MPLAB® Code Configurator AVR IoT Google Sensor Node Release Notes

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1. What is the Library

AVR-IoT Google Sensor Node is a secure, Wi-Fi connected solution for an IoT node. It enables developers to send and receive data between a sensor node and the Cloud platform. The AVR-IoT WG Development Board can be used as demonstration platform for this IoT solution.

2. System Requirements

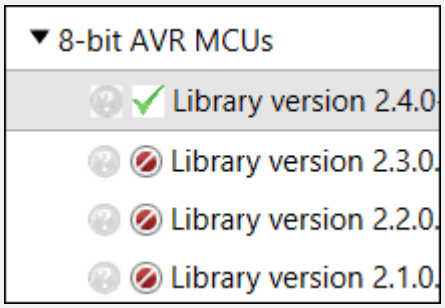
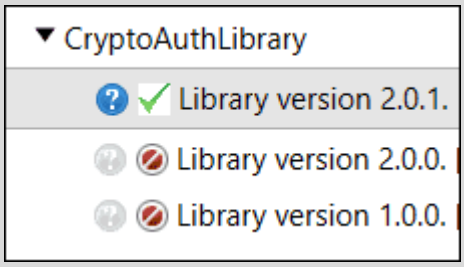
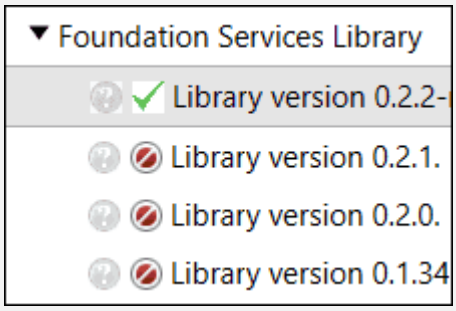
- MPLAB® X IDE v5.40 or later
- ATmega_DFP v2.2.108 or later (DFPs are available in MPLAB X → Tools → Packs)
- MPLAB® Code Configurator Plugin v4.0.0 or later
- MCC Core v5.0.0 or later (packaged with MCC)
- Libraries:
  - MCC Foundation Services v0.2.2 or later
  - AVR8 MCU Library v2.4.0 or later
  - Crypto Authentication Library v2.0.1
  - Message Queuing Telemetry Transport (MQTT) v2.0.1
  - WINC15XX Library v1.1.1
- Compilers:
  - XC8 compiler v2.20 or later
  - AVR GCC compiler v5.4.0 or later

3. Related Hardware and Documentation Support

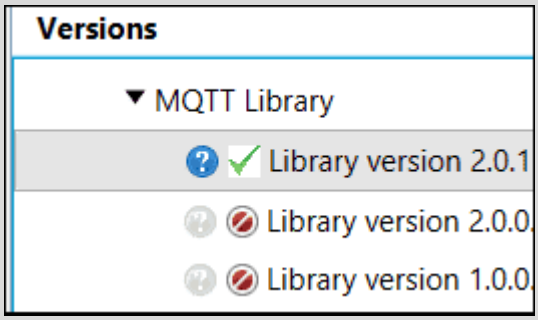
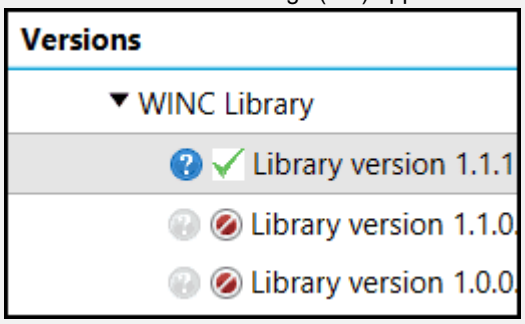
AVR IoT Google Sensor Node MCC Library is a compendium, which uses underlying libraries (AVR8 MCUs, MQTT, CryptoAuthLib, WINC and Foundation Services).

The following libraries need to be installed to generate AVR IoT Google Sensor Node. The version information for each library is available in **MCC → Versions[MCC]** tab. Double click on the required version number to use that particular version of each library.

