `CFLAGS+=-fno-omit-frame-pointer` compiler flag to the application. You can do this in the application Makefile or in Eclipse under **Properties > C/C++ Build > Behavior> Build arguments**.
When you upgrade a workspace that was created using ModusToolbox™3.1 or prior, you'll see a warning that your projects do not have explicit encoding set.	To fix this, right click on each warning message and select **Quick Fix** in the context menu. Select the **Set project encoding to '`UTF-`8' fix** and click **Finish**.

ModusToolbox™ tools package release notes

Known issues, limitations, and workarounds

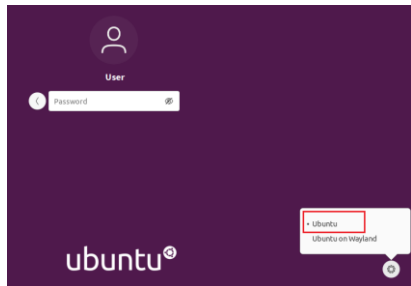| Problem	Workaround
When you upgrade a workspace that was created using ModusToolbox™3.1 or prior, your projects build using one build job.	1. Select a project/application. 2. Open project's/application's properties selecting **Project > Properties** from the main menu. 3. Select **C/C++ Build** tab in the left pane. 4. Select **Behavior** tab in the right pane. 5. Add either `-jN`, where N is a number of desired parallel build jobs, or `${cy_build_jobs}` dynamic variable in the **Build Arguments** field.
After you rename a project, if you quickly try to rename it again you may get an error.	Wait until renaming finishes before initiating another renaming. The project itself is not broken. Only its representation in Eclipse may break. To fix this, remove the project, import and rename it again.
When you run Eclipse IDE for ModusToolbox™ from a terminal window on Ubuntu you get notifications about SLF4J, GLib and SWT GDBus failures.	Ignore these messages. These are Eclipse issues that do not impact Eclipse IDE for ModusToolbox™ functionality.
When you left-click on a project that is not currently selected and then quickly right-click on it and select the **ModusToolbox™** item,the context menu is empty.	Left-click to select the project and wait until the Quick Panel refreshes before right-clicking it to open the context menu. This issue will be addressed in a future release.
While debugging, if you try to export memory values to a file by selecting an item in the **Peripherals** tab, the values in the file will be all zeroes.	This is an Eclipse Embedded CDT issue. To get a correct export file, add the Address of the Peripheral directly to Memory window, and then use the export feature.
On Ubuntu 22.04, when opening documentation from the Project Explorer (right-click **Open with > Web Browser**), the file does not open.	Update the Web Browser settings under **Window > Preferences > General > Web Browser** to add your chosen browser or xdg-open as appropriate:
For certain applications (typically a factor of size), Eclipse may present a "Discover Compilation Database Settings" dialog displays, which can block the UI for several seconds/minutes. This is seen to happen often after a build of the project.	Right-click the project and select **Properties > C/C++ General > Preprocessor Include Paths > Providers**, and deselect the **Compilation Database Parser** check box. Note that this will cause IntelliSense to be disabled for that application.

Known issues, limitations, and workarounds

Problem	Workaround
On Ubuntu 22.04, when running the Eclipse IDE for ModusToolbox™, the launcher window may be truncated. This happens because Eclipse v4.28 has not been updated to address the problem.	Log out of Ubuntu, and then log in again using the Xorg option.
When renaming a multi-core application in the Eclipse IDE, the core-processor subprojects become regular folders instead of project folders.	Right-click on each of the core process folders and select **Import as Project**. Each folder will become a project folder with the appropriate name. **Note**: After changing the folders to project folders, they retain the original application prefix name. You can rename them individually if you prefer. **Note**: The Eclipse IDE may display Indexer errors during the rename process. These errors usually go away when the rename process is complete.
After completing a build/clean for a multi-core application, the Eclipse IDE reports a C/C++ Indexer error message.	The error message doesn't impact functionality. Try restarting the Eclipse IDE to clear the message.
When using the Eclipse IDE on macOS, if you delete a multi-core application with several README.md files open in the editor/viewer, you may see the following error message: "Failed to create the part's controls."	None. This error message just means the markdown viewer is trying to read a file that has been deleted. This message doesn't impact functionality. Simply close the tab and proceed.
For BTSDK applications, various tools such as BTSpy and ClientControl are not available from the Eclipse IDE Quick Panel. This is due to the restructuring of the ModusToolbox™ version 3.0 build system and flow.	To open various tools, navigate to where they are located in the workspace and launch them manually. By default, all the tools are located under the *../mtb_shared* directory (relative to the code example directory). For example, BTSpy is located in the following path: *../mtb_shared/wiced_btsdk/tools/btsdk-utils* ClientControl is located in the following path: *../mtb_shared/wiced_btsdk/tools/btsdk-host-apps-bt-ble* Other tools are located in different subdirectories under *mtb_shared*. The BTSDK will be updated in a future release to move these tools into a pack so that they will be available in the Quick Panel again.
Exporting and importing a multi-core application with the Eclipse IDE doesn't work.	1. When Exporting a multi-core application using the Eclipse IDE, include only the main application folder, and exclude the core project folders and the *mtb_shared* folder. 2. If you exported the application as an archive, extract it, and then run Library Manager or `make getlibs`. 3. In Eclipse, use the **Import Existing Application In-Place** option. The Eclipse IDE for ModusToolbox™ user guide has been updated to include multi-core application instructions.

