PSoC® Creator™ 2.2 Migration Guide

Introduction

This document discusses the known issues that may be encountered when moving existing projects from PSoC Creator 2.1 (and PSoC Creator 2.1 Service Pack 1) to version 2.2.

In addition to new components and features, PSoC Creator 2.2 includes tool updates and new component revisions for PSoC 3, PSoC 5 and PSoC 5LP devices. Cypress strongly recommends that you update the software and migrate your projects to the latest component revisions.

However, some changes to the software may impact your existing designs, requiring some care when moving to the new tool and updating components. Note that in most cases, the requested updates are a result of improved behavior in newer components and better error checking in the tool.

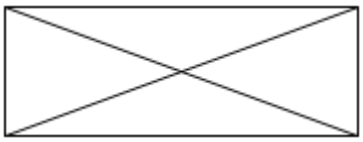
The key migration issues discussed in the document are:

- New Component Binding Error Handling
- MISRA Support for Automotive Applications
- Obsolete Components
- Changes to Existing Components
- CMSIS Core Peripheral Library
- Impact of New Pin Placer
- Migrating from PSoC Creator 2.0
- Appendix: How to Update Components

New Component Binding Error Handling

PSoC Creator 2.2 changes the way component binding errors are handled to make it easier to troubleshoot problems. Occasionally, schematics contain components that cannot be displayed. This is typically because a library location has moved, a dependency is incorrect, or the specific component version is not available in the version of the tool being used.

Prior to PSoC Creator 2.2, instances of components that could not be found were displayed as an unhelpful box with a cross through the middle. There was no indication of the offending component's name or version, and no hint to the possible cause of the problem.

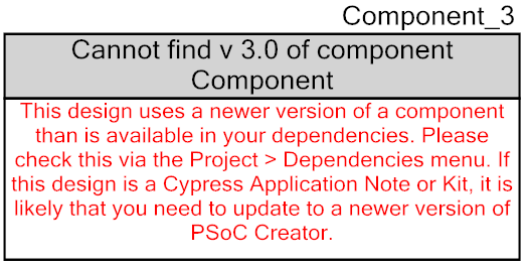


The tool now replaces the missing symbol with one of three new symbols that include the component name and instance name, along with helpful information about the possible causes.

When migrating to a new tool version the most common problem is a mismatch of component version availability. The project wants to use a component that exists but the specific version is not available. The required version may be newer or older than is available.

Tool Cannot Find a New Component Version

When only an older component version is available, the following symbol is displayed. This often happens when you swap back and forth between new and old versions of PSoC Creator and inadvertently save the project with a new component version that does not exist in the older software release.

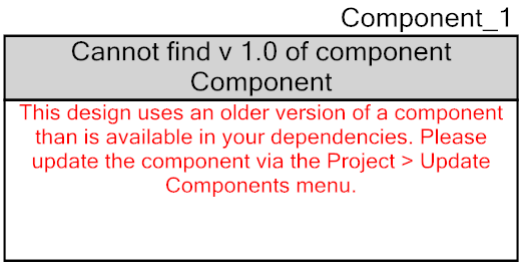


The solution to this problem is usually to open the Component Update Tool (Project > Update Components). Then, select from the available component versions and update the project.

However, if the component is not Cypress-provided content, you may have a library dependency problem, where there is a new component version in a library file not referenced from the project. If the Component Update Tool cannot resolve the problem, verify and correct the user dependencies from the Dependencies dialog (Project > Dependencies…).

Tool Cannot Find an Old Component Version

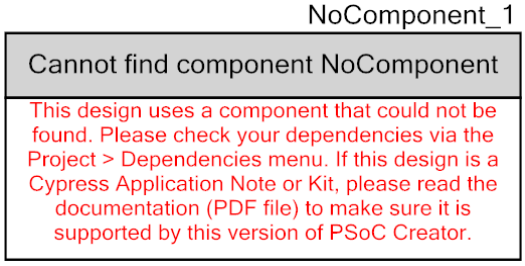
Failure to find an older component version usually happens because the project is very old and the version has been made obsolete. For Cypress content, old components are always made obsolete over two releases. In the first release, the component version issues a warning about impending obsolescence whenever it is used. In the subsequent release, it is physically removed from the distribution and the binding error symbol is displayed.



A list of obsolete (removed) components is always included in the Release Notes and in this guide. The solution to this error is the same as above. Use the Component Update Tool and/or the dependencies dialog to find the best available component version.

Tool Cannot Find Any Component Version

If no version of the component can be found, then there is a problem with the project dependencies. This is not a typical tool migration issue per se because Cypress content is shipped in “required” libraries (that are always available to the project) and we never remove all versions of components in one release.



