PSoC® Creator™ 4.1 Release Notes

Overview

PSoC Creator 4.1 is a new release of the Cypress Integrated Design Environment with support for all PSoC and PRoC® devices, FM0+ flexible microcontrollers, and Analog Coprocessor and System Hardware Manager products.

This release is a minor upgrade from PSoC Creator 4.0. It adds web-based content delivery, enabling rapid installation of new device support, new and updated component versions, and Code Examples. This release also adds support for pre- and post-build user commands and improves the user experience for a number of existing features, with a refresh of the popular Start Page and changes to the parameter editor dialog.

This release does not replace existing production versions of PSoC Creator (e.g., 3.2, 3.3, or 4.0); it installs alongside them. We guarantee that your existing designs can be opened in the new software, but please upgrade your components to the latest version. To ensure that you can always return to your previous setup, a backup of your project is automatically created when opening a project in a new version of the tool. It is stored in a folder named "backup" in the project's folder.

If you have technical questions, visit www.cypress.com/go/support.

Contents

PSoC Creator 4.1 Features

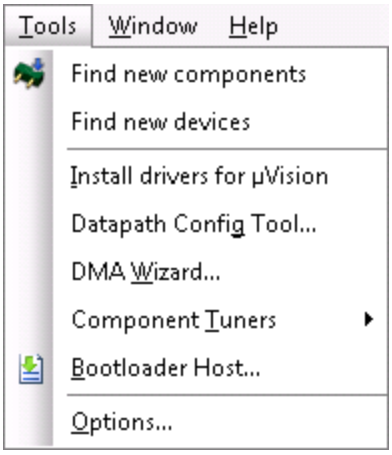
This release provides the following PSoC Creator features:

- Web-Based Content Delivery
- Pre- and Post-Build User Commands
- Improved Single-Step Debugging
- Start Page Updates
- Component Customizer Dialog Updates

Web-Based Content Delivery

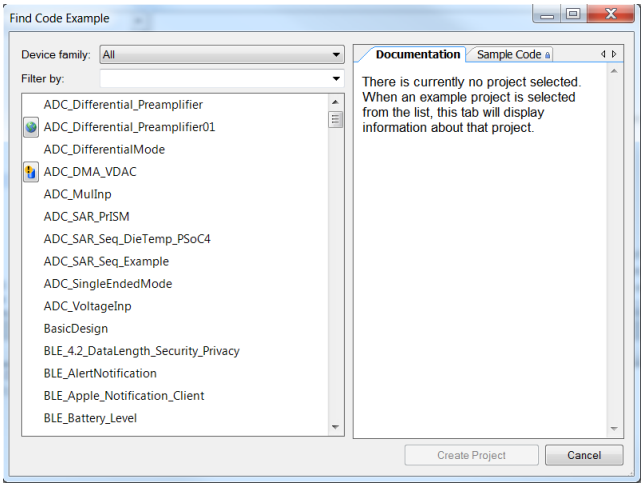
With this release, you can now obtain updates to devices (including modules), Components, and code examples from the Cypress web page. This will reduce the overall size of PSoC Creator in the future, providing faster installs and updates. The other key benefit of web-based content delivery is that new content can be distributed as soon as it is ready, instead of waiting for the next PSoC Creator update.

The **Tools** menu has been updated to add two items to find new Components and devices.



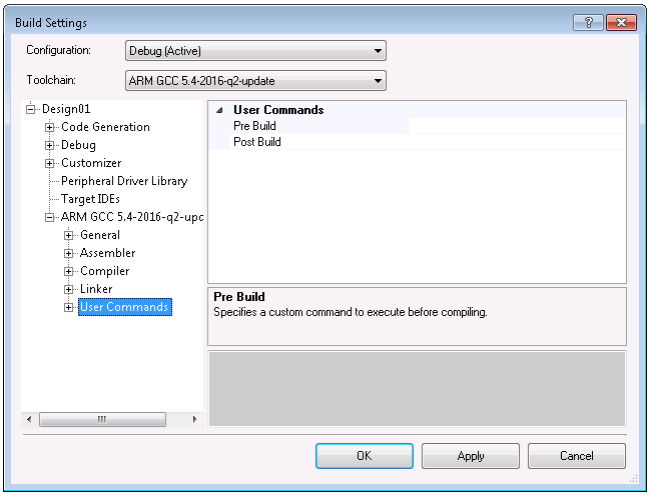
As part of this feature, many older versions of Components have been removed from this release. See the Removing Older Component Versions section.

