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FireArmPositioner - Quick start guide

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Document information

Information	Content
Keywords	Dobot Magician robotic arm
Abstract	This document describes how to start with the FireArmPositioner software, the prerequisites and the first steps to control the arm.

1 Introduction

The FireArmPositioner (FAP) software control and steer a DOBOT Magician robotic arm. The software is intended to be used for testing an NFC Reader for EMVCo specification. You cannot use the FAP as a general-purpose tool! Please use the software Dobot Studio from the manufacturer site for this.

1.1 Prerequisites

The FAP software needs the serial COM interface to USB driver for the communication to the Dobot hardware. This driver is currently not part of the FAP installation procedure. Therefore, you must install the Dobot Studio software from Dobot manufacturer at first before you can install the FAP software.

You can download Dobot Studio from this site:

https://www.dobot.cc/downloadcenter.html

You will see in the Dobot installation procedure some dialogs with the request to install drivers. Please do not skip the driver installation. These drivers are required for Dobot software and for FAP software for connecting to the Dobot Magician!

2 Installation

The FAP distribution comes with an installation package and a Quick User Guide. After the installation of Dobot Studio, please install the FAP software.

Before you start the FAP software for the first time, please start Dobot Studio, the software which was installed before FAP. It is enough only to start the software and check which COM port is used. Please power up the Dobot Magician and connect it to your PC. The used COM port is shown in the red frame (see Figure 1). Here COM8 is used. On system, the port number might be different.
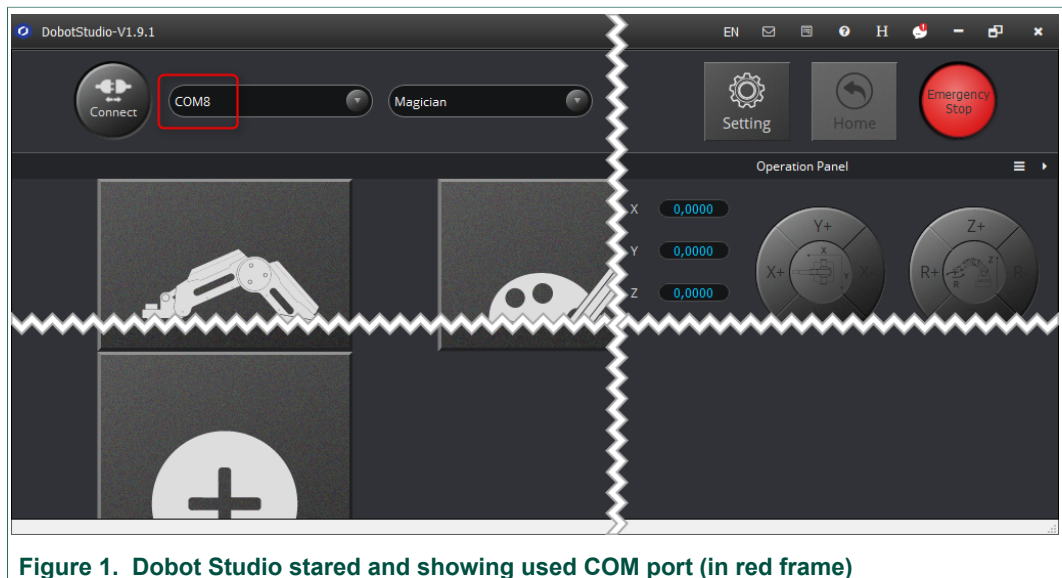

Figure 1. Dobot Studio stared and showing used COM port (in red frame)