The solution is always to use the Dependencies dialog to ensure the project has access to the library containing the component.

MISRA Support for Automotive Applications

MISRA is the Motor Industry Software Reliability Association, a group that publishes software coding standards. As part of a project to support MISRA-compliant applications, the APIs for many components, plus the PSoC Creator project code, are being updated to conform to that standard.

Only the latest (and future) versions of Cypress components have been modified, and the new datasheets include a section discussing their compliance and any (allowed) exceptions. There are no functional changes associated with the updates and it is safe to update components to MISRA-compliant versions.

The compliant components are listed below (latest versions only). Check the release notes in future releases for more MISRA-compliant components.

- ADC_SAR
- BoostConv
- CharLCD
- Counter
- CRC
- cy_boot
- cy_clock
- cy_dma
- cy_isr
- cy_pins
- CyControlReg
- CyStatusReg
- DFB
- DieTemp
- EEPROM
- EMIF
- I2C
- I2S
- IDAC8
- OpAmp
- PGA
- PGA_Inv
- PWM
- QuadDec
- Sample_Hold
- SegLCD
- SleepTimer
- SPDIF_Tx
- Timer
- UART
- VDAC8
- VectorCAN

Obsolete Components

A number of very old (obsolete) versions of components are no longer shipped with the 2.2 software. In all cases there are newer versions of the component that are of a higher quality. If you experience binding errors, as described in the New Component Binding Error Handling section, you should use the Component Update Manager to modify your designs to use these new components.

The impacted components are as follows.

- ADC_DelSig v1.0
- ADC_DelSig v1.10
- ADC_DelSig v1.20
- ADC_DelSig v1.21
- AMux v1.0
- AMux v1.10
- AMuxSeq v1.10
- BoostConv v1.0
- CAN v0.5
- CAN v1.10
- CAN v1.20
- CapSense v0.5
- CapSense v1.10
- CapSense v1.20
- CapSense v1.30
- CharLCD v0.2
- CharLCD v1.10
- CharLCD v1.20
- Comp v1.0
- Counter v1.0
- Counter v1.10
- CRC v1.10
- cy_boot v1.0
- cy_boot v1.10
- cy_boot v1.20
- DieTemp v1.0
- EEPROM v0.0
- EEPROM v1.10
- EZI2C v1.0
- EZI2C v1.10
- FanController v1.20
- Filter v1.10
- I2C v1.0
- I2C v1.10
- IDAC8 v1.0
- IDAC8 v1.10
- Mixer v1.0
- PGA v1.0
- PGA v1.10
- PGA_Inv v1.0
- PrISM v1.10
- PRS v0.5
- PRS v1.10
- PRS v1.20
- PWM v1.0
- QuadDec v1.10
- RTC v0.5
- RTC v1.10
- SegLCD v1.0
- SegLCD v1.10
- SegLCD v1.20
- SegLCD v1.30
- SegLCD v1.50
- SegLCD v1.60
- SGPIO_Initiator v1.20
- SGPIO_Target v1.30
- ShiftReg v1.10
- SleepTimer v1.0
- SleepTimer v1.50
- SPI_Master v1.0
- SPI_Master v1.10
- SPI_Slave v1.0
- SPI_Slave v1.10
- StaticSegLCD v1.10
- StaticSegLCD v1.20
- TIA v0.5
- Timer v1.0
- Timer v1.10
- UART v1.0
- UART v1.10
- UART v1.20
- USBFS v0.2
- USBFS v1.10
- USBFS v1.20
- USBFS v1.30
- VDAC8 v1.0
- VDAC8 v1.10
- VoltageSequencer v1.50

Changes to Existing Components

Many components were updated for MISRA compliance but no significant changes were made to other components, except the UART.

Refer to each individual component datasheet for specific changes made as needed.

UART v2.30

A defect was fixed in Half Duplex mode where the receiver didn't work correctly at 16x oversampling rate.

In addition, UART-based bootloading is now supported with the following new APIs.

- CyBtldrCommStart()
- CyBtldrCommStop()
- CyBtldrCommReset()
- CyBtldrCommWrite()
- CyBtldrCommRead()

CMSIS Core Peripheral Library

This is a new parameter in the System tab of the Design-Wide Resource editor that controls the inclusion of the ARM CMSIS library in PSoC 5 and PSoC 5LP projects. Prior to PSoC Creator 2.2, this library was always included in ARM-based projects.

There are no migration problems associated with this change. The user option only impacts the creation of new projects and so existing projects will not be affected.