The Find Code Examples dialog has been updated with indicators when new/updated code examples are available.



Pre- and Post-Build User Commands

The Build Settings dialog was also updated to provide a User Commands page. This feature allows you to run custom, user-specified, commands before or after the compile steps.

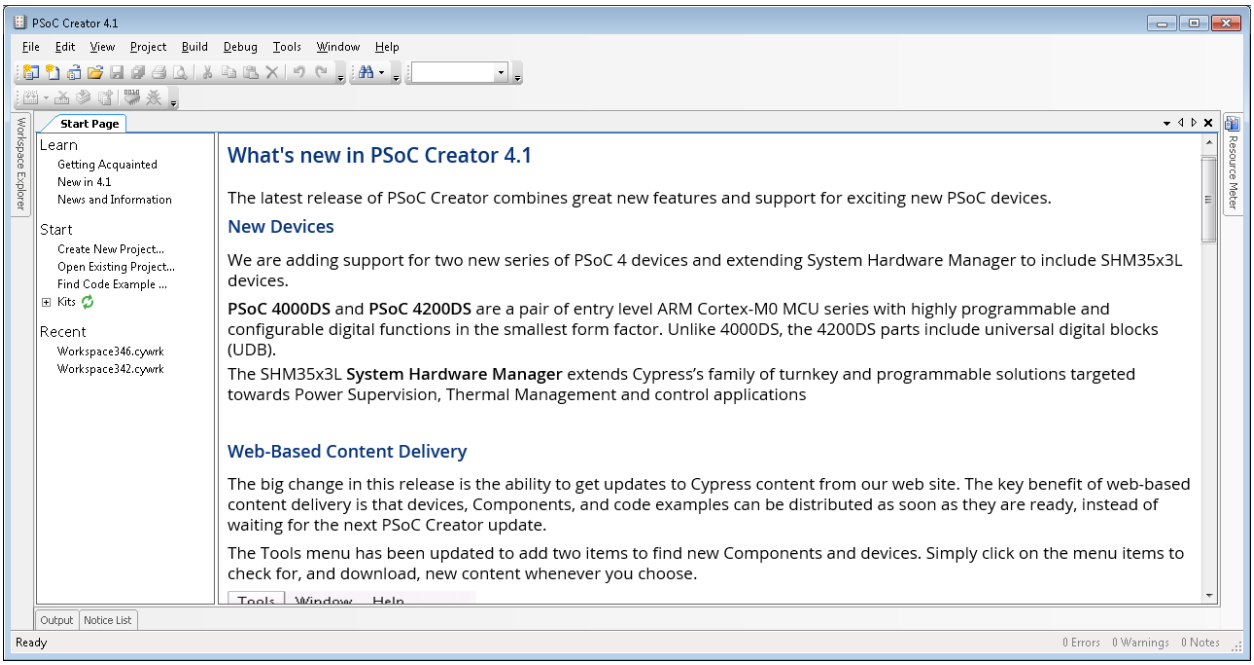


Improved Single-Step Debugging

Single-Step debugging PSoC 4 and PSoC 5LP designs with interrupts now works much more smoothly.

Start Page Update

The Start Page has been updated to remove a lot of clutter and to focus only on the key areas that most users want to see. There are now three sections: Learn, Start, and Recent.



