1. Introduction

This document describes the use of the *Graphical User Interface* (GUI) or *Command Line Interface* (CLI) within the **Linux Operating System (Linux OS)**. As there are no native Linux versions of the GUI or CLI available (only for the Windows OS), it is required to use a third-party tool within Linux that is able to act as an "interpreter" between Windows programs and the Linux OS. One such (open-source) tool is called **Wine** (https://www.winehq.org/).

2. Important notes

Before continuing it is essential to understand that there are a couple of caveats and restrictions.

1. Because essentially the communication still runs through Linux, it is only possible to use **controller cabinets that have an Ethernet connection**. Controllers with only a USB port cannot be used, as the required USB communication drivers don't work within Linux.

2. Therefore it is required to connect the controller to a *Local Area Network* (LAN). For the easiest installation, make sure the cabinet is connected to a network that has a DHCP server active. That way the controller can receive an IP address automatically and no additional configuration is required. The computer running Linux has to be connected to the same LAN as well (same subnet).

3. It is important to understand that this has only been tested on one particular combination of Linux distribution, Kernel and Wine version. Functional tests have been done with Ubuntu 17.10, Kernel 4.13.0-46-generic and Wine version 3.0.3. Although it is not expected that there will be issues when using other (newer) versions, there is no guarantee.

3. Installing Wine

You can download Wine from the WineHQ website (https://www.winehq.org/), however the preferred method is using a Linux distro packaging tool like *Advanced Packaging Tool* (APT) that is most likely already installed in distributions like Ubuntu. Depending on the used Linux distribution, the download and/or install will vary. Please visit https://wiki.winehq.org/Download for a detailed explanation. After installation, Wine doesn't require any further setup.

4. Downloading User Software

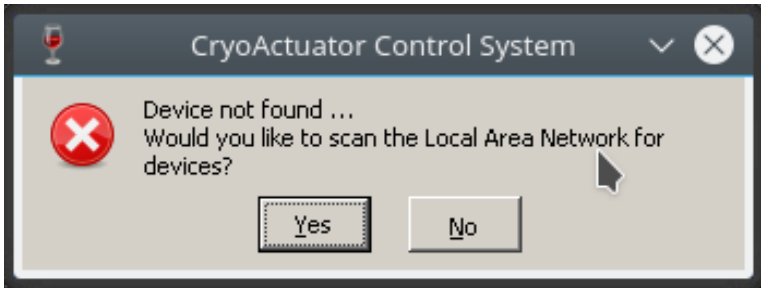
Download the latest User Software package from the JPE website: https://www.janssenprecisionengineering.com/page/cryo-positioning-systems-controller/. Click on *Controller Software & User Manuals* and select version **v5.3.20181010 or above**. Unzip the contents of the ZIP file to a location of your choice (for example in a subfolder *CPSC* under the *Home* folder).

5. Using the GUI

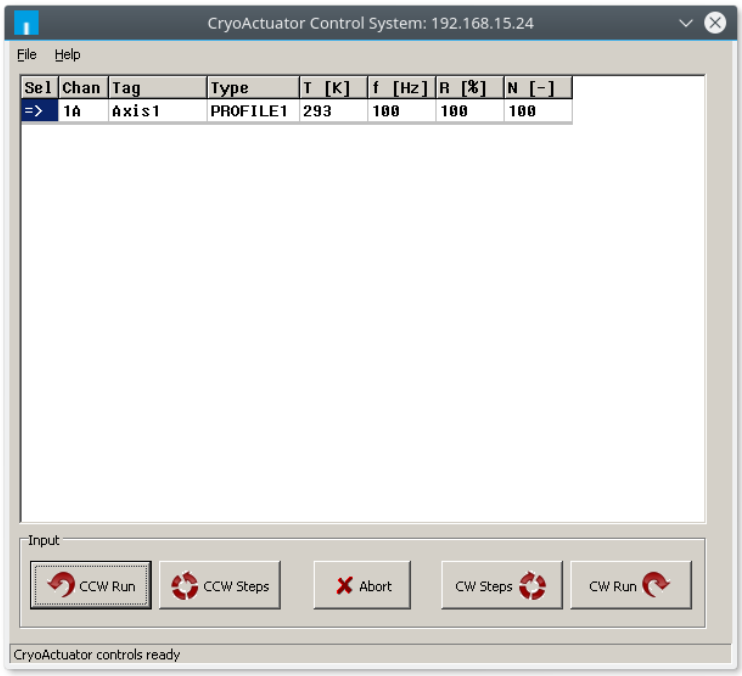
To run the GUI, open a Terminal window in Linux and go to the folder that contains the GUI executable (`cacontrolsystem.exe`). Next, type:

```
wine cacontrolsystem.exe [enter]
```

A dialog will pop up, saying that no devices were found. Make sure that the controller is powered on and that – if a *Manual Control Module* (MCM) is installed – an IP-address is shown on the display. Verify that the IP address that is displayed, is in the same subnet as the Client computer (Linux). Click **`yes`** to scan the LAN subnet for the controller.



