

How to extend the program?

When the software program was developed, extendability was kept in mind. In this document we will describe how to extend our program by adding/editing a device or adding additional functionality to the GUI.

Adding/editing a device

When adding a new device to the program a few steps are required on both the server and in the client. An already existing device can also be edited in a similar fashion, where only part of these steps need to be taken. On the server side first of all the communication with the new device has to be established. This is done by creating the necessary classes to read out data from and give commands to the new device. After establishing these, the data should be added to the data array, which is send every second to the GUI. This data array is filled in the DataReader class. Any commands that should be available from the GUI also have to be constructed using the CommandService class, this class implements all methods from the ICommandService interface. The client shares this interface and therefore knows what methods it can call. Finally, if the device interacts with one of the automated control cycles the StateMachine class has to be updated. This class consists of the state machine which contains the logic of these cycles. **Note:** The state machine should be handled carefully, since an error here may result in a failing cool down process. If you want to log the new device, this device should also be updated in the logging classes.

Besides these actions on the server, a few actions have to be performed on the client . To visualize the new data of the device, a new tab has to be added to the GUI. There are no limitations on this tab and its design, any design will do. The overview tab also has to be updated if you want to see the new device's most important information here. To update the logging, the logging model and viewmodel have to contain all data and should know whether to log it or not. A preset for logging can be created for easy logging. Finally the logging tab has to be updated to reflect all changes. If the data should be visible in the charts they should be added to those. This is done by creating a new GLineSeries and a tempList in the model and adding points to these using the AddToGraph function of the AbstractModel.

Adding functionality to the GUI

To add some functionality in a new tab in the GUI a few steps have to be taken. The GUI is implemented using the MVVM architectural design pattern. Depending on the data you want to use you have to add/edit a model and a viewmodel (not necessary if current data is used). If a new viewmodel was created it needs to be added to the viewmodelcontainer in order to bind it in a view. The GUI can now use bindings from this new viewmodel to create the new tab. To bind the viewmodel data use {Binding *viewmodelname*. *propertyname*}. The GUI consist of XAML files that can be adjusted to your preference.