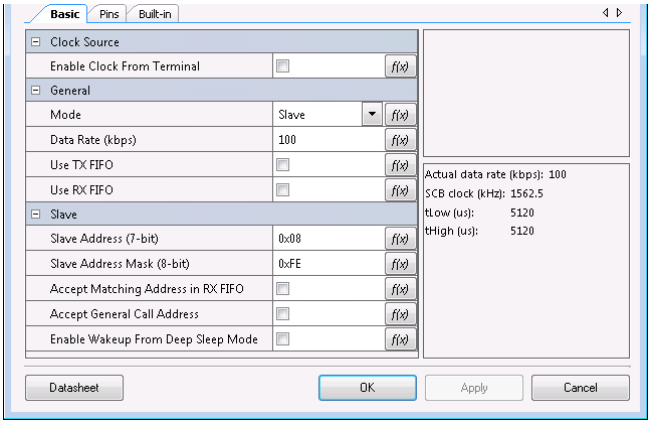
The **Learn** section provides links to three types of information. "News and Information" is a blog with design features, event news, kit releases, and other interesting PSoC stories. "New in 4.1" provides experienced users with an overview of the new features in the release. "Getting Acquainted" gives a very general introduction to key aspects of the product for new users.

The **Start** section is where you'll create new projects, either from scratch or from code examples.

The **Recent** section lists the most recent workspaces and projects you've worked on so you can jump back into them quickly.

Component Customizer Dialog Updates

Cypress has made several small enhancements to the default Configure dialog to improve the user experience with Components. There are now more ways to describe the parameters, make calculations with them, and guide the user to legal choices.



Components/Code Examples

This release includes the following new and updated Components, as well as code examples for them. Refer to the Component datasheets and code example documents for more details.

New Components

- ADC_UAB 1.0

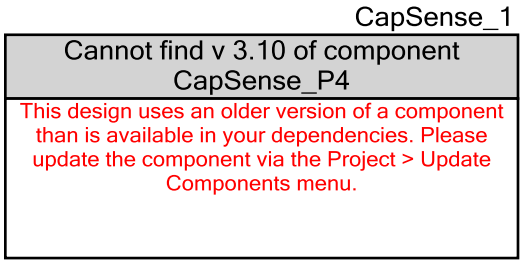
Updated Components

- ADC_SAR_SEQ_P4 2.50
- CapSense_P4 4.0
- CSD_ADC 1.10
- cy_boot 5.60
- cy_lfclk 1.20
- LIN 4.0
- PowerMonitor_P4 2.0
- Scan_ADC 1.30
- Smart I/O™ 1.10

Design Impact

PSoC Creator 4.1 will not Find Some Older Component Versions

As mentioned under the Web-Based Content Delivery section, only the latest versions of Components now ship with the product. If you are working on a project and update your software to PSoC Creator 4.1, you will see the following symbol in the schematic file for impacted components.



To resolve this issue, you have the choice between the following:

- Download the original versions using Web-Based Content Delivery tools.
- Update to the latest versions, which are always included in the distribution.

Component Versions Available from the Web

The following older Component versions from PSoC Creator 4.0 and previous releases have been removed from this release. They remain supported and available for download via Web-Based Content Delivery. Also shown are the latest Component versions available in PSoC Creator 4.1.

Component	PSoC Creator 4.0	PSoC Creator 4.1
ADC_DelSig	3.0	3.20
ADC_DelSig	3.10	3.20
ADC_SAR	2.10	3.0
ADC_SAR_SEQ	1.10	2.0
ADC_SAR_SEQ_P4	2.0	2.50
ADC_SAR_SEQ_P4	2.10	2.50
ADC_SAR_SEQ_P4	2.20	2.50
ADC_SAR_SEQ_P4	2.30	2.50
AMuxSeq	1.70	1.80
BLE	2.0	3.30
BLE	2.10	3.30
BLE	2.20	3.30
BLE	2.30	3.30
BLE	3.0	3.30
BLE	3.10	3.30

