history

ARIA

MobileRobots' Advanced Robot Interface for Applications (ARIA) is a C++ library (software development toolkit or SDK) for all MobileRobots/ActivMedia platforms. ARIA can dynamically control your robot's velocity, heading, relative heading, and other motion parameters either through simple low-level commands or through its high-level Actions infrastructure. ARIA also receives position estimates, sonar readings, and all other current operating data sent by the robot platform.

ARIA provides tools to integrate I/O with your own custom hardware—digital, analog, and serial—and includes comprehensive support for all MobileRobots/ActivMedia robot accessories, including various types of laser-range finders, control of pan-tilt-zoom camera or pan-tilt units, Pioneer Gripper and Arm, and more. (Some other devices are supported by separate software libraries, either provided by us or the original device manufacturer.)

ARIA also includes a library called ArNetworking which implements an extensible infrastructure for easy remote network operations for your robots, user interfaces, and other networked services. Through a server executing on the robot's PC, ArNetworking-enabled clients connect from another computer on the network to get data and issue commands. Download and use our dynamic MobileEyes operator GUI client, to view robot data and issue commands remotely via ArNetworking.

A variety of other useful tools for building robot applications are included in ARIA or available as separate libraries, including speech synthesis and recognition; sound effect playback; mathematical functions, cross-platform (Windows/Linux) thread and socket implementations; and more.

The ARIA library is written in C++. Access to most of the ARIA API is also available from the Java and Python languages via "wrapper" layers. A subset of the ARIA API for controlling the robot is also available from Matlab, Simulink, and pure C, via a C "wrapper" layer.

C++ development with ARIA is supported on GNU/Linux with G++ and on Windows with MS Visual C++ 2010 (VC 10.0), Visual C++ 2012 (VC 11) or Visual C++ 2013 for Windows Desktop (VC 12). (The free "express" Visual C++ versions may be used.) It may also be possible to compile ARIA on other Linux/POSIX/Unix-like systems including MinGW and Mac OSX, though this is not fully tested or supported.

ARIA does not have any installation or runtime dependencies, other than standard development tools (GNU Make, shell, and GCC on Linux, Visual C++ on Windows), and standard operating system libraries. You only need to download the ARIA package appropriate for your operating system to get started.

ARIA comes with full source code under the GNU General Public License. The license allows re-distribution of code as long as all is distributed freely. Proprietary distributions (without releasing your own source code, for example) requires a different, commercial license. (Contact robots@mobilerobots.com for details.) ARIA includes a full API reference manual and example code.

Read the distribution README for additional details on getting started with ARIA.

Download Aria

ARIA 2.9.0-1 - Windows (ARIA-2.9.0-1.exe)

- Run installer program as administrator account to install

ARIA 2.9.0-1 - Windows 64-bit (ARIA-2.9.0-1-x64.exe)

- Run installer program as administrator account to install

ARIA 2.9.0 - Ubuntu 12.04.2 (precise) or later, 32-bit i386 architecture (libaria_2.9.0+ubuntu12+gcc4.6_i386.deb)

- Open file to install with Ubuntu Software Center, or use `dpkg -i`

ARIA 2.9.0 - Ubuntu 12.04.2 (precise) or later, amd 64-bit architecture (libaria_2.9.0+ubuntu12+gcc4.6_amd64.deb)

- Open file to install with Ubuntu Software Center or use `dpkg -i`

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- Unpack and follow installation instructions inside

Documentation

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Previous Versions

📁 **Archived versions of Aria** 🗗

Additional Ubuntu and Debian Packages for Java and Python Wrappers

Ubuntu 12 32-bit

📥 **ARIA Java Wrapper 2.9.0 - Ubuntu 12.04.2 (precise) or later, 32-bit i386 architecture** 🗗 (libaria-java_2.9.0+ubuntu12+gcc4.6_i386.deb)

- Open file to install with Ubuntu Software Center, or use `dpkg -i`

📥 **ARIA Python Wrapper 2.9.0 - Ubuntu 12.04.2 (precise) or later, 32-bit i386 architecture** 🗗 (libaria-python_2.9.0+ubuntu12+gcc4.6_i386.deb)

- Open file to install with Ubuntu Software Center, or use `dpkg -i`

Ubuntu 12 64-bit

📥 **ARIA Java Wrapper 2.9.0 - Ubuntu 12.04.2 (precise) or later, amd 64-bit architecture** 🗗 (libaria-java_2.9.0+ubuntu12+gcc4.6_amd64.deb)

- Open file to install with Ubuntu Software Center or use `dpkg -i`

📥 **ARIA Python Wrapper 2.9.0 - Ubuntu 12.04.2 (precise) or later, amd 64-bit architecture** 🗗 (libaria-python_2.9.0+ubuntu12+gcc4.6_amd64.deb)

- Open file to install with Ubuntu Software Center or use `dpkg -i`

Debian 5 32-bit

📥 **ARIA Java Wrapper 2.9.0 - Debian 5 (lenny), 32-bit architecture** 🗗 (libaria-java_2.9.0+debian5+gcc4.3_i386.deb)

- Install with `dpkg -i`

📥 **ARIA Python Wrapper 2.9.0 - Debian 5 (lenny), 32-bit architecture** 🗗 (libaria-python_2.9.0+debian5+gcc4.3_i386.deb)

- Install with `dpkg -i`

Matlab

Basic Matlab and Simulink interface to ARIA and ArNetworking (including **ARNL** servers) are now included in the `matlab` and `ArNetworking/matlab` subdirectories, supporting a subset of essential robot functions. View the documentation in the `matlab` directories for requirements and details on how to build and use this interface. Also see **Aria Matlab Interfaces** and **Simulink Demo Webinar** for more information.

Getting Started

To get started using ARIA, the first document you should read is your robot operations manual shipped with the robot or available on the **Manuals** page. This will show you the components of the robot, and how it can be controlled from a client program.

In a Linux installation, ARIA can be found in /usr/local/Aria. In a Windows installation, you can find it in the Start menu under MobileRobots->Aria. If your robot has an onboard computer, ARIA and all other libraries needed for that robot have been preinstalled.

Next, read the ARIA README.txt file. This will give a brief practical overview of the ARIA SDK. Next, read the ARIA API reference manual (Aria-Reference). This manual includes a longer discussion of robot software development, what ARIA offers and how to use it, as well as documentation of each class and method in ARIA.

Finally, ARIA includes many example programs in the 'examples' directory.

Other libraries and packages you install will also include their own documentation, in the form of a README text file and/or a reference manual similar to ARIA's.

Recommended Additional Downloads

MobileSim

To simulate a robot and enviornment before trying your code on a real robot, use the MobileSim simulator. (SRISim is no longer available.)

MobileEyes

Customers may also want to download our proprietary MobileEyes application so that you can have a GUI to remotely watch and control what the robot is doing. MobileEyes connects to a server program on an robot onboard computer. using ArNetworking (library included with ARIA) across a wireless network, letting you view and control the robot's movements and environment without slowing it down. See the ArNetworking library documentation for details on developing custom server programs.

ArVideo

ArVideo provides access to control and images from Axis ethernet cameras, as well as images acquired from analog framegrabbers.

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