Known issues, limitations, and workarounds

Problem	Workaround
When importing an application in the Eclipse IDE using the **Import Existing Application In-Place** option, there may be an error: "An internal error occurred…"	If possible, you should start with the Eclipse IDE to launch Project Creator and create an application. Using this flow, the process just works. In some cases, this error may occur because you're attempting to manually import an application in the same workspace/folder that already exists in Eclipse. To resolve this problem, use **Import > General > Existing Projects into Workspace**.
When using the Eclipse IDE, the context menu may show tools for the previously-selected project rather than the project that was right-clicked.	Left-click to select the project and wait until the Quick Panel refreshes before right-clicking it to launch the context menu. This issue will be addressed in a future release.
If you make changes to the BSP using the BSP Assistant, such as the connectivity module, and then launch the Device Configurator from the Eclipse IDE Quick Panel, the Device Configurator may not recognize that the changes were made.	To fix this, close the Device Configurator, click **Refresh Quick Panel** in the Eclipse IDE, and then launch the Device Configurator again.

4.9   Visual Studio Code

Problem	Workaround
Various ModusToolbox™ GUI tools (Device Configurator, Library Manager, etc.) fail to start on Ubuntu when executed from the Terminal window in VS Code, with the following error: Failed to load client buffer integration: "wayland-egl" Available client buffer integrations: () No shell integration named "xdg-shell" found No shell integration named "xdg-shell-v6" found No shell integration named "wl-shell" found No shell integration named "ivi-shell" found Loading shell integration failed. Attempted to load the following shells ("xdg-shell", "xdg-shell-v6", "wl-shell", "ivi-shell")	**Solution 1**: Open an Ubuntu Terminal, navigate to the application directory, and use the applicable "make" command to open the GUI (e.g., `make library-manager`). **Solution 2**: Log out from the current Ubuntu session, and then log back in and make sure Ubuntu on Wayland is **not** selected on the login screen. On newer versions of Ubuntu, the login screen will show "Ubuntu on Xorg".

4.10 Building/programming/debugging

Problem	Workaround

When debugging in Eclipse IDE or VS Code reaches a code with empty loops, the Step operation might cause the debugger to wait indefinitely.
 	
This problem happens because GDB executes single steps and waits until the execution reaches an instruction related to another line in the source code. Since empty loops have no terminating condition, GDB will wait forever, leading to the hang of the debugging process.
	To avoid this problem, consider the following recommendations:
	• Avoid using Step operations in empty loop debugging. Instead of using the Step operation, use the Continue operation to bypass the empty loop.
	• Alternatively, you can place an operation that produces a CPU instruction within the loop body. For instance, adding a __NOP() instruction as shown below can resolve the issue.
	