Now start FAP. You should see the same COM port automatically selected. The COM is shown in the red frame in Figure 2. In the rare case on your PC are a lot of COM ports installed and used, you must set the COM port number to the same as Dobot Studio is used.
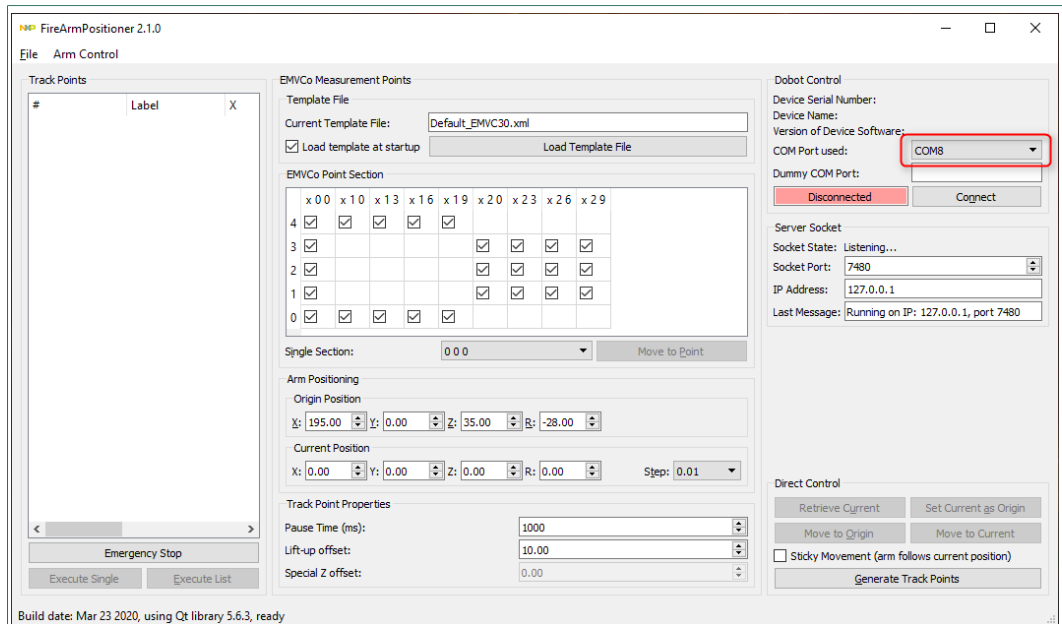
Figure 2. **FAP Stared and showing the used COM port (in red frame)**

As next, click "Connect". On success, the status is green and the current Dobot firmware is read from the hardware and printed (see Figure 3). Now, the FAP software is ready for use.
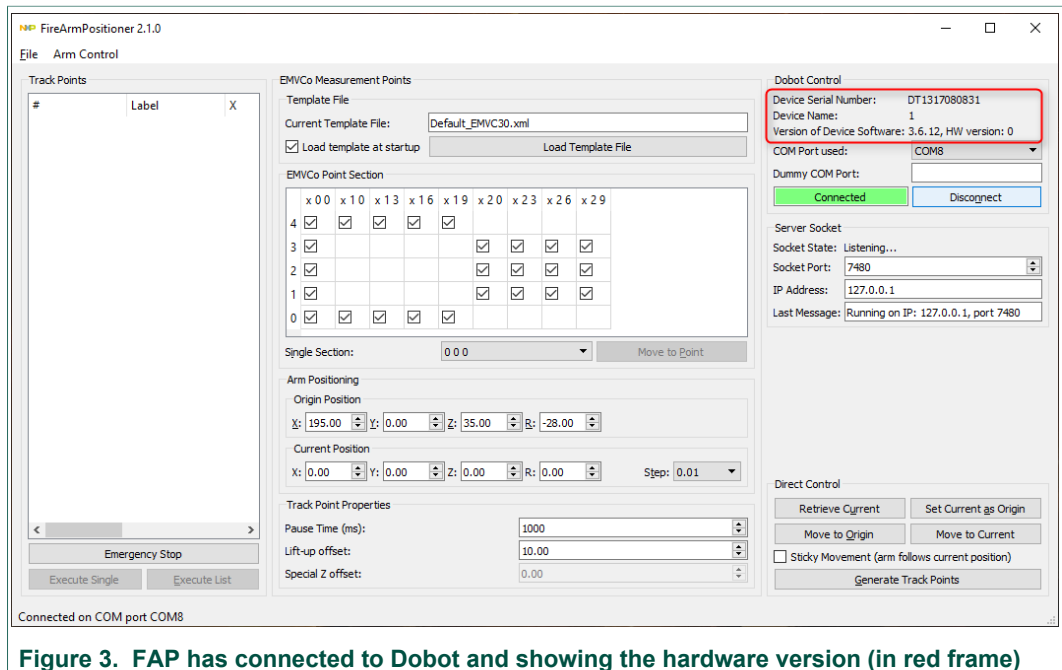

Figure 3. **FAP has connected to Dobot and showing the hardware version (in red frame)**

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2.1 Before you start

One hint before you try to move the robotic arm. If you power up the arm, then the absolute coordinates (x/y/z) of the current arm position are unknown for the FAP software. If you start and send movement commands, let say based on the origin (0/0/0), it could be that the arm control blocks the movement if the mechanical distance is too far. The color of the LED in the Dobot socket is switched from green to red in this case.
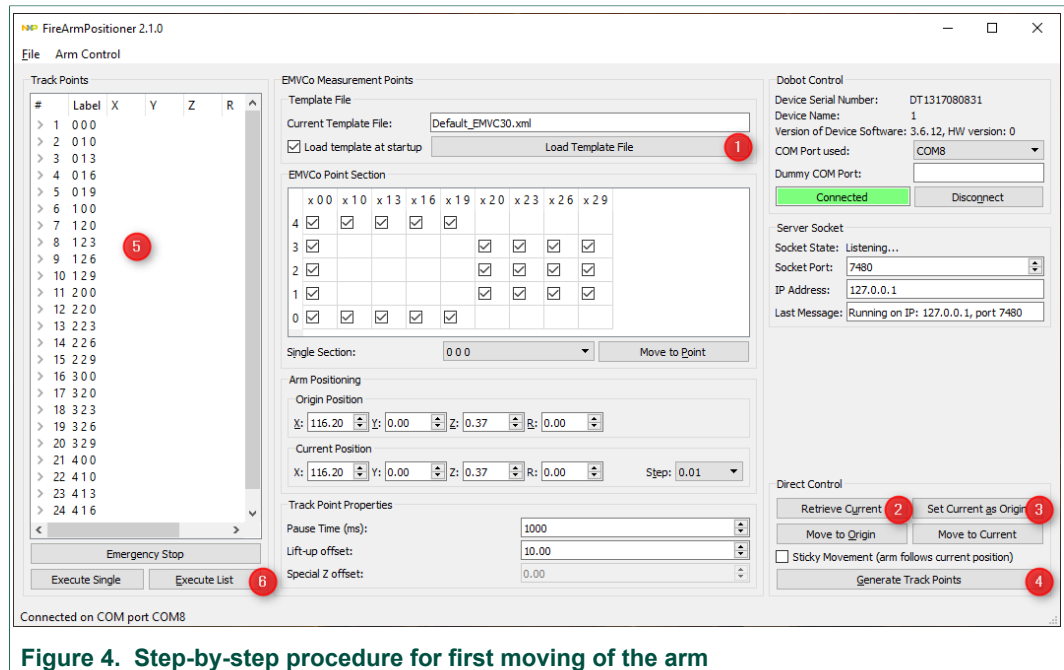

Figure 4. Step-by-step procedure for first moving of the arm

This is a recommendation for start sequence, shown in Figure 4.

1. Load a template file with relative EMVCo coordinate points. You can have more, one file comes as template with the installation.
2. Retrieve the current arm position from Dobot. The current coordinates are shown.
3. Set the current position as new origin.
4. Generate the EMVCo coordinates relatively (so called track points) to the origin. The "EMVCo space" is centered above the origin as floor point.
5. The track points are shown.
6. Each track point is moved from above. Move to next track point lift the arm up, move to next track point and moves the arm down.

The FAP software allows it to skip some EMVCo points by removing the checkmark or to move to each individually.

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