If successful, the GUI will be enabled. In the top bar of the program window, the IP address will be shown as well.



Important note: *it might happen that Wine will throw the following error:*

```
0009:err:module:import_dll Library FTD2XX.DLL (which is needed by
L"(…)\\cacontrolsystem.exe") not found
0009:err:module:attach_dlls Importing dlls for L"(…)\\cacontrolsystem.exe" failed,
status c0000135
```

*In that case, copy the file **FTD2XX.dll** to the same folder as where **cacontrolsystem.exe** is located and rerun the Wine command. The .dll file can be found in the folder `\USBdriver\i386\` in the downloaded zip file. Other than to solve this issue, the .dll file is not used any further.*

For more information on the GUI and its usage, please read the (latest) Software User manual which can be download via https://www.janssenprecisionengineering.com/page/cryo-positioning-systems-controller/ (choose the one linked to the downloaded software version).

6. Using the CLI

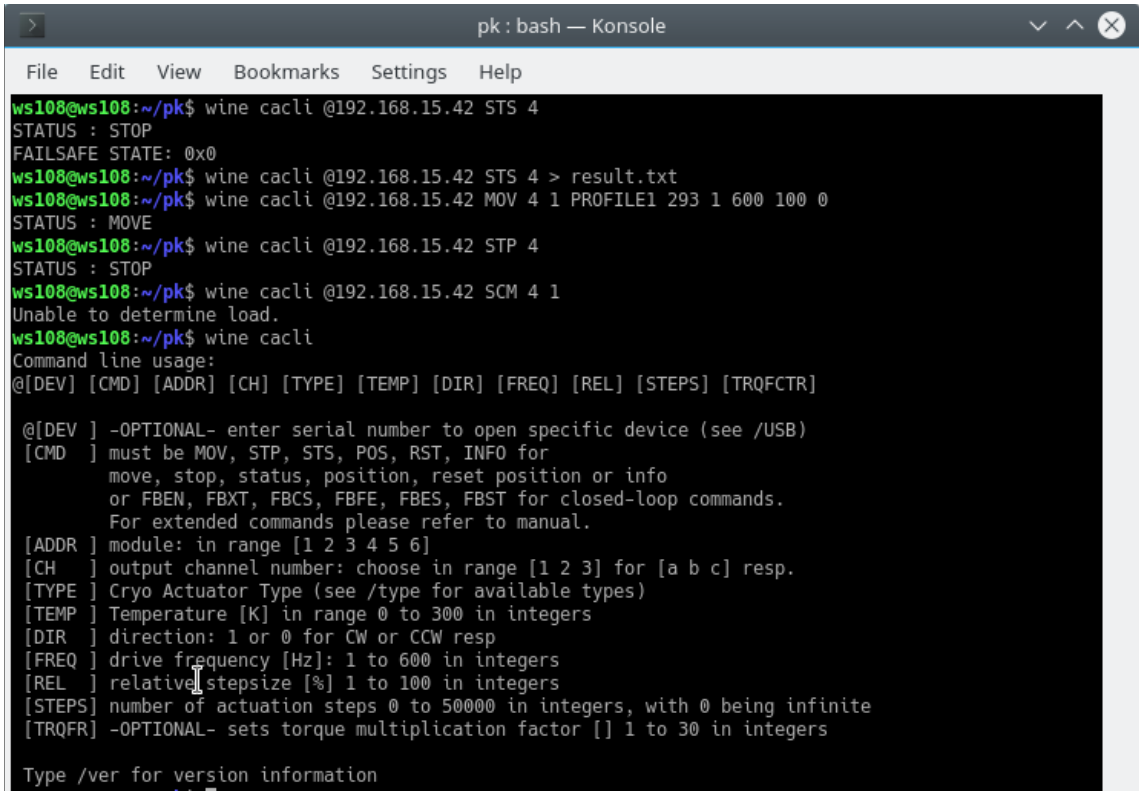
To run the CLI, open a Terminal window in Linux and go to the folder that contains the CLI executable (`cacli.exe`). The CLI is dependent on a variable length of trailing arguments. Most important is that the IP address is entered, else no communication to the controller can exist. For example, to request the status of one of the modules in the controller, type:

```
wine cacli @192.168.15.24 STS 1 [enter]
```

This will result in a respond from the controller:

```
STATUS : STOP 10
FAILSAFE STATE: 0x0
```

Some examples of various commands:



For more information on the CLI and its commands, please read the (latest) Software User manual which can be download via https://www.janssenprecisionengineering.com/page/cryo-positioning-systems-controller/ (choose the one linked to the downloaded software version).