	`for ( ; ; )`
	`{`
	`    __NOP();`
	`}`

In VS Code, "Failed to update peripheral TCPWM0: Error: peripheral-viewer: readMemory failed" error might appear if you open the "XPERIPHERALS" window when the MCU is in run state and the plugin cannot read peripheral registers on runtime.	To avoid this error, open the "XPERIPHERALS' window when you on a on breakpoint or some instruction.
Exception has occurred" error might appear when you execute Attach/Debug launch configuration. Such errors started to be visible in VS Code - 1.53.2.	You can safely ignore this error.
Existing application opened in ModusToolbox™ version 3.1 or later reports "error: unknown type name 'uint8_t'" or similar compiler errors. This error is caused by the update to GCC 11.	Add '#include <stdint.h>' in all affected source files. This issue only applies to applications migrated to 3.1 or later. It will not occur for new applications created with 3.1 or later tools.
When calling `make program` with `-j` flag on the command line in multi-core applications, the programming processes get out of sync. This results in the qprogram starting before the build finishes. There is no error message reported. This issue does not exist when programming from Eclipse IDE or VSCode.	Since this issue only exists in a scenario in which the user calls `make program` with `-j` flag at the application level in multi-core applications, the current workaround is to run `make build -j` and then run `make qprogram`. This defect is being addressed in the next release.
In the Eclipse IDE, programming a device is skipped when the device was previously programmed.	This is expected behavior and there is no workaround. This was a change made to the launch configurations in Eclipse to support multi-core debugging.
If you change the MCU/SOC/SIP for the BSP using the BSP Assistant, the Register View may not available while debugging using the Eclipse IDE or VS Code.	This is because the svd file path is not present in the launch configurations. To fix this, navigate to the application folder and run make getlibs. The, run make eclipse or make vscode, as applicable.
The **Attach** launch config does not work for the secure lifecycle of AIROC™ CYW20829 devices.	Do not use the **Attach** launch config for secure lifecycle.
The CySecuretool does not work with PyOCD as the debugger on macOS M1 CPUs.	No workaround; we do not plan to support PyOCD.

Known issues, limitations, and workarounds

Problem	Workaround
When exporting ModusToolbox™ applications created for the TRAVEO™ T2G Body High MC devices to be used with the µVision and IAR IDEs, there are some limitations using the J-Link probe (including ETM traces, program, and debug via the CM7 core).	Use native Arm and IAR probes to work with TRAVEO™ T2G Body High MC devices.
There is an issue with reset for TRAVEO™ T2G Body High MC and T2G Instrument Cluster devices in the SEGGER tool. The **Debug** launch config does not work properly for CM7_0 and CM7_1 cores via the J-Link probe in Eclipse and VS Code IDEs.	To debug the code, use the **Attach** launch config.
While using the Eclipse IDE on Windows for various program/debug operations, there's a plugin issue that prevents the debug port from shutting down. This could result in abnormal power consumption, the watchdog timer being blocked, or the inability to connect in JTAG mode after a successful connection in SWD mode.	Reset the device. For example, on the CY8CKIT-062S2-40312 kit, press the **SW1/XRES** button.

4.11 Qt-based GUI configurators and tools

Problem	Workaround
On Windows with multiple monitors, Qt based GUI tools, such as the Device Configurator and Library Manager, may have pop-up dialogs and/or menu items appearing on a monitor different from that where the main window is located.	None. This is a known Qt bug: https://bugreports.qt.io/browse/QTBUG-97533. A future release of ModusToolbox™ tools package will be upgraded with the newer version of Qt where this bug is fixed.
On Windows with multiple monitors, Qt based GUI tools, such as the Device Configurator and Library Manager, may have pop-up dialogs not being automatically resized when moving them between monitors with different scale settings. For example, monitor #1 with scaling of 100% and monitor #2 with scaling of 150%.	None. This is a known Qt bug: https://bugreports.qt.io/browse/QTBUG-62113. A future release of ModusToolbox™ tools package will be upgraded with the newer version of Qt where this bug is fixed.

4.12 Library Manager/make getlibs

Problem	Workaround
The Library Manager does not list the retarget-io library for the CY8CKIT-040T.	The retarget-io library is not available currently for this device. The retarget-io library depends on mtb-hal-cat2, which is not supported by the CY8CKIT-040T.
A .mtb file added as a direct dependency to the *deps* directory is overridden and removed during the `make getlibs` operation.	This problem occurs when you add a direct dependency using the 'latest-x.y' tag instead of a specific 'release-x.y.z' tag when the BSP or another library requires the same library as an indirect dependency. To ensure your direct dependency is kept, use the 'release-x.y.z' tag in your .mtb file.

