Using the AVR Studio 4.19 Debugger

CodeVisionAVR is designed to work in conjunction with the Atmel AVR Studio 4.19 debugger.

In order to be able to do C source level debugging using AVR Studio, you must select the COFF **Output File Format** in the Project|Configure|C Compiler|Code Generation menu option.

Important Note: It is highly recommended to set the **Optimize for: Speed** option in the **Project|Configure|C Compiler|Code Generation** menu, which will allow correct debugging of the program.
Once debugging was finished, this option can be also set to **Optimize for: Size**.

The debugger is invoked using the **Tools|Debugger** menu command or the 🐞 toolbar button.
In order to be able to do this, the debugger version and it's installation path must be first specified using the Settings|Debugger menu.

After AVR Studio is launched, the user must first select **File|Open File** (**Ctr+O** keys) in order to load the COFF file to be debugged.
After the COFF file is loaded, and no AVR Studio project file exists for this COFF file, the debugger will open a **Select device and debug platform** dialog window.
In this window the user must specify the Debug Platform: ICE or AVR Simulator and the AVR Device type.
Pressing the **Finish** button will create a new AVR Studio project associated with the COFF file.
If an AVR Studio project associated with the COFF file already exists, the user will be asked if the debugger may load it.

Once the program is loaded, it can be launched in execution using the **Debug|Run** menu command, by pressing the **F5** key or by pressing the **Run** toolbar button.
Program execution can be stopped at any time using the **Debug|Break** menu command, by pressing **Ctrl+F5** keys or by pressing the **Break** toolbar button.

To single step the program, the **Debug|Step Into** (**F11** key), **Debug|Step Over** (**F10** key), **Debug|Step Out** (**Shift+F11** keys) menu commands or the corresponding toolbar buttons should be used.

In order to stop the program execution at a specific source line, the **Debug|Toggle Breakpoint** menu command, the **F9** key or the corresponding toolbar button should be used.

In order to watch program variables, the user must select **Debug|Quickwatch** (**Shift+F9** keys) menu command or press the **Quickwatch** toolbar button, and specify the name of the variable in the **QuickWatch** window in the **Name** column.

The AVR chip registers can be viewed using the **View|Register** menu command or by pressing the **Alt+0** keys. The registers can be also viewed in the **Workspace|I/O** window in the **Register 0-15** and **Register 16-31** tree branches.
The AVR chip PC, SP, X, Y, Z registers and status flags can be viewed in the **Workspace|I/O** window in the **Processor** tree branch.
The contents of the FLASH, SRAM and EEPROM memories can be viewed using the **View|Memory** menu command or by pressing the **Alt+4** keys.
The I/O registers can be viewed in the **Workspace|I/O** window in the **I/O** branch.

To obtain more information about using AVR Studio, please consult it's Help system.