

## Scope of this document

Vimba offers numerous possibilities to cross-compile source code from a PC to an ARM board. This document describes a tried and tested easy solution.

## Introduction

Vimba runs on several platforms and is source code compatible across all of them. This document refers to a common and uncomplicated solution: Most users develop on a Linux PC with Ubuntu. Nevertheless, you can also use a different distribution.

Note that if you cross-compile any source code from Windows to an ARM board with Linux, you generally have to be aware of potential platform dependencies. Although Vimba is fully compatible, you might have to adapt your code to the different system libraries. This is always the case and independent of the API.

## Recommended prerequisites

- PC with Linux and Vimba for ARM
- ARM board or SOM with Linux and the same Vimba for ARM version as on the PC
- Cross-compilation toolchain, e.g., Linaro (includes all required libraries)

## Selecting a cross-compilation toolchain

In contrast to building applications on your host system, cross-compiling requires a compiler that creates binaries for the target instead of the host. Such a compiler and the corresponding C/C++ standard libraries are part of a cross-compilation toolchain. We have tested several toolchains and recommend the Linaro suite. Vimba provides example Makefiles that demonstrate the substitution of the compiler in use.

If you use a different toolchain than Linaro, note that the C/C++ runtime library versions of this toolchain and on the ARM board must be compatible with each other. Vimba requires a toolchain that targets the GNU triplet 'arm-linux-gnueabi'. A gcc compiler 4.7.2 and the corresponding C and C++ runtime libraries are recommended.

To identify compatible libc versions, use the command:

```
strings /usr/lib/libc.so.6 | grep GLIBC
```

## Downloads

### Vimba and further information

Allied Vision provides several downloads:

- Vimba for ARM
- Application note: Installing Vimba under Linux
- Recommendation guide: Recommended Embedded Systems



#### Download Vimba and application notes

<https://www.alliedvision.com/en/products/software.html>



#### Download the Linaro toolchain binaries

[https://launchpadlibrarian.net/117143171/gcc-linaro-arm-linux-gnueabi-hf-2012.09-20120921\\_linux.tar.bz2](https://launchpadlibrarian.net/117143171/gcc-linaro-arm-linux-gnueabi-hf-2012.09-20120921_linux.tar.bz2)

## Cross-compiling to ARM

To cross-compile from a Linux PC to an ARM board:

1. Make sure the same Vimba versions are installed on the PC and on the ARM board.
2. On your host PC, unpack the toolchain to your hard drive, e.g., /home/foo/linaro. If you use a different toolchain, follow its installation instructions.
3. Run a Vimba example Makefile and append the location of your toolchain's C++ compiler with the parameter CXX, e.g.:  

```
make CXX=/home/foo/linaro/bin/arm-linux-gnueabi-hf-g++ ARCH=arm WORDSIZE=32
```

The default settings of the Linaro cross-compiler enable it to locate the according standard libraries automatically.
4. Transfer the generated binaries to the ARM board, e.g., by copying them to its SD card.
5. Execute the cross-compiled binaries on the ARM board.

Now your application runs on the ARM board.

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