4.13 BSP Assistant

Problem	Workaround
The bsp-assistant-cli tool crashes when trying to create a BSP within an existing application.	You can use the Library Manager (GUI or CLI) to create a BSP based on an existing Kit template, and add it as the Active BSP for your application. Another option is to use the BSP Assistant GUI instead of the CLI to create a BSP directly inside the application. You can also use the bsp-assistant-cli to create a BSP outside an application, and then use bsp-assistant-cli to import it into the application.
If you edit an older BSP and change the UDB SDIO port using the updated BSP Assistant 1.10, you need to manually edit the config/cyreservedresources.list file. The older BSP Assistant tool warned of this change. The updated BSP Assistant tool makes this change for you, but only for BSPs created with the newer version of the tool. Not editing the config/cyreservedresources.list file will lead to indeterminant results.	Manually edit the config/cyreservedresources.list file as described, or use only the BSP Assistant version 1.0 tool to make changes to older BSPs.
On Windows, the BSP Assistant does not receive error messages from any configurator that outputs text (such as device-configurator-cli). This means that the BSP Assistant may indicate a failure, but not report any error messages from that configurator.	As an example, if the device-configurator-cli fails when changing devices, but no message explains why, go to c:/Users/<username>/AppData/Local/Temp/device-configurator-cli and find the most recently-created log file.

4.14 Device Configurator

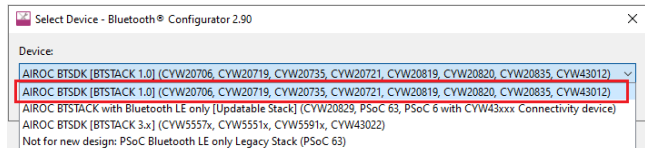| Problem	Workaround
In the Device Configurator, the analog routing line to the SAR is not highlighted when a connection is made in the editor for XMC7xxx devices.	None. This is a display-only issue. There is nothing wrong with the data. The issue will be addressed in a future release.
For ModusToolbox™ 2.x applications using PSoC™ 4 devices, if you open the application using ModusToolbox™ version 3.x, the Device Configurator (version 4.0) may show various errors with various types of connections, such as SAR ADC SOC Input, TCPWM Start/Stop/Capture/Count/Reload Signal, DMA Channel Trigger Input or connections between pins over Digital Input and Digital Output.	Select new signals for the invalid connections to resolve the issues.
For ModusToolbox™ 2.x applications using PSoC™ 4 or PSoC™ 6 devices, if you open the application using ModusToolbox™ version 3.x, the Device Configurator (version 4.0) may show "Resource overused" errors in some cases where the pin's Digital Input, Digital Output, and Analog parameters are set at the same time.	Select new signals for the invalid connections to resolve the issues.
If you have a project and design.modus file with different manufacturing part numbers (MPNs), and one of the MPNs is a module, the Device Configurator displays a message stating that the MPNs differ. However, included in that message is a statement that the MPNs are not supported by the device-db. This statement is incorrect.	You can safely ignore the incorrect statement in the message. There is no impact to the application.

Known issues, limitations, and workarounds

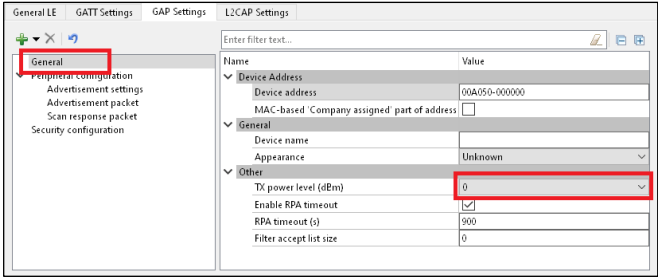| Problem	Workaround
If one of the WICED Radio Interface personalities is instantiated in the Universal Digital Block (UDB), it will not allow picking connections for the DMA signals.	The WICED Radio Interface personalities should not be used in practice. Instead, to enable communication with an external radio device from a PSoC 6S1 device, the BSP/Application should use the udb-sdio-whd library and set the appropriate component for the desired port. See the README.md file contained in the udb-sdio-whd library for more details. Additionally, to reserve the appropriate resources so they do not get overused by the configurator, the board should include a cyreservedresources.list file next to the design.modus file. Refer to one of the existing PSoC 6S1 boards (eg: CY8CKIT-062-WIFI-BT, CYW9P62S1-43012EVB-01, CYW9P62S1-43438EVB-01, …) for what this file should contain.