Component	PSoC Creator 4.0	PSoC Creator 4.1
BLE	3.20	3.30
Bootloadable	1.20	1.50
Bootloadable	1.30	1.50
Bootloadable	1.40	1.50
Bootloader	1.20	1.50
Bootloader	1.30	1.50
Bootloader	1.40	1.50
CapSense_CSD	3.40	3.50
CapSense_CSD_P4	2.20	2.60
CapSense_CSD_P4	2.30	2.60
CapSense_CSD_P4	2.40	2.60
CapSense_CSD_P4	2.50	2.60
CapSense_P4	3.0	4.0
CapSense_TMG	1.0	1.20
CharLCD	2.0	2.20

Component	PSoC Creator 4.0	PSoC Creator 4.1
CharLCD	2.10	2.20
Comp_P4	1.0	1.20
cy_pins	2.5	2.20
CyControlReg	1.70	1.80
cydff	1.0	1.30
cydff	1.10	1.30
cydff	1.20	1.30
DFB	1.30	1.40
DVDAC	2.0	2.10
EZI2C	1.90	2.0
Fan Controller	3.10	4.0
I2C	3.30	3.50
I2C	3.40	3.50
I2C_LCD	1.10	1.20
I2S	2.50	2.70
I2S	2.60	2.70
ILO_Trim	1.10	2.0
LIN	1.30	4.0
LPComp_P4	2.0	2.20
LPComp_P4	2.10	2.0
MDIO_Interface	1.0	1.20
MDIO_Interface	1.10	1.20
OpAmp_P4	1.10	1.20
PWM	3.0	3.30
PWM	3.10	3.30
PWM	3.20	3.30
QuadDec	2.40	3.0
Resistive Touch	1.30	2.0
RTC_P4	1.0	1.10
ScanComp	1.0	1.10
SCB_P4	1.20	3.20
SCB_P4	2.0	3.20
SCB_P4	3.0	3.20
SCB_P4	3.10	3.20
SegLCD_P4	1.10	1.30
SegLCD_P4	1.20	1.30
SMBusSlave	2.20	5.20
SMBusSlave	3.0	5.20
SMBusSlave	4.0	5.20
SMBusSlave	5.0	5.20
SMBusSlave	5.10	5.20
SPI_Slave	2.60	2.70
SW_Tx_UART	1.10	1.50
SW_Tx_UART	1.20	1.50
SW_Tx_UART	1.30	1.50
SW_Tx_UART	1.40	1.50
TCPWM_P4	1.0	2.10
TCPWM_P4	1.10	2.10
Timer	2.60	2.70
Trim and Margin	1.30	3.0
Trim and Margin	2.0	3.0
UART	2.30	2.50
UART	2.40	2.50
USBFS	2.60	3.10
USBFS	2.70	3.10
USBFS	2.80	3.10
USBFS	3.0	3.10
Voltage Fault Detector	2.30	3.0
Voltage Sequencer	3.21	3.40
Voltage Sequencer	3.30	3.40
WaveDAC8	2.0	2.10

Obsolete Component Versions NOT Available from the Web

The following Components have been removed from this release and are not available through Web-Based Content Delivery. They are obsolete:

- FanController 3.0
- Scan_ADC 1.10
- UAB_VDAC 1.0
- UABPRIM 1.0

Supported Devices

The design flow and tools available in this release of PSoC Creator support the following:

Family/Series	Part Numbers			
PSoC 5LP	CY8C52*LP	CY8C54*LP	CY8C56*LP	CY8C58*LP
PRoC BLE	CYBL1*			
EZ-BLE modules	CYBLE*			
PSoC 4200, PSoC 4200L, PSoC 4200M, PSoC 4200 BLE, PSoC 4200DS	CY8C42* CY8C42*DS	CY8C42*L	CY8C42*M	CY8C42*BL
PSoC 4100, PSoC 4100M, PSoC 4100S, PSoC 4100 BLE	CY8C41*	CY8C41*M	CY8C41*S	CY8C41*BL
PSoC 4000, PSoC 4000S, PSoC 4000DS	CY8C40*	CY8C40*S	CY8C40*DS	
PSoC Analog Coprocessor	CY8C4A*			
PSoC 3	CY8C32*	CY8C34*	CY8C36*	CY8C38*
System Hardware Manager (SHM)	CYSHM*			
FM0+	S6E1A* S6E1C3*	S6E1B3*	S6E1B8*	S6E1C1*

