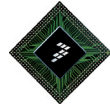


CodeWarrior™

Development Studio

for ColdFire® Architectures V2.5
Linux® Application Edition



Quick Start for Windows®

CodeWarrior™ Development Studio for ColdFire® Architectures Linux® Application Edition Version 2.5 Quick Start for Windows® Operating System

SYSTEM REQUIREMENTS

| | |
|-------------------------|---|
| Hardware | PC with 1.4 GHz Intel® Pentium® III compatible processor, 512 MB RAM (1 GB recommended), CD-ROM drive, serial port, and Ethernet port |
| Operating System | Microsoft® Windows 2000, Windows XP, or Windows Vista™ Operating Systems |
| Disk Space | 2 GB, plus space for projects and source code |

This document shows how to install the included CodeWarrior development software on a Windows host computer, use the CodeWarrior tools to create an application, and then download and debug the application on a target ColdFire system.

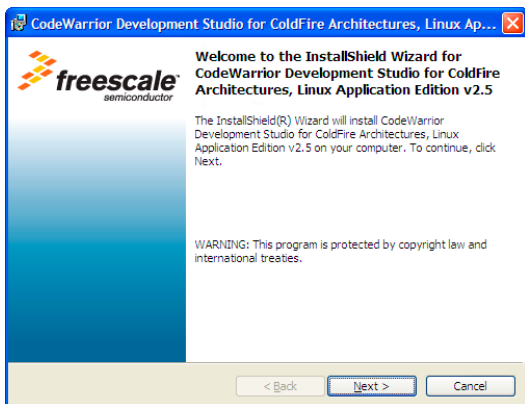
NOTE In this procedure, we assume the ColdFire target system you are using is already connected to your Local Area Network (LAN) through an Ethernet connection, and has an embedded Linux operating system up and running with the CodeWarrior Target Resident Kernel Linux binary file, AppTRK, installed.

Section A: Installing Software

In this section, you install and register CodeWarrior development tools.

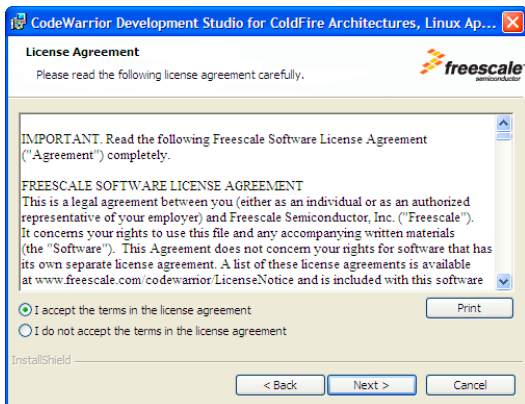
1. Install CodeWarrior software.
 - a. Insert **CodeWarrior Development Studio for ColdFire CD** into the host computer CD-ROM drive — the welcome screen appears (If Auto Install is disabled, run program `launch.exe` in root directory of CD.).
 - b. Click **Launch the Installer** — the install wizard opens.

Install Wizard — Welcome Page



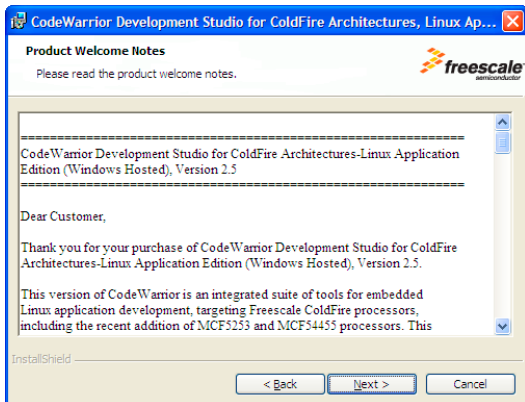
- c. Click **Next** — the **License Agreement** page appears.
- d. Select the **I accept the terms in the license agreement** option button.

Installer — License Agreement Page



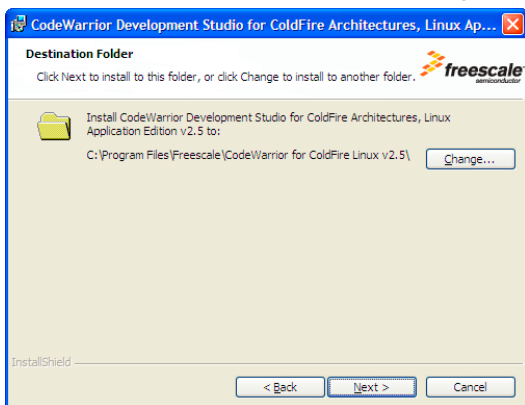
- e. Click **Next** — the **Product Welcome Notes** page appears.

