
ZL70251 WSN Evaluation Kit Source Code Overview



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1 – Introduction

This document is for customers who purchase the ZL70251 WSN Evaluation Kit and request the source code. It provides an overview of the source code for the kit and is intended to help software developers get started using the source code. The source code is available to anyone who purchases the ZL70251 WSN Evaluation Kit and signs a separate source code license agreement.

This document applies to ZL70251 WSN Evaluation Kit version 1.0.X.

2 – Source Code Installation

The source code for the ZL70251 WSN Evaluation Kit can be downloaded via the Internet as a ZIP file, which contains this document and the source tree for the kit. Be sure to keep the download and the source tree in a secure location.

To install the source code, unzip the ZIP file into a secure location. The top folder of the source tree is named *ZL70251WsnSource* by default, but you can rename it if desired, and it can be located anywhere (provided that it is secure). For more information, refer to “4 – Source Tree” on page 6.

3 – Software Components

This chapter provides an overview of the various software components in the ZL70251 WSN Evaluation Kit so developers can relate the components to the source code.

The software includes three main categories: Graphical User Interface (GUI), Application Programming Interfaces (API), and firmware (the software that runs on the hub and node). The hub consists of a HUB100 board, and the node consists of a NODE100 board mated with a plug-in sensor board (such as the ACCEL100 board included with the kit). The hub runs different firmware than the node.

The GUI and API run on the PC. The GUI calls the API to perform all operations, and the API sends commands to the hub board via USB. The hub communicates with the node via RF. The node does not have a USB connection to the PC.

Note that all of the API functions are included in a single DLL on the PC (for example, *ZStarDIL_1_X_X.dll*).

4 – Source Tree

The top folder of the source tree is named *ZL70251WsnSource* by default, but you can rename it if desired. Do not rename anything under the source tree because that might cause build errors. Note that the top folder of the source tree is also referred to as *[SourceTree]* in this document.

The source tree has the following subtrees of interest:

- **ZStar\Sw\Includes:** This contains the public include files. Note that when compiling, this folder must be specified as one of the include directories.
- **ZStar\Sw\Mc\Node\Accel:** This contains the source code for the firmware that runs on the accelerometer node (a NODE100 board mated with an ACCEL100 board).
- **ZStar\Sw\Mc\Hub\Standard:** This contains the source code for the firmware that runs on the hub (the HUB100 board).
- **ZStar\Sw\Mc\Libs:** This contains the source code for various firmware libraries.
- **ZStar\Sw\Mc\Libs\RadioLib:** This contains the source code for the radio library the firmware uses to interface to the ZL70251.
- **ZStar\Sw\Mc\IarWorkspace:** This contains the IAR workspace used to build the firmware for each board. For more information, refer to “[5 – IAR for Firmware](#)” on page 7.
- **ZStar\Sw\Pc\Libs:** This contains the source files for the PC libraries. Note that these libraries are included in the DLL (for example, *ZStarDll_1_X_X.dll*).
- **ZStar\Sw\Pc\Guis:** This contains the source code for the GUI.
- **ZStar\Sw\Pc\VisualStudio:** This contains the Visual Studio solution used to build the GUI and API (DLL). For more information, refer to “[6 – Visual Studio for GUI and API](#)” on page 8.

5 – IAR for Firmware

The ZL70251 WSN Evaluation Kit uses IAR's Embedded Workbench for Atmel AVR to build the firmware for each board. This must be purchased separately from IAR Systems.

The IAR workspace file for the ZL70251 WSN Evaluation Kit is `[SourceTree]\ZStar\Sw\Mc\IarWorkspace\ZStarWorkspace.eww`. To open the workspace in IAR, either start IAR and open the workspace file via *File > Open > Workspace*, or double-click the workspace file in Windows Explorer.

The workspace contains the following projects:

- **AccelNode:** This project is used to build the firmware that runs on the accelerometer node (a NODE100 board mated with an ACCEL100 board).
- **StandardHub:** This project is used to build the firmware that runs on the hub (the HUB100 board).

For more information about IAR, please refer to the IAR documentation.

6 – Visual Studio for GUI and API

The ZL70251 WSN Evaluation Kit uses Microsoft's Visual Studio (Professional Edition) to build the GUI and API (DLL). Visual Studio must be purchased separately from Microsoft.

The Visual Studio solution file for the ZL70251 WSN Evaluation Kit is *[SourceTree]\ZStar\Sw\Pc\VisualStudio\ZStar.sln*. To open the solution in Visual Studio, either start Visual Studio and open the solution file via *File > Open > Project/Solution*, or double-click the solution file in Windows Explorer.

The solution contains the following projects:

- **CsmaDemoGui**: The project is used to build the GUI.
- **ZStarDll_[Major]_X_X**: This project is used to build the API (DLL), where **[Major]** is the release major version.

For more information about Visual Studio, please refer to the Visual Studio documentation.

A References

Document	Document Title
146499	ZL70251 Programmer User's Guide
146670	ZL70251 Data Sheet
151662	ZL70251 WSN Evaluation Kit Release Notes
N/A	ZL70251 WSN Evaluation Kit User's Guide

B Glossary

Term	Definition
API	Application programming interface
DLL	Dynamic link library on a Windows PC
GUI	Graphical user interface
IAR	IAR Embedded Workbench™, the development tool used to build the firmware for the boards
MC	Microcontroller
PC	Personal computer
SW	Software
USB	Universal serial bus
WSN	Wireless sensor network
ZIP	Zone information protocol (a protocol that allows compression of files) or the three-character file extension on such a compressed file

C List of Changes

The following table lists substantive changes that were made in the ZL70251 WSN Evaluation Kit Source Code Overview.

Revision	Change	Page
Revision 1 (May 2015)	Initial release for ZL70251 WSN Evaluation Kit version 1.0.0.	–



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