Supported Tool Chains

Toolchains for ARM-Based Devices

ARM GCC – The GCC ARM Embedded toolchain GCC 5.4-2016-q2-update is installed with PSoC Creator. This toolchain has no use restrictions and does not require license activation (it is distributed under the terms of the GNU Public License).

ARM GCC Generic – This option can be used to select a separately-installed version of the ARM GCC toolchain.

ARM MDK Generic – This option can be used to select a separately-installed version of the ARM Microcontroller Development Kit. The officially supported version is 4.72a.

Toolchains for PSoC 3 (8051)

DP8051 Keil™ 9.51 – The Keil PK51 Professional Developers Kit for PSoC is installed with PSoC Creator. It supports optimization levels 0 through 5. If you would like to use the compiler optimization levels above level 5, you should purchase the standard PK51 product by contacting Keil.

- In North, Central, or South America... sales.us@keil.com
- In Europe, Asia, Africa, or Australia... sales.intl@keil.com

The free Keil toolchain comes with a 30-day evaluation license. You can extend the license, without cost, by registering the product from within PSoC Creator (**Help > Register > Keil…**). Note that the extended license is for one year and that you will need to re-register it each year.

DP8051 Keil Generic – This option can be used to select a separately-installed version of the Keil toolchain. While any version can be selected, the only officially supported versions are 8.16, 9.03, 9.51.

Installation

Minimum and Recommended System Requirements

The following are system requirements to install and use PSoC Creator. Each requirement specifies a minimum that your system must meet or exceed.

PSoC Creator will execute correctly in highly resource-constrained systems. However, performance (startup time, project creation and opening, build times, and so on) may be impacted when resources are scarce. The most directly impacted performance metric is build time. The following sections provide examples of the resource scarcity impact.

Note During initial startup, PSoC Creator builds and caches component DLL files used to display the component parameter editors. As a result, the tool will launch less quickly the first time after a new installation or a Windows® reboot.

Summary

Hardware/Operating System Requirements	Minimum
▪ Processor	1.3 GHz or faster 32-bit (x86) or Intel 64/ AMD64 64-bit
▪ RAM	1.5 GB
▪ Free Hard Drive Space	5 GB
▪ Screen Resolution	1024x768
▪ USB	2.0

Software Prerequisites *	Minimum Version
▪ Microsoft Internet Explorer (not IE8 beta)	7
▪ .NET Framework	4.0
▪ Adobe Reader (for viewing PDF Documentation)	9.2 **
▪ Windows Installer	3.1
▪ PSoC Programmer	3.26 (included with PSoC Creator)

- Keil Compiler (For PSoC 3 Only) 8.16 (9.51 provided)

* To install and run PSoC Creator, you may also need to install additional software. The Cypress Installer will guide you through the process if the additional programs are not already installed.

** For Windows 7, the minimum required version of Adobe Reader is version 9.2. You can download the latest version here: http://get.adobe.com/reader/. You can also use a non-Adobe PDF reader if you prefer; however, Cypress has no recommendations for any particular non-Adobe reader or version.

Processor

1.3 GHz or faster 32-bit (x86) or Intel 64/AMD64 64-bit processor is required.

PSoC Creator exhibits a predictable relationship between CPU speed and build time above 1.3 GHz. Doubling the CPU speed, e.g., from 1.5 GHz to 3 GHz, almost halves the build time.

On a fast (3 GHz) PC, simple designs can build in about one minute. At low speeds even designs that fill the device and generate complex routing solutions will build in under 5 minutes.