Table 3-1. Library Dependencies

	Library	Description	Version
1	AVR® MCUs	The 8-bit AVR MCUs library enables to use 8-bit AVR devices and its modules. 	2.4.0 or later
2	Crypto Authentication Library	The Crypto Authentication Library (CryptoAuthLib) configures the on-board ATECC608A chip that provides the security features of the AVR-IoT WA board to work. 	2.0.1
3	Foundation Services	The Foundation Services library provides basic software drivers. 	0.2.2 or later

.....continued

	Library	Description	Version
4	Message Queuing Telemetry Transport (MQTT)	The MQTT library provides MQTT client implementation to connect to a MQTT server. 	2.0.1
5	WINC15XX Library	WINC15XX Library allows for quick and easy C code generation of Microchip's ATWINC15x0 SmartConnect module for Internet of Things (IoT) applications. 	1.1.1

The stack is tested against following hardware plaform:

- AVR-IoT WG Development Board

Documentation support is also available here:

- AVR-IoT WG Development Board (Documents and Software → Documents)

4. Installing the Library

To install the MPLAB® Code Configurator Plugin:

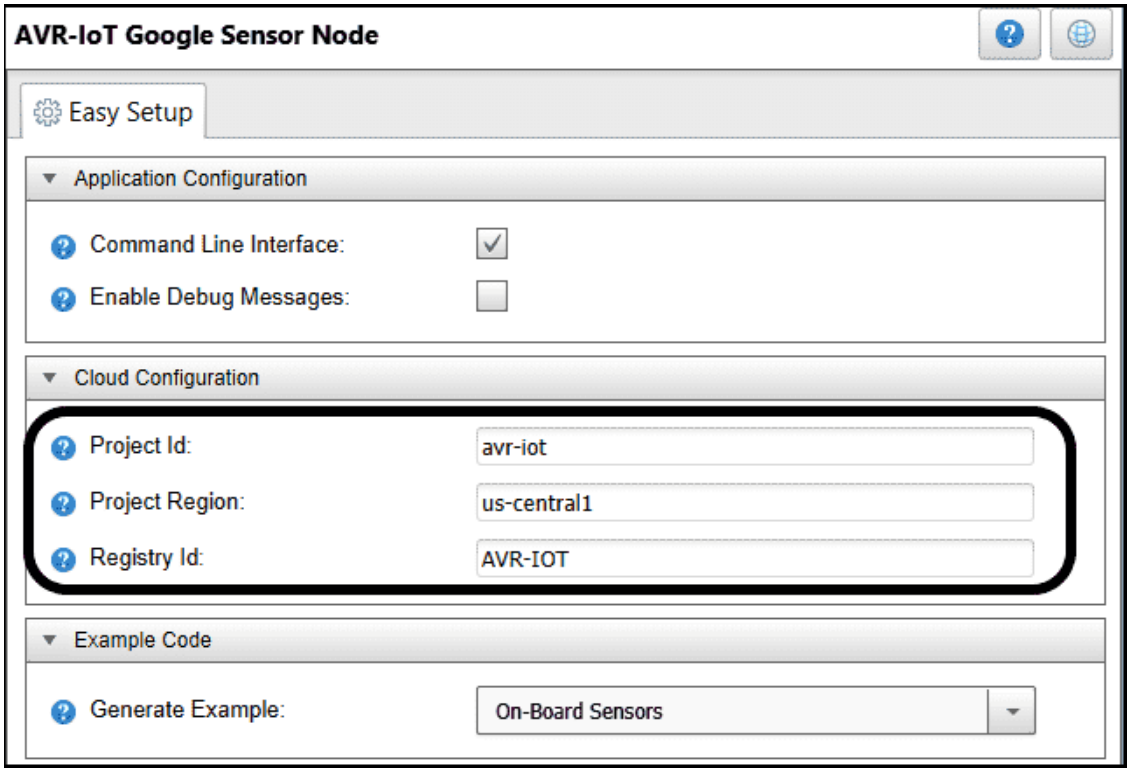
1. In the MPLAB® X IDE click on **Tools** → **Plugin**
2. Click on **Available Plugins** tab
3. Check the box for the **MPLAB® Code Configurator**, and click on Install
4. Close and re-launch MPLABX after installation

To install the AVR IoT Google Sensor Node Library:

1. Open the MPLAB Code Configurator webpage
2. Scroll to the bottom of the page and select the **Current Downloads** tabs
3. Download the AVR IoT Google Sensor Node library (**avrIoTGoogleSensorNode-2.0.1.zip**)
4. In the MPLAB® X IDE click on **Tools** → **Options**
5. Click on **Plugins** tab
6. Click on **Install Library**
7. Browse to the location where you saved the **avrIoTGoogleSensorNode-2.0.1.zip**, select and click Open to install the library

5. Running the Example

1. Create a new project in MPLAB® X IDE (for ex: ATmega4808)
2. Open MCC by clicking **Tools**→ **Embedded**→ **MPLAB® Code Configurator** or **click on** the MCC icon
3. Navigate to Versions[MCC] → MPLAB® Code Configurator (Plugin) → Libraries → Microchip Technology, Inc. → AVR-IoT Google Sensor Node. Check the version of AVR IoT Google Sensor Node to ensure selection of library version 2.0.1. If any other version is selected, double click on Library version 2.0.1.
4. In the **Device Resources** panel navigate to Internet of Things → Examples → AVR-IoT Google Sensor Node
5. Double click on AVR-IoT Sensor Node to add this to the **Project Resources** panel
6. In the **Project Resources** panel navigate to Internet of Things → Examples → AVR-IoT Google Sensor Node
7. Select AVR-IoT Google Sensor Node
8. Google IoT Core
   - Configure the Project ID, Project Region and Registry Id accordingly in Cloud Configuration.
   - The default values configured in there is to get the sensor node connected to Microchip's Sandbox account.



9. Click on the tooltip for more information on each UI option.
10. Click **Generate** button
11. Connect the AVR-IoT WG Development Board to the computer using a standard micro-USB cable
12. Build the firmware and program the hardware.
13. Additional information is available in AVR IoT WG User Guide (Documentation and Software → Documents).

6. What's New?

- v2.0.1
  - Support added for MCC plugin v4.0.0 using MCC Core v5.0.0 **Note:**
    - AVR IoT Google Sensor Node v3.0.0 is incompatible with the versions of MCC plugin released prior to v4.0.0.
    - AVR IoT Google Sensor Node v3.0.0 is incompatible with the versions of MCC Core released prior to v5.0.0.
- v2.0.0
  - Application specific messages can be enabled/disabled through the macro “ENABLE_DEBUG_IOT_APP_MSGS” for printing to a connected terminal. *This does not affect DEBUG settings.*

7. Repairs and Enhancements

v2.0.1

- Updated the library for MCC Plugin v4.0.0 compatibility

v2.0.0

- Improvements:
  - Added tooltips to the GUI
  - Improved Cloud interface added to application features allowing for easy swap between cloud platforms
  - APIs and structure in “cloud_service.h” refactored
  - API in “wifi_service.h” refactored
  - Optimized LED driver code size and created a simple interface to control the LEDs
  - Optimized the frequency at which the application queries WINC module for NTP time in order to maintain the system time
- Bugfixes:
  - Updated interrupt priority levels to address issue of missing character intermittently during ‘drag and drop’ of the wifi.cfg file to the CURIOSITY drive
  - Enabled pull-up on the floating UART2 Rx pin to prevent reception of garbage data
  - Issues in Yellow and Green LED behavior resolved when connection loss occurred, which made it appear as if the board was still transmitting data to the cloud

8. Known Issues

- XC8 Compiler v2.20 or later with “**Enable Debug Messages**” option **unchecked**: Project compilation is successful using optimization level 1, 2 (free) and level s (pro). Optimization level 0 (free) and 3 (pro) is not supported
- XC8 Compiler v2.20 or later with “**Enable Debug Messages**” option **checked**: Project compilation is successful using optimization level s (pro). Optimization level 0 (free), 1(free), 2 (free)and 3 (pro) is not supported
- AVR GNU Toolchain v3.62 with either “Enable Debug Messages” option checked or unchecked: Project compilation is successful using optimization level 1, 2 (free) and level s (pro). Optimization level 0 (free) and 3 (pro) is not supported

9. FAQ

For frequently asked questions, please refer to the FAQ post on the MCC Forum

10. Supported Devices and Families

Supported Devices:

- ATmega4808

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