4.15 SegLCD Configurator

Problem	Workaround
The SegLCD Configurator may get out of sync with the Device Configurator *design.modus* file, which can result in changes not being saved.	To ensure proper synchronization for these two configurators, follow these steps: 1. Before launching the SegLCD Configurator, make sure to save any changes made in the Device Configurator. 2. Launch the SegLCD Configurator only from the Device Configurator or from the Quick Panel in the Eclipse IDE for ModusToolbox™. 3. After making changes in the SegLCD Configurator, make sure to save those changes and close the SegLCD Configurator. This issue will be addressed in the next release.

4.16 Bluetooth® Configurator

Problem	Workaround
The Bluetooth® Configurator does not automatically detect the correct device for the application when creating a new configuration. This issue is applicable to AIROC™ BTSDK [BTSTACK 1.0] devices; for example, CYW20706.	Manually select the first option "AIROC BTSDK [BTSTACK 1.0] (devices)" in the Bluetooth® Configurator Select Device dialog.

Known issues, limitations, and workarounds

Problem	Workaround
When using the Bluetooth® Configurator with AIROC™ CYW20829 devices, the **TX power level (dBm)** parameter under the **GAP Settings** tab has no effect. 	Leave the default value (0dBm) in this field when using an AIROC™ CYW20829 device. This issue will be addressed in a future release.

4.17　CAPSENSE™ Configurator

Problem	Workaround
When using the CAPSENSE™ Configurator to change parameters for the PSoC™ 4000T device, the tool will allow an incorrect value for **Reference CDAC boost** and cause the application to not work correctly.	If **Reference CDAC mode** is set to "Auto" and you set the **Compensation CDAC mode** value to "Disable", you must also set the **Reference CDAC boost** value to "Disable". The CAPSENSE™ Configurator will not disable the parameter for you.

4.18　CAPSENSE™ Tuner

Problem	Workaround
Switching between Synchronized and Asynchronized mode in the CAPSENSE™ Tuner may not be executed correctly for PSoC™ 4000T projects in cases where the device is working in deep sleep mode for substantial periods of time.	In order for the CAPSENSE™ Tuner to switch between Synchronized and Asynchronized mode, the device should be in active mode with working I^2C or UART communication channel.

4.19　Documentation

Problem	Workaround
Various documents included with the release may contain incomplete information, or may not contain up-to-date screen captures or information.	New versions of documents, including this release notes document, may be available online at: 　　ModusToolbox™ Software website

Revision history

Revision	Date	Description of Change
**	2017-12-29	Initial Release.
*A	2018-11-21	Updates for Production.
*B	2019-09-19	Updates for version 1.1.
*C	2019-10-18	Updates for version 2.0.
*D	2019-10-21	Copyright text for FreeType.
*E	2019-11-04	Added known issues.
*F	2020-03-26	Updates for version 2.1.
*G	2020-04-07	Adding Known Issues for version 2.1; fixed Rev. in footer.
*H	2020-04-21	Adding known Issue for QSPI Configurator.
*I	2020-05-20	Removed fixed known issue.
*J	2020-06-29	Added known issues for Programming/Debugging.
*K	2020-09-01	Updates for version 2.2.
*L	2020-09-25	Added several known issues.
*M	2020-10-19	Added issue about programming in DeepSleep mode.
*N	2020-12-04	Added issue about Eclipse IDE and macOS Big Sur.
*O	2020-12-10	Added issued for no access to GitHub.
*P	2021-03-25	Updates for version 2.3. Updated text for M1 workaround. Added issue about importing into Eclipse.
*Q	2021-04-22	Updated text for known issue about build failing in Eclipse for imported projects.
*R	2021-07-07	Added issue for PSoC™ 4 error message that can be ignored.
*S	2021-09-23	Updates for version 2.4.
*T	2021-10-08	Updated the version of modus-shell for Windows to 1.3.0. Added build issues for legacy BTSDK projects, as well as XMC™ projects using Linux and IAR.
*U	2022-01-26	Added issue for font size on Project Creator and Library Manager when using multiple screens.
*V	2022-09-28	Updates for version 3.0 release.
*W	2023-03-21	Added issue of program starting before build finishes when working with multi-core projects.
*X	2023-06-02	Updates for version 3.1 release.
*Y	2024-02-27	Updates for version 3.2 release.
*Z	2024-03-26	Added known issue for CAPSENSE™ Configurator, and updated versions of a couple current assets.
AA	2024-06-18	Added known issues for the Building/programing/debugging section regarding issues using Eclipse and VS Code.
AB	2024-08-02	Updated known issue with Segger tool to include TAVEO™ T2G Instrument Cluster devices.

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