Operating System

One of the following Windows platforms is required:

- Windows 7 and Windows 7 SP1 (32- and 64-bit supported)
- Windows 8 and Windows 8.1 (32- and 64-bit supported)
- Windows 10 (32- and 64-bit supported)
- Mac OS X El Capitan on VMware Fusion 8 running Windows 8.1
- Mac OS X El Capitan on Parallels Desktop 11 running Windows 10
- Ubuntu 15 Linux with Oracle VM VirtualBox running Windows 10

Memory

A minimum of 1.5 GB of RAM is required.

Free Disk Space

PSoC Creator requires 5 GB of free disk space. PSoC Creator will install and run with just 1 GB of free disk space. However, in order to allow Windows to do memory paging, we recommend a minimum free disk space requirement of 5 GB.

If your disk is highly fragmented it will severely impact memory paging time and can result in very long build times. Disks that are nearly full are particularly prone to fragmentation. We recommend de-fragmenting your disk if you experience excessively long build times (10 minutes or more).

USB

PSoC Creator requires a USB 2.0-compliant host to program and debug.

Screen

A resolution of 1024x768 pixels or higher is required.

Note The build time examples given above were obtained with new product installations on minimally fragmented disks with no other applications running. If your build times exceed these expectations we recommend closing unnecessary applications, adding RAM to the system (to reduce paging) and ensuring that there is sufficient free and unfragmented disk space.

Software Update Instructions

As part of the installation process, the Cypress Update Manager utility will also be installed and located on the Start menu. You can use this utility to update all Cypress programs you have installed when updates for them become available.

Open Source

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Installation Notes

The installation process is a set of wizards that walk you through installing various components. You can install PSoC Creator and various prerequisites from the web or from a DVD. There are slight differences in the process based on the medium used to install the software.

The DVDs provide the necessary prerequisites and the wizards to guide you through installing the appropriate software. The following sections contain more specific installation details.

Note Do NOT plug in your Miniprog3 until all software installation is complete AND the PSoC Creator application has been opened.

PSoC Creator DVD Installation

The PSoC Creator DVD contains PSoC Creator and PSoC Programmer, as well as various prerequisites.

1. Load the DVD. The main installer program should run automatically. If not, double-click the cyautorun.exe file to launch it.
2. On the main installer, click the **Install PSoC Creator <version>** button to launch the PSoC Creator InstallShield Wizard.
3. Follow the prompts on the wizard. The CyInstaller for PSoC Creator opens and displays steps to install PSoC Creator.
4. Click the hyperlink for any software that is not installed as indicated (such as, Acrobat Reader, etc.). Run the installer for that program as needed.
5. Continue following the prompts to install PSoC Creator.

Cypress PSoC Kit DVD Installation

A kit DVD contains PSoC Creator and PSoC Programmer, as well as projects, documentation, and prerequisites needed for the associated kit. Refer to kit instructions.

Web Installation

If you are downloading the software from the web (www.cypress.com/creator), run the PSoC Creator single package executable.

1. Double-click the PSoC Creator executable file to launch the installer.

2. Follow the prompts to install PSoC Creator. The CyInstaller for PSoC Creator opens and displays a series of steps to install PSoC Creator, and it will perform pre-requisite checks and install the prerequisites.
3. When complete, close the installer.

Further Reading

The primary documentation for PSoC Creator is provided in the Help, which you can open from the **Help** menu or by pressing [**F1**]. Other documents included with this release are also available from the **Help** menu, under **Documentation**. These documents include (but are not limited to):

- Quick Start Guide
- System Reference Guide
- Component Author Guide

Cypress provides a web page specifically for PSoC Creator at www.cypress.com/creator.

Other documentation includes (but is not limited to):

- Device Datasheets
- Device Architecture Technical Reference Manual (TRM)
- Device Registers TRM
- Application Notes
- Training

Contact your Cypress representative, as needed.

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