Impact of New Pin Placer

As part of our ongoing effort to improve the tool, a new pin placer has been introduced. When making analog designs all unlocked pins are now allocated to more PSoC-friendly physical locations, making it easier to fit the whole design. This change enables more complex designs to fit without manual intervention.

The impact upon migration is solely that designs built in the new software may have new physical pins chosen for unlocked pins even though no changes have been made to the project. The resolution is to simply pick, and lock, the desired pin placement.

Note that locations of locked pins are unaffected by the new pin placer.

Migrating from PSoC Creator 2.0

If you are migrating from an older version of the tool it is strongly recommended that you read the migration guides for all releases.

Migration from PSoC Creator 2.0 is discussed in the 2.1 Migration Guide, available here:

http://www.cypress.com/go/creator_migration

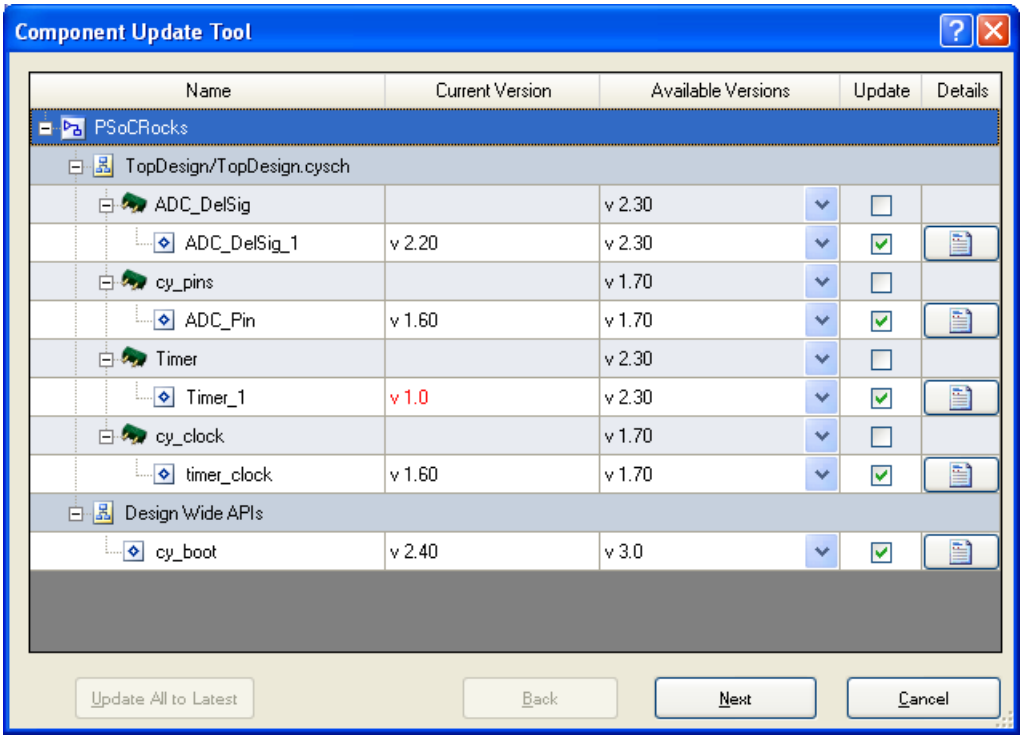
Appendix: How to Update Components

When you open a project that was last saved in an older version of PSoC Creator in the new software you will be prompted to update components to the latest version. This is optional but recommended.

1. Use the Component Update Tool (available from the **Project** menu) to choose the latest, production-ready versions of all components.

   It is recommended that all components are updated together and an “Update All to Latest” button is provided to ensure the newest versions are selected for update.

   Note that particularly old components, or those with known problems when used on the target device, are shown in red (error condition) or amber (warning condition). Clearly, it is strongly recommended that the project be updated to newer components when this occurs.



   Be aware that major version changes (e.g., from v1.xx to v2.xx) are not guaranteed to be backward compatible. So, review the component change logs carefully (these are located at the end of the component datasheets).

2. Rebuild the design and test.

Document History

Document Title: PSoC® Creator™ 2.2 Migration Guide

Document Number: 001-85655

Revision	Submission Date	Description of Change
**	1/11/2013	New document. Initial release for PSoC Creator 2.2.

© Cypress Semiconductor Corporation, 2013. The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

PSoC® and CapSense® are registered trademarks, and PSoC Creator™, Programmable System-on-Chip™, and SmartSense™ are trademarks of Cypress Semiconductor Corp. All other trademarks or registered trademarks referenced herein are property of the respective corporations.

Any Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress' product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.