Accord Simulator

User Guide

Document: Accord Simulator V1.13 User Guide.Docx

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1 Introduction

Accord Simulator works in conjunction with the Emulation Module of Accord Server. It allows a user to configure state or value changes to devices when events occur. Simulator Profiles may be saved and edited for later use, and can be activated / deactivated as required. Each Profile is configured through a grid-based user interface and does not require engineering knowledge to use.

Accord Simulator application works in conjunction with Accord Server. It may be hosted on the same PC as Server or on a separate PC.

1.1 List of Accord Platform Modules

Designer	Application for configuring Process Model and HMI screens
PLC Library	PLC Runtime Library to implement control of the process in standard PLC.
Server	For management of PLC communications including download to PLC, Data for HMI's and modules, Logging, Redundancy, Security, Recipes and MES functions.
HMI	A runtime application showing the plant and providing device and program control. The screens are set-up and configured in Designer.
Recipe Manager	For generation and management of recipes of Setpoints, Selection Decisions and Step Times.
Plan / MES	This provides scheduling of program starts or other required actions in sequence and at selectable times.
Process Audit	For query of the Server Database to generate time or event based reports, with export to various formats.
Security Audit	For query of all interaction with the control system.
Relay	This provides transfer of Data to and from networked PLC's.
Emulation	This module provides PLC Emulation for multiple PLC's
Simulation	This module provides simulation of Inputs to PLC for Emulated PLC's

1.1.1 PLC Control and Accord Process Model Terms

