



Getting started

With the software package

March 11, 2014

Warning

The information contained in this document is the property of Kinova. Except as specifically authorized in writing by Kinova, the holder of this document shall keep the information contained here confidential and shall protect same in whole or in part from disclosure and dissemination to third parties and use same for evaluation, operation and maintenance purposes only. This document is not an engagement of Kinova to develop, implement or design the product or techniques described here.

Contents

| | |
|----------------------------------|----------|
| CONTENTS | 2 |
| 1 PURPOSE..... | 3 |
| 2 OVERVIEW | 4 |
| 2.1 API | 4 |
| 2.2 DOCUMENTATION | 4 |
| 2.3 DRIVERS..... | 4 |
| 2.4 JACO/MICO RELEASE CODE | 4 |
| 2.5 JACOSOFT INSTALLER..... | 4 |
| 2.6 ROS | 4 |
| 3 WINDOWS | 5 |
| 3.1 INSTALLING THE DRIVERS | 5 |
| 3.2 INSTALLING JACOSOFT | 5 |
| 3.3 RUNNING A C# EXAMPLE | 5 |
| 3.4 CREATING A C# PROJECT..... | 6 |
| 3.5 RUNNING A C++ EXAMPLE..... | 6 |
| 3.6 CREATING A C++ PROJECT | 6 |
| 4 UBUNTU..... | 7 |
| 4.1 INSTALLING THE DRIVERS | 7 |
| 4.2 RUNNING A C++ EXAMPLE..... | 7 |
| 4.3 CREATING A C++ PROJECT | 7 |
| 5 DOCUMENTATION | 8 |
| 5.1.1 [API Examples]..... | 8 |
| 5.1.2 [API Guides] | 8 |
| 5.1.3 [Drivers Guides]..... | 8 |
| 5.1.4 [Jacosoft Guides] | 8 |
| 5.1.5 [MICO/JACO Guides]..... | 8 |

1 Purpose

This document will help you on your first use of the Kinova's robotic API and make your experience smooth and easy. It can also act as a reference guide to advance user who forgot some details or simply need to change from one OS to another one. Most of the section roughly explain a specific task and point to another document for more detailed explanation. This should be your first reading when you want to start developing software application that interact with a robotic arm from Kinova.

2 Overview

First thing to do when you receive your software package (USB stick), is to have a look of the folder's organization. Note that all the sections below this one will reference documents from the package like [[Document name](#)] and all folder's path will be written like [[Drivers](#)].

2.1 API

The API folder contains all files needed to use the API and link it to an application.

2.2 Documentation

This folder contains all guides and html references.

2.3 Drivers

This folder contains the Windows USB drivers to communicate with the robotic arm.

2.4 JACO/MICO release code

This folder contains a HEX file that contains the firmware of the robotic arm.

2.5 Jacosoft Installer

This folder contains the required files to install the application Jacosoft. Note that Jacosoft is compatible with both JACO and MICO.

2.6 ROS

This folder contains a file that store the link to download our ROS node.

3 Windows

3.1 Installing the drivers

If this is your first experience with this guide, it is strongly suggested to read the document [[Kinova drivers installation guide](#)]. If you are familiar with the driver installation, you can find all the files needed in the folder [[Drivers](#)].

3.2 Installing Jacosoft

The first thing to do is to install Jacosoft on your windows terminal. It is an application that will help you a lot during your development. It provides tools to diagnose and to perform firmware update on the robotic arm. You can find detailed instructions about this feature on the document [[Jacosoft User Guide](#)] at the location [[Documentation -> Jacosoft Guides](#)]

3.3 Running a C# example

- Make sure that the robotic arm USB driver has been installed. See [[Installing the drivers](#)].
- Open Visual studio 2010 C# and add the example as an existing project to your solution.
- In the solution explorer, right click on your project's references and make sure you have all the needed references. If some are missing, you can find them in the package at this location: [[API -> Windows -> CSharp](#)].
 - Kinova.API.Jaco.dll
 - Kinova.DLL.Data.dll
 - Kinova.DLL.ReportBuilder.dll
 - Kinova.DLL.SafeGate.dll
 - Kinova.TcpConnector.dll
 - Kinova.DLL.TestData.dll
 - Kinova.DLL.Tools.dll
 - Kinova.DLL.USBManager.dll
- Make sure that the folder [[API -> Windows -> CSharp -> ExternalDLL](#)] has been copied in your executable folder. Most of the time, it is ../Bin/Debug or ../Bin/Release
- Build, make sure that the robot is plugged and turned on and execute the example.

3.4 Creating a C# project

This section will guide you to create a visual studio C# console project and get it ready to communicate with a robotic arm via the API.

- Make sure that the robotic arm USB driver has been installed. See [[Installing the drivers](#)].
- Create a new console C# project.
- In the solution explorer, right click on your project's references and add those DLL in your project. You can find them in the package at this location: [[API -> Windows -> CSharp](#)].
 - Kinova.API.Jaco.dll
 - Kinova.DLL.Data.dll
 - Kinova.DLL.ReportBuilder.dll
 - Kinova.DLL.SafeGate.dll
 - Kinova.TcpConnector.dll
 - Kinova.DLL.TestData.dll
 - Kinova.DLL.Tools.dll
 - Kinova.DLL.USBManager.dll
- Copy the folder [[API -> Windows -> CSharp -> ExternalDLL](#)]
- To ease your first project's creation, it is suggested to copy the code from an example to see how to declare a CJacoArm object which is the main entry point of the API.
- Build and you are ready to develop.

3.5 Running a C++ example

All examples are at this location: [[Documentation -> API Examples -> Windows -> CPP -> Examples](#)]. Import any examples in visual studio 2010, make sure that header files and the libraries from the API are in your project, build your project and execute it. More information about project creation can be found in the HTML documentation at this location: [[Documentation -> API Guides -> CPP API](#)] -> [[Doc CPP.html](#)]

3.6 Creating a C++ project

Detailed instruction are included in the HTML documentation [[Doc CPP.html](#)] at the location: [[Documentation -> API Guides -> CPP API](#)].

4 Ubuntu

4.1 Installing the drivers

If this is your first experience with this guide, it is strongly suggested to read the document [[Kinova drivers installation guide](#)]. If you are familiar with the driver installation, you can find all the files needed in the folder [[Drivers](#)].

4.2 Running a C++ example

- Make sure that the API has been installed properly. See [[Installing the drivers](#)].
- Make sure that your robotic arm is plugged and turned on.
- Open the application Eclipse and import your example.
- Clean and build your example.
- Execute your example.

4.3 Creating a C++ project

Detailed instruction are included in the HTML documentation [[Doc CPP.html](#)] at the location: [[Documentation](#) -> [API Guides](#) -> [CPP API](#)].

5 Documentation

All documentations is at this location: [[Documentation](#)]. Inside, you'll find a few sub folders that contains:

5.1.1 [[API Examples](#)]

This folder contains all code example of the API. All Windows examples are Visual studio 2010 projects and all Ubuntu examples are Eclipse projects.

5.1.2 [[API Guides](#)]

This folder contains the HTML documentations. Note that the CPP documentation is based on the Ubuntu API. It is mostly the same but some basic functions may be different.

5.1.3 [[Drivers Guides](#)]

This folder contains a guide to install the robotic arm driver for all supported OS. That includes Windows XP, Windows 7, Windows 8 and Ubuntu 12.04. Both 32 bits and 64 bits architecture are supported for all OS.

5.1.4 [[Jacosoft Guides](#)]

This folder contains all guides to install/uninstall and use the Windows application Jacosoft. Note that Jacosoft is compatible with both JACO and MICO.

5.1.5 [[MICO/JACO Guides](#)]

This folder contains The robotic arm's specification sheet, the user guide and the DH parameters.