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连接微控制器

Qt 用于 MCU 使您能够使用 QML 和 Qt 快速控制子集为由微控制器单元 (MCU) 供电的设备创建用户界面。它包括一个新的图形渲染引擎,该引擎具有较低的内存占用,并针对MCU和其他资源受限的设备进行了优化。

您可以将 MCU 板连接到开发主机,以使用 GNU Arm 嵌入式 GCC 编译器、库和在基于 Arm Cortex-M 处理器的设备上进行裸机软件开发所需的其他 GNU 工具为其构建应用程序。您可以在 MCU 上部署应用程序,以使用 Qt Creator 运行和调试它们。

这些工具链可用于微软视窗、Linux 和 macOS 上的交叉编译。但是,适用于 MCU SDK 的 Qt 目前仅适用于视窗和 Linux。

有关用于 MCU 的 Qt 参考实现列表,请参阅适用于 MCU 的 Qt 文档。

要求

要使用 Qt Creator 为 MCU 开发 QML 应用程序,您需要具备以下条件:

- > 适用于 MCU SDK 的 Qt(仅适用于视窗和 Linux)
-) 通用工业大学嵌入式工具链

特定于硬件的要求因要开发的硬件平台而异。有关详细信息,请参阅:

- > 恩智浦入门
- > 开始使用 STM
- > 瑞萨电子入门

设置开发环境

您必须下载并安装所需的软件,并在Qt Creator和MCU之间创建连接。以下小节将指导您完成设置过程。

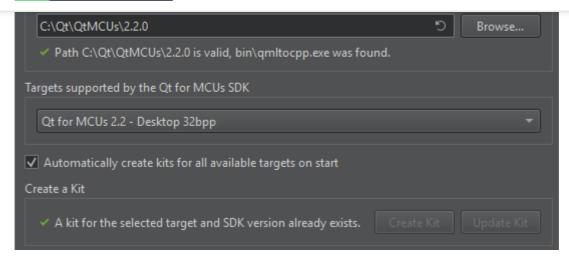
单片机插件

为了能够为MCU开发应用程序,您需要MCU插件。当您为MCU安装Qt时,Qt安装程序会自动启用此插件。

指定单片机设置

要配置 Qt Creator 与 MCU 板之间的连接,请选择"编辑>首选项">"设备> MCU:

Qt DOCUMENTATION



- 1. 在"适用于 MCU 的 Qt SDK"字段中,指定安装 MCU 的 Qt SDK 的目录的路径。
- 2. 在"适用于 MCU 的 Qt 支持的目标"字段中,选择您的 MCU 板。
- 3. 在"要求"部分中,确保满足特定于平台的要求。这取决于所选的目标:
 - > 对于STM32目标:
 - > 通用工业大学嵌入式工具链或 IAR 武器编译器路径。
 - > STM32**立方体编程器**安装路径。
 - 所选目标的微控制器开发工具包。
 - **)** 所选目标的自由**交易系统源**。
 - 对于恩智浦目标:
 - > 通用工业大学嵌入式工具链或 IAR 武器编译器路径。
 - > 计算机**驱动程序 IDE** 安装路径。
 -) 所选目标的微控制器开发工具包。
 - **>** 所选目标的自由**交易系统源**。
 - > 对于瑞萨电子目标:
 - > The Green Hills Compiler path.
 - The Renesas Graphics Library path.
- 4. Select the **Automatically create kits for all available targets on start** option to create kits automatically the next time Qt Creator is started.

Note: You could also use **Create Kit** to manually create kits for the chosen target.

5. Select Apply to save the settings.

Note: When updating to other versions of the Qt for MCUs SDK, Qt Creator will ask you if you want to replace the existing kits, or create new ones alongside. This can also be done manually, for each individual target, via **Update Kit** and **Create Kit**, respectively.

Adding MCU Devices

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MCU Settings.

Qt Creator automatically adds a default MCU device when you select **Apply** in the **MCU** tab after configuring the MCU tool chain.

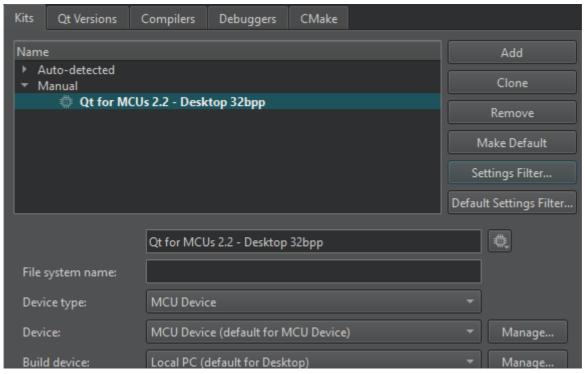


To add MCU devices, select Edit > Preferences > Devices > Add > MCU Device > Start Wizard:

- 1. In the **Name** field, give the device a name.
- 2. In the **Type** field, select the board type.
- 3. Select **Apply** to add the device.

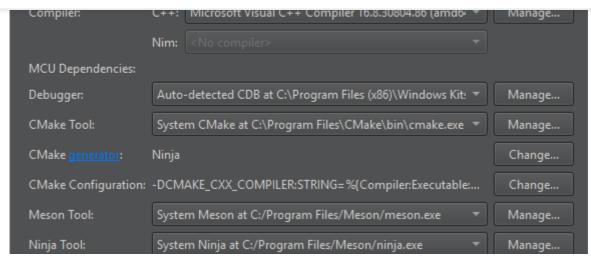
Managing MCU Kits

Qt Creator automatically adds kits for all the available targets, if the **Automatically create kits for all available targets on start** option is enabled under the **MCU** settings tab. You can also create kits for individual targets manually, as outlined in Specifying MCU Settings.



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You can edit and/or remove individual kits in **Edit** > **Preferences** > **Kits**.

However, for adding new kits you should use the **Create Kit** button in the {Qt for MCUs} settings tab. This method adds the paths to the kit's toolkits and SDKs, and keeps them synchronized when selecting **Apply** or **OK**.

The **MCU dependencies** field displays paths to 3rd party software required for MCU development with the current kit.

Running Applications on MCUs

You can use a wizard to set up a project for developing an application that you can run on MCUs. The project uses a subset of QML and Qt Quick Controls that are supported by Qt for MCU. For more information about developing applications for MCUs, see the Qt for MCU documentation.

To create an application and run it on a MCU board:

- 1. Select File > New Project > Application (Qt for MCU) > MCU Support Application > Choose.
- 2. Follow the instructions of the wizard to create the project.
- 3. Select **Projects** > **Build & Run**, and then select the kit for building the application and running it on the MCU board specified in the kit.
- 4. Select **Run** to specify run settings. Usually, you can use the default settings.

Supported Qt for MCUs SDKs

Since version 7.0.0, Qt Creator supports version 2.0 and later of the Qt for MCUs SDK. For older versions, refer to the following table.

Qt Creator version	Qt for MCUs SDK version
7.0.0 or later	2.0 or later
6.0.x	1.3 or later, including 2.0 or later
4.12.4 up to 5.0.3	1.3 up to 1.9
4.12.2 or 4.12.3	1.2
4.12.0 or 4.12.1	1.1
4.11.x	1.0



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