Installer — Product Welcome Notes Page



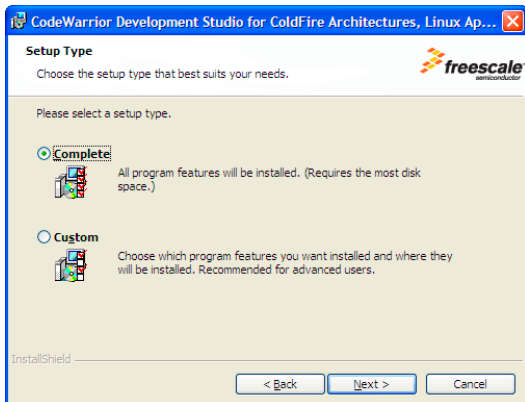
- f. Read the information in the **Product Welcome Notes** page.
- g. Click **Next** — the **Destination Folder** page appears.

Installer — Destination Folder Page



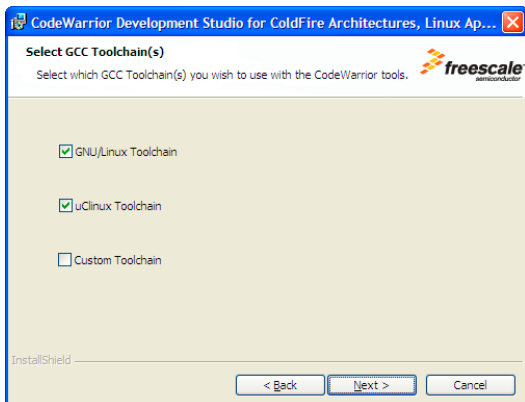
- h. Specify alternate location, if desired.
- i. Click **Next** — the **Setup Type** page appears.

Installer — Setup Type Page



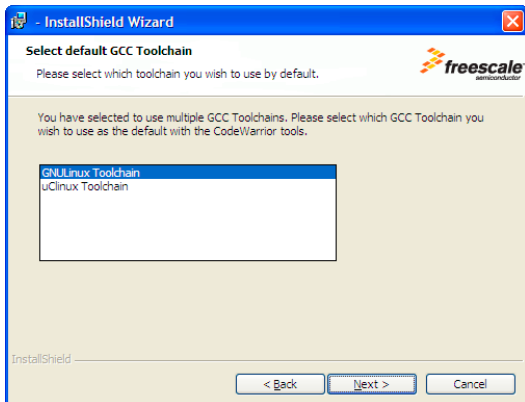
- j. Select the **Complete** option button.
- k. Click **Next** — the **File Associations** page appears.
- l. Click **Next** — the **Select GCC Toolchains** page appears.
- m. Check the **GNU/Linux Toolchain** checkbox.
- n. Check the **uClinux Toolchain** checkbox.

Installer — Select GCC Toolchains Page



- o. Click **Next** — the **Select Default GCC Toolchain** page appears.

Installer — Select Default GCC Toolchain Page



- p. Select default toolchain.

NOTE The toolchain you choose depends upon your board. See the following table to determine which toolchain to use as default.

Table 1 Target Boards with Associated Toolchains

| Board | Toolchain | Board | Toolchain |
|----------|-----------|---------|-----------|
| MCF5272 | μCLinux | MCF5475 | GNU/Linux |
| MCF5282 | μCLinux | MCF5484 | GNU/Linux |
| MCF5253 | μCLinux | MCF5485 | GNU/Linux |
| MCF54455 | GNU/Linux | MCF5208 | μCLinux |
| MCF5474 | GNU/Linux | MCF5329 | μCLinux |
| MCF52277 | uClinux | MCF5373 | uClinux |
| MCF54451 | GNU/Linux | | |

- q. Click **Next** — the **Ready to Install the Program** page appears.
r. Click **Install** — the installation process begins.

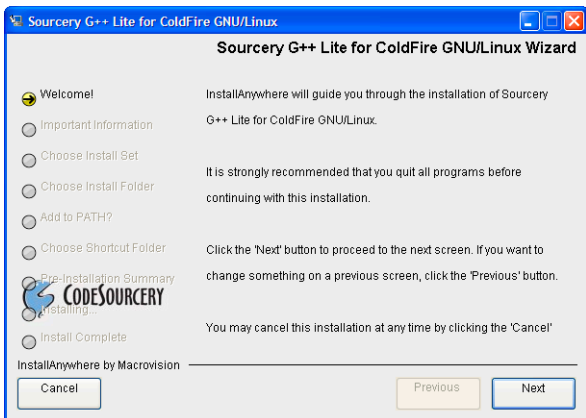
During the installation process, a warning message appears containing important information concerning installation locations for the GCC toolchains.

