BlueCore™

BlueLab™ v2.7 Software Development Kit

Installation Guide

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Contents

BlueLab™ v2.7 Software Development Kit Installation Guide

1 Introduction

The Application BlueLab™ software development kit (SDK) comprises:

- C compiler
- Graphical debugger
- CSR Bluetooth™ software tools

The SDK runs on Windows® NT v4.0 (with SP5) or Windows 2000.

Some changes have been made to the installation procedure since the earlier releases of BlueLab. To ensure correct installation, follow the instructions in this document carefully.

This document applies to both BlueLab v2.7 and BlueLab Professional v2.7. BlueLab Professional includes additional components, but the installation procedure is the same.

1.1 Conventions

- The directory **C:\BlueLab27** is used as the default destination directory. If you use a different directory and drive during the installation process, ensure that you use the correct drive and destination in the commands below.

- Where a command is to be entered within a Cygwin session, prefix that command with $.

- This guide assumes that **E:** refers to the user's CD ROM drive

2 Installing the Software

If you have an earlier installation of BlueLab and you wish to switch between that and BlueLab v2.7, you still need to follow these instructions. Doing so will configure your machine to use BlueLab v2.7 by default. You can select earlier versions as described in the frequently asked questions (FAQ) section found under **C:\BlueLab27\docs\faq.html** once the installation has completed.

To install this software correctly, ensure that you have at least Windows **Power User** privileges. If you are unsure about your current level of privileges, contact your system administrator.

2.1 Installing Cygwin

The C compiler runs under Cygwin, a UNIX-style environment running on Win32 platforms. BlueLab requires the Cygwin environment to function correctly.

To install the Cygwin environment:

1. Run the Cygwin setup program from **E:\cygwin\setup.exe**.

2. Select **Install from a local directory**.

3. Enter the **Local Package Directory**, e.g., **E:\cygwin**, or press **Next** to use the default.

4. Enter a valid Windows path for the **Install Root Directory**, CSR suggests you install Cygwin to a directory on a large, local drive, e.g., **C:\cygwin**. You should, if possible, install it to a drive other than your NT boot drive, which may be restricted to 4GB under NT4.0.

5. Select text file type: **Unix**, install for: **All**.

6. Select the Cygwin packages to be installed. Unless you are familiar with Cygwin, CSR recommends selecting all the packages available for installation.

7. Click **Next** to start the installation process.

2.2 Installing the Java Runtime

The debugger supplied with BlueLab runs under Java™ and, as such, requires the Java Runtime Environment (RTE) v1.3 provided by Sun™ Microsystems Inc. If the Java Runtime Environment is not already available on the target personal computer (PC), it must be installed either from the BlueLab compact disk (CD) or by downloading the necessary install file from the Sun Microsystems web site.

2.2.1 Installing from the BlueLab CD

Run the Java Runtime setup program **E:\java\setup.exe** and follow the on-screen instructions.

2.2.2 Installing from the Sun Microsystems Website

Download the RTE v1.3 install file from the Sun Microsystems Inc website:**http://java.sun.com/j2se/1.3/jre/download-windows.html** and follow the on-screen instructions.

Notes:

The debugger is only compatible with v1.3 of the RTE.

A shortcut to the **C:\BlueLab27\bin\appdebug.jar** application can be created from your desktop.

2.3 Installing BlueLab

Run **BlueLab27.exe** from the installation file or BlueLab CD and following the on-screen instructions to install BlueLab.

For BlueLab Professional, run **BlueLabPro27.exe**.

BlueLab® v2.7 Software Development Kit Installation Guide

2.4   Testing the Software Installation

CSR has included a very simple application to check that the BlueLab software and compiler are working correctly.

1.   Start Cygwin by double clicking on the desktop icon or use the **Start** menu.

2.   Change directory by typing the following command:

```
$ cd //C/BlueLab27/apps/hello
```

3.   Make the **Hello** application by typing the following command:

```
$ make
```

This will build **hello.app**, **hello.dbg** and **hello.sym** . These files indicate that the BlueLab compiler has been installed on your machine successfully.

Note:

Replace **C/BlueLab27** with the install directory for BlueLab on the target machine.

BlueLabä v2.7 Software Development Kit Installation Guide

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3   Setting Up Casira for SDK Development

Refer to the Casira™ User Guide for detailed information on the use of the Casira development platform.

The following steps must be completed before the Casira is ready to work correctly with BlueLab.

1.   Connect the serial peripheral interface (SPI) cable to a parallel port on your PC and to the SPI port on the Casira. SPI is used here for downloading images to the flash memory.

2.   Connect the Casira to your PC with the 9-pin serial cable supplied.

3.   Make a back-up file containing the original firmware. CSR strongly recommends making a back-up of the firmware supplied with the Casira using the BlueFlash application **C:\BlueLab27\bin\BlueFlash.exe** . This must be done before downloading any Virtual Machine (VM) applications onto the chip. For full instructions, refer to the Casira User Guide.

BlueLab™ v2.7 Software Development Kit Installation Guide

4   Testing the Completed BlueLab Installation

A simple application called **flash_simple** is included with BlueLab for testing purposes. The BlueLab compiler compiles this into code suitable for the BlueCore™ VM, and merges it with the BlueCore Bluetooth stack software. The resulting code can be downloaded and run on the BlueCore chip in a Casira. The application flashes the light emitting diodes (LEDs) on the Casira. If the following example works correctly you can be confident that your computer is now set up correctly to use BlueLab.

To compile and execute the **flash_simple** application:

1. Start Cygwin by double clicking on the desktop icon, or using the **Start** menu.

2. Change to the **flash_simple** directory by typing the following command:

    ```
    $ cd //C/BlueLab27/apps/flash_simple
    ```

3. Compile the **flash_simple** application, merge with the BlueCore Bluetooth stack and download to Casira by typing the following command:

    ```
    $ make bc02
    ```

After several seconds the LEDs will start flashing. If this does not happen, refer to Section 5 of this document for trouble shooting information.

Note:

Replace **C/BlueLab27** with the install directory for BlueLab on the target machine.

For more substantial examples, refer to the BlueLab documentation indicated in section 5, Further Information and Trouble Shooting.

BlueLab™ v2.7 Software Development Kit Installation Guide

5 Further Information and Trouble Shooting

For further information and tutorials, refer to the extensive on-line BlueLab documentation. This can be accessed by pointing a web browser at the following file:

C:\BlueLab27\docs\welcome.html

BlueLabä v2.7 Software Development Kit Installation Guide

6   Document References

Document:	Reference, Date:
Casira User Guide	CSR reference AN100b, December 2001

BlueLab™ v2.7 Software Development Kit Installation Guide

Acronyms and Definitions

BlueCore™	Group term for CSR's range of Bluetooth chips
BlueLab™	CSR's software development kit for applications running in BlueCore's VM
Bluetooth™	A set of technologies providing audio and data transfer over short-range radio connections
Casira™	CSR's main Bluetooth development hardware
CD	Compact Disc
CSR	Cambridge Silicon Radio
CODEC	COder DECoder
CSR	Cambridge Silicon Radio
FAQ	Frequently Asked Questions
LED	Light Emitting Diodes
PC	Personal Computer
PS	Persistent Store
PCM	Pulse Code Modulation
ROM	Read Only Memory
RTE	RunTime Environment
SCO	Synchronous Connection-Oriented
SDK	Software Development Kit
SPI	Serial Peripheral Interface
VM	Virtual Machine

BlueLab™ v2.7 Software Development Kit Installation Guide

Record of Changes

Date:	Revision	Reason for Change:
21 MAR 02	a	Original publication of this document for BlueLab v2.3 (CSR reference: bcore-ug-002Pa)
09 MAY 02	b	Publication of this document for BlueLab v2.4. References to version amended to v2.4. (CSR reference: bcore-ug-002Pb)
08 AUG 02	c	Publication of this document for BlueLab v2.5 and BlueLab Professional v2.5. (CSR reference: bcore-ug-002Pc)
10 OCT 02	d	Publication of this document for BlueLab v2.6 and BlueLab Professional v2.6. (CSR reference: bcore-ug-002Pd)
26 FEB 03	e	Publication of this document for BlueLab v2.7 and BlueLab Professional v2.7. (CSR reference: bcore-ug-002Pe)

BlueCore™

BlueLab™ Software Development Kit Installation Guide for v2.7

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BlueLab™ v2.7 Software Development Kit Installation Guide