



# API

## 5.0.6

### Release notes

*March 12 2014*

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## Revisions & Approval

Version	Primary Author(s)	Description of Version	Date Completed
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### Approval History

Approving Party	Version Approved	Signature	Date

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## 1 Windows

### 1.1 C++

#### 1.1.1 No more administrator privileges needed

From now on, you don't need administrator privilege to communicate with the robot.

#### 1.1.2 New functionality – Spasm filter

We have added a new functionality called the spasm filter. The spasm filter reduces or eliminates involuntary commands sent to the robot. This allows to be more precise, especially if the control is not proportional. When the user sends a command to move, the velocity will gradually increase. When the user wants to stop (by releasing the stick) the robot will stop immediately. The spasm filter can be activated with Jacosoft. Five levels of the filter can be used:

- 0 – The spasm filter is not activated
- 1 – Very low filter
- 2 – Low filter
- 3 – Medium filter
- 4 – High filter

It is also possible to configure the functionalities “Decrease spasm level” and “Increase spasm level” on a button or a stick through the mapping system.

The Control manager has now 2 additional functions: `GetSpasmParameters` and `SetSpasmParameters` parameters. Those functions get and set a list of parameters. The first one is the activation status flag (0 = Functionality not activated, 1 = functionality activated).

#### 1.1.3 New functionality – Move to Home

This moves the robot to the HOME position also known as READY position. It is a better option to use this function instead of the virtual joystick because you don't rely on a specific mapping.

#### 1.1.4 New functionality – `GetAngularForceGravityFree`

Unlike the function `GetAngularForce` that returns the torque reading from the torque sensors of each joints, the function `GetAngularForceGravityFree` returns the same information but the gravity terms of the robot are removed by using a model.

#### 1.1.5 New functionality – `GetActuatorAcceleration`

This new function returns a struct called `AngularAcceleration` that contains the acceleration on every axis of every rotary actuator of the robotic arm.

### **1.1.6 New functionality – InitFingers**

This function initializes the fingers of the robot. After the initialization, the robot is in angular control mode. It is a better option to use this function instead of the virtual joystick because you don't rely on a specific mapping. Note that if the fingers are already initialized, nothing will happen.

### **1.1.7 New functionality – GetPeripheralInventory**

This new function returns a list of PeripheralInfo which represents an abstract peripheral.

### **1.1.8 Improved documentation**

The documentation has been improved with new examples.

## **1.2 C#**

### **1.2.1 New functionality – Spasm filter**

We have added a new functionality called the spasm filter. The spasm filter reduces or eliminates involuntary commands sent to the robot. This allows to be more precise, especially if the control is not proportional. When the user sends a command to move, the velocity will gradually increase. When the user wants to stop (by releasing the stick) the robot will stop immediately. The spasm filter can be activated with Jacosoft. Five levels of the filter can be used:

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It is also possible to configure the functionalities “Decrease spasm level” and “Increase spasm level” on a button or a stick through the mapping system.

The Control manager has now 2 additional functions: GetSpasmParameters and SetSpasmParameters parameters. Those functions get and set an object called CSpasmFilter that contains 2 members: the activation status and the spasm level. The spasm level is described above and the activation status is a flag (0 = Not activated, 1 = activated).

### **1.2.2 The remote API is no longer supported**

The remote part of the C# is no longer supported. It is in our plan to reintegrate this functionality and improve it as well in a future version.

### **1.2.3 No more permissions file**

The permissions file is no longer used in the installation/uninstallation process and in the function calling process. If you have an older version of the API and you are upgrading to this one, there is no problem at all, you can either keep the file or delete, it does not matter.

### **1.2.4 API without Jacosoft**

From now on, the API does not require the application Jacosoft to be installed. You can develop freely.

## 2 Ubuntu

### 2.1 C++

#### 2.1.1 New installation package

The Ubuntu C++ version's installation is now possible via a debian package that can be installed with the console command:

```
dpkg -i [package name]
```

It copy all header file in /usr/include. It also copy all library in /usr/lib.

A UDEV rule is now created so we don't have to manage root privilege manually on the USB device.

#### 2.1.2 New functionality – Spasm filter

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This moves the robot to the HOME position also known as READY position. It is a better option to use this function instead of the virtual joystick because you don't rely on a specific mapping.

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Unlike the function `GetAngularForce` that returns the torque reading from the torque sensors of each joints, the function `GetAngularForceGravityFree` returns the same information but the gravity terms of the robot are removed by using a model.

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This new function returns a struct called `AngularAcceleration` that contains the acceleration on every axis of every rotary actuator of the robotic arm.

### **2.1.6 New functionality – InitFingers**

This function initializes the fingers of the robot. After the initialization, the robot is in angular control mode. It is a better option to use this function instead of the virtual joystick because you don't rely on a specific mapping. Note that if the fingers are already initialized, nothing will happens.

### **2.1.7 New functionality – GetPeripheralInventory**

This new function returns a list of `PeripheralInfo` which represents an abstract peripheral.

### **2.1.8 Improved documentation**

The documentation has been improved with new examples.



## 3 Bugs resolved

### 3.1 Angular velocity failure

The angular velocity control is now available on every version of the API.

### 3.2 Virtual joystick without joystick

On a MICO, when no physical joystick was connected, all virtual joystick command was not working. It has been resolved. You still have to call the function StartControlAPI before sending any command.

### 3.3 Protection zone quantity

Only 2 protection zones was available, now it has been raise to 10.

### 3.4 Trajectory FIFO's size

The max size of the trajectory'S FIFO was set to 20 points. It is has been set to 2000.