- s. Click **OK** — the installation process continues.

During the installation process, the Sourcery G++ Lite for ColdFire GNU/Linux Wizard opens.

2. Install Sourcery G++ toolchains.

Sourcery G++ Lite for ColdFire GNU/Linux Wizard



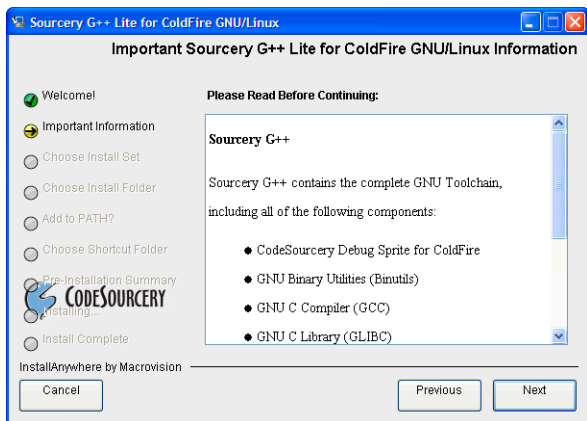
- Read the information and click **Next** — the **License Agreement** screen appears.
- Select the **I accept the terms of the license agreement** option button.

License Agreement Screen



- Click **Next** — the **Important Information** screen appears.

Important Information Screen



- d. Read the information and click **Next** — the **Choose Install Set** screen appears.

Choose Install Set Screen



- e. Choose the install set and click **Next** — the **Choose Install Folder** screen appears.

Choose Install Folder Screen



- f. Accept the default location, navigate to the folder of your choice, or enter a folder name into which to install the software.

NOTE If installing Sourcery G++ for both GNU/Linux and μ CLinux, specify unique folders for installation. (Default location may be the same for both GNU/Linux and μ CLinux.)

- g. Click **Next**.
- h. Accept the defaults and click **Next** until the **Pre-Installation Summary** screen appears.
- i. Review your installation choices.
- j. Click **Previous** to change any selections.
- k. When satisfied with the installation selections, click **Install** — the **Sourcery G++ Lite for ColdFire GNU/Linux** installs on your system.
- l. Repeat the process for **Sourcery G++ Lite for ColdFire μ CLinux**.
- m. When both are installed, the CodeWarrior Development Studio installation final screen prompts you to check for updates.
- n. Check the **Yes, check for updates** checkbox and click **Finish** — the CodeWarrior Updater opens.

3. Check for updates.

NOTE If the updater already has an internet connection settings, you may proceed directly to sub-step f.

- a. Click **Settings** — the **CodeWarrior Updater Settings** page appears.
- b. Click **Settings** — the **Connections** page of the **Internet Properties** dialog box appears.
- c. Modify settings, as appropriate, to successfully connect to the internet.
- d. Click **OK** — the **Internet Properties** dialog box disappears.
- e. Select update period from the **Update Check Schedule** list menu.
- f. Click **OK** — the **Internet Properties** dialog box disappears.
- g. In the updater screen, click **Next**.
- h. If necessary, enter username and password.
- i. If updates are available, follow on-screen instructions to download updates to your computer.
- j. Click **Finish** — installation completes.

NOTE For licensing and activation of your CodeWarrior Development Studio for ColdFire Architectures Linux Application Edition, refer to the *CodeWarrior Development Suite Quick Start*. Save the license file, `license.dat`, to the installation root folder. The default is `C:\Program Files\Freescale\CodeWarrior for ColdFire Linux v2.5`

Section B: Configuring the Target Board

In this section, you connect a target ColdFire Linux board to the host computer and prepare the board for debugging with the CodeWarrior IDE.

1. Make sure that power is *not* connected to the board, and that the power switch setting is OFF.
2. Configure IDE preference settings.
 - a. Start CodeWarrior IDE and select **Edit > Preferences** — the IDE Preferences Panel appears.
 - b. Select **Remote Connections**.

- c. Add new remote connection definitions or modify parameters on existing definitions.
- d. Refer to the target board documentation to find serial port parameters needed to communicate with the board in question.

For example, appropriate settings might be:

- Linux host serial port device `/dev/ttyS0`
- 115200 baud
- 8 data bits
- 1 stop bit
- no parity
- no hardware flow control

- e. Click **Apply** to save the settings.
- f. Click **OK**.

3. Connect target board serial cable, Ethernet cable, and power cable.
 - a. Connect the RS-232 serial cable to the target board RS-232 port and the Linux host computer serial port.
 - b. Connect the standard Ethernet cable to the target board Ethernet port and the Local Area Network (LAN) hub, switch, or port.
 - c. Connect power supply to the target board power connector.
 - d. Plug the target board power supply into the surge-protected power strip.
 - e. Connect the surge-protected strip to the AC power outlet.
 - f. Turn on the surge-protected power strip.

NOTE Refer to the documentation that came with your Board Support Package (BSP) for details about how to properly boot Linux on your target board.

4. Configure target board network interface.
 - a. In the terminal window, at login prompt, enter username `root` — system logs you in as root user.
 - b. Enter command (where *IPAddress* is an available unique static IP address on your network, and *Mask* is the appropriate mask for your subnet):

```
ifconfig eth0 IPAddress netmask Mask
```

System configures network parameters with the specified IP address and network mask.

NOTE If you do not know an available unique static IP address on your network, contact your network administrator to obtain one.

- c. Exit terminal emulator.
5. Test target board network interface configuration.
 - a. In the terminal window, enter command (where *IPAddress* is the IP address you assigned the target board network interface):

```
ping IPAddress
```

Use ping command to show ping reply messages.
 - b. Press **Control-C** on keyboard — ping program stops.
 6. Start AppTRK on target board.
 - a. In the terminal window, enter command (where *IPAddress* is the IP address of the target board network interface):

```
telnet IPAddress
```

Telnet client connects to the telnet daemon on the target board.
 - b. If necessary, log in as root user — shell prompt appears in the terminal window.
 - c. At shell prompt, enter:

```
AppTrk.elf :1000
```

AppTRK begins listening for the CodeWarrior debugger connections.

NOTE In this command, `:1000` indicates the number of the Linux host network port to which AppTRK listens for the CodeWarrior debugger connections.

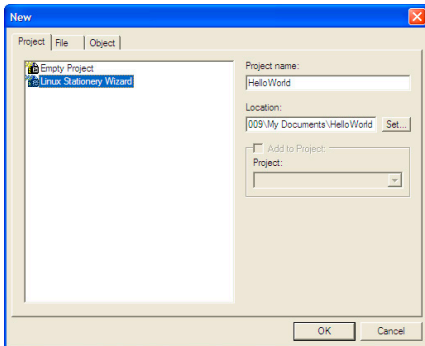
The target system is now ready for debugging with the CodeWarrior software.

Section C: Creating, Building, and Running a Project

In this section, you create a new CodeWarrior application project, build the project, transfer the executable binary file to the target board, then debug the project with the CodeWarrior IDE.

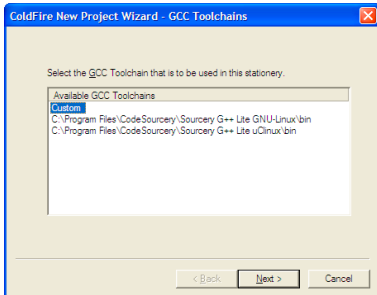
1. Create a new CodeWarrior project.
 - a. Select **Start > Programs > Freescale CodeWarrior > CodeWarrior for ColdFire Linux v2.5 > CodeWarrior IDE** from the Windows task bar — IDE starts; the CodeWarrior main window appears.
 - b. From the CodeWarrior menu bar, select **File > New** — the **New** dialog box appears.
 - c. From the wizard list, select **Linux Stationery Wizard**.
 - d. In the **Project name** text box, enter: HelloWorld.mcp.
 - e. If desired, click **Set** to set alternate project location.

New Dialog Box



- f. Click **OK** — the ColdFire New Project wizard begins; the **GCC Toolchains** page appears.

Wizard — GCC Toolchains Page

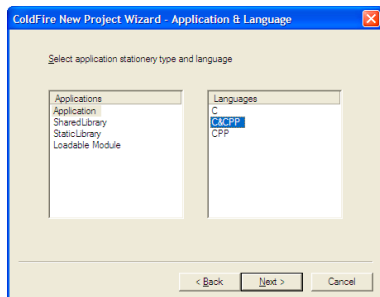


- g. Select the appropriate predefined GCC toolchain or select **Custom** to manually enter the location of a toolchain.
- h. Click **Next** — the **Application and Language** page appears.

NOTE If you select **Custom** in **GCC Toolchains** page, **Custom Toolchain Location** page appears.

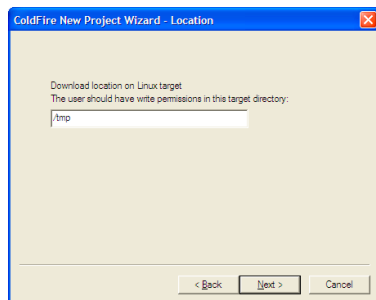
- i. From the **Applications** list, select **Application**.
- j. From the **Language** list, select **C&CPP**.

Wizard — Application & Language Page



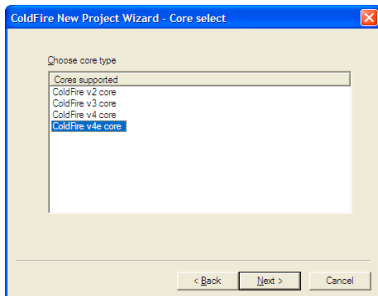
- k. Click **Next** — the **Download Location** page appears.
- l. In text box, enter full path to directory in target file system to which you have write access (for example: `/tmp`).

Wizard — Download Location Page



- m. Click **Next** — the **Core Select** page appears.
- n. From the list, select core of target board.

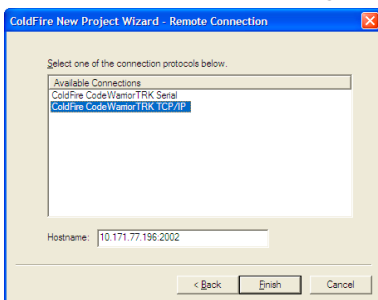
Wizard — Core Select Page



- o. Click **Next** — the **Remote Connection** page appears.
- p. From list, select **ColdFire CodeWarriorTRK TCP/IP**.
- q. In the **Hostname** text box, enter IP address of target board and CodeWarriorTRK listening port number on target board, in this form:

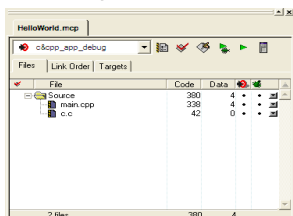
IPAddress: PortNum

Wizard — Connection Page



- r. Click **Finish** — IDE creates the new project; the project window appears.

Project Window



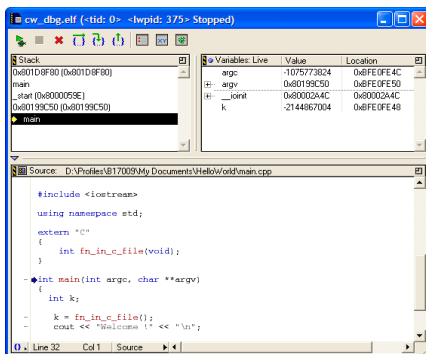
2. From the CodeWarrior menu bar, select **Project > Make** — CodeWarrior IDE compiles project.

NOTE The CodeWarrior IDE creates the output binary executable file locally, on the Linux host computer, in *CWProjectDir/Bin/*.

3. Start CodeWarrior debug session.

- a. From the CodeWarrior menu bar, select **Project > Debug** — the debugger stack crawl window appears; the debugger starts program, then halts the program execution at the program entry point.

Debugger Stack Crawl Window



NOTE The stack crawl window title bar displays the Thread ID (TID) and the Process ID (PID) of the current thread and process.

- b. At the left side of the window, click the breakpoint column next to the `cout << "Welcome !"` source code line — a red dot appears in the breakpoint column.
- c. Select **Project > Run** — the debugger executes program and halts execution at the specified breakpoint.
- d. Select **Debug > Step Over** — the debugger advances Program Counter (PC) to the next line of the source code; PC indicator (blue arrow) moves to the next line in the stack crawl window; the second **CodeWarrior TRK Console** window appears displaying "Welcome !" message.
- e. Select **Debug > Step Over** again — new **CodeWarrior TRK Console** window appears; "Welcome !" message appears in the new **CodeWarrior TRK Console** window.
- f. Select **Debug > Kill** — the debugger stops program execution; the debugger window disappears.

Congratulations!

You just used CodeWarrior software to create, build, and run a simple program for your target ColdFire Linux board.

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