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Qt Creator Manual 8.0.2

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Building Applications for the Web

WebAssembly is a binary format that allows sand-boxed executable code in web pages. This format is nearly as fast as native machine code, and is now supported by all major web browsers.

Qt for WebAssembly enables building Qt applications so that they can be integrated into web pages. It doesn't require any client-side installations and reduces the use of server-side resources.

The experimental WebAssembly plugin enables you to build your applications in WebAssembly format and deploy and run them in the local web browser. You can change the web browser in the project's run settings.

To build applications for the web and run them in a web browser, you need to install Qt for WebAssembly and the tool chain for compiling to WebAssembly.

Requirements

You need the following software to build Qt applications for the web and run them in a browser:

> Qt for WebAssembly 5.15, or later

> On Windows: MinGW 7.3.0, or later

> emscripten tool chain for compiling to WebAssembly

Setting Up the Development Environment

You need to install and configure Qt for WebAssembly and the tool chain for compiling to WebAssembly. The Qt Installer automatically adds a build and run kit to Qt Creator.

Setting Up Qt for WebAssembly

To set up Qt for WebAssembly:

1. Use the Qt maintenance tool to install Qt for WebAssembly and, on Windows, MinGW (found in **Developer and Designer Tools**).
2. Check out a known-good Emscripten version supported by the Qt for WebAssembly version that you installed, and install and activate `emscripten`, as instructed in Install Emscripten.

Enabling the WebAssembly Plugin

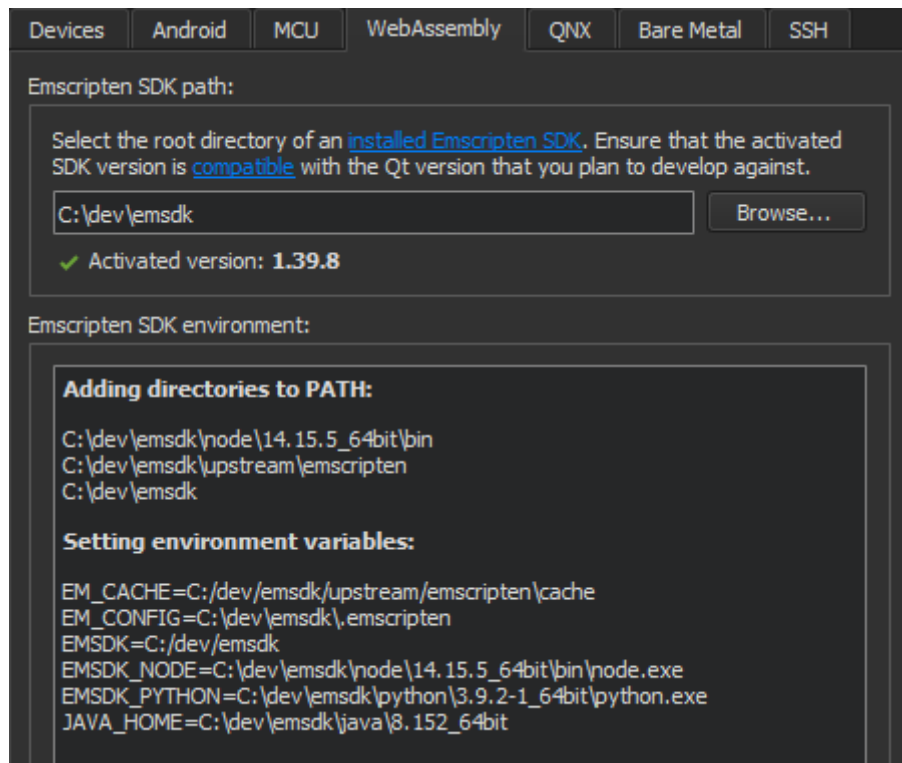To enable the plugin:

1. In Qt Creator, select **Help** > **About Plugins** > **Device Support** > **WebAssembly**.
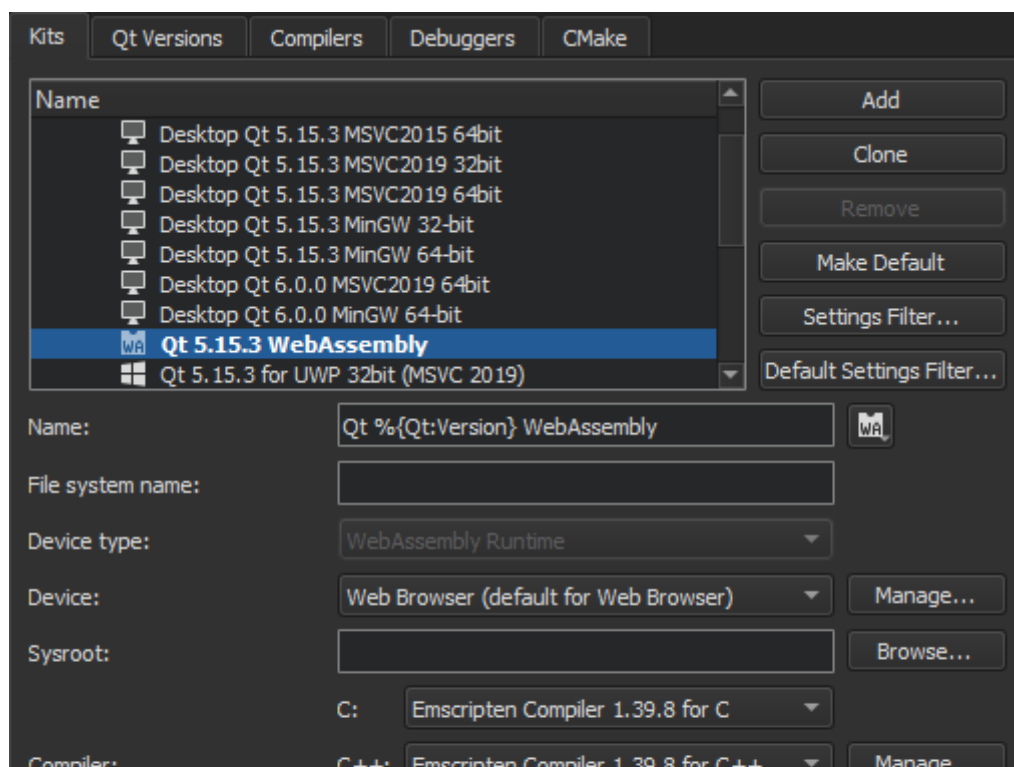
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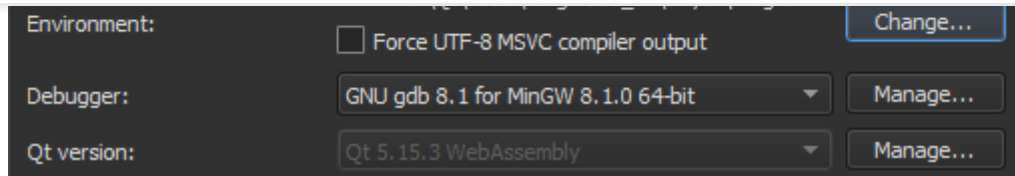
Specifying WebAssembly Settings

To configure Qt Creator for building Qt apps for the web:

1. Select **Edit** > **Preferences** > **Devices** > **WebAssembly**.

2. In the **Emscripten SDK path** field, enter the root directory where `emsdk` is installed.

3. Qt Creator configures the **Emscripten SDK environment** for you if the `emsdk` is supported by the Qt for WebAssembly version that you will use for developing the application.

4. Select **Edit** > **Preferences** > **Kits**.

5. In the **Compiler** group, **Emscripten Compiler** should have been automatically detected for both C++ and C. If not, check that emscripten is set up correctly.
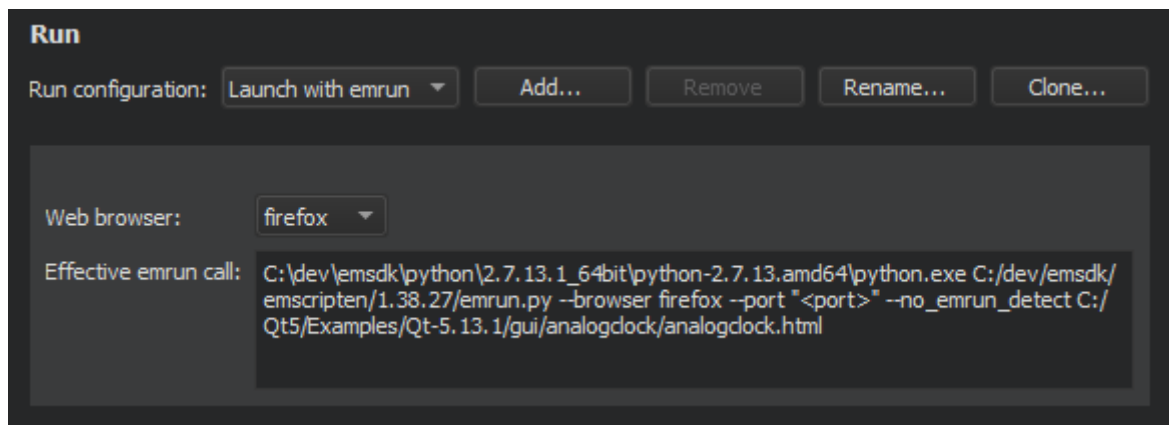
Adding WebAssembly Kits

The Qt for Web Assembly installation automatically adds build and run kits to Qt Creator. To add kits:

1. Select **Edit** > **Preferences** > **Kits** > **Add**.
2. In the **Name** field, specify a name for the kit.
3. In the **Device type** field, select **WebAssembly Runtime**. The value of the **Device** field is automatically set to **Web Browser**.
4. In the **Compiler** field, select **Emscripten Compiler** for both C and C++.
5. Select **Apply** to add the kit.

Running Applications in a Web Browser

To run a project:

1. Open a project for an application you want to run in a web browser.
2. Select **Projects** > **Build & Run**, and then select the WebAssembly kit as the build and run kit for the project.
3. Select **Run** to specify run settings.
4. In the **Web browser** field, select the browser to run the application in.

You can now build Qt applications in WebAssembly format and run them in a web browser as described in Building for Multiple Platforms and Running on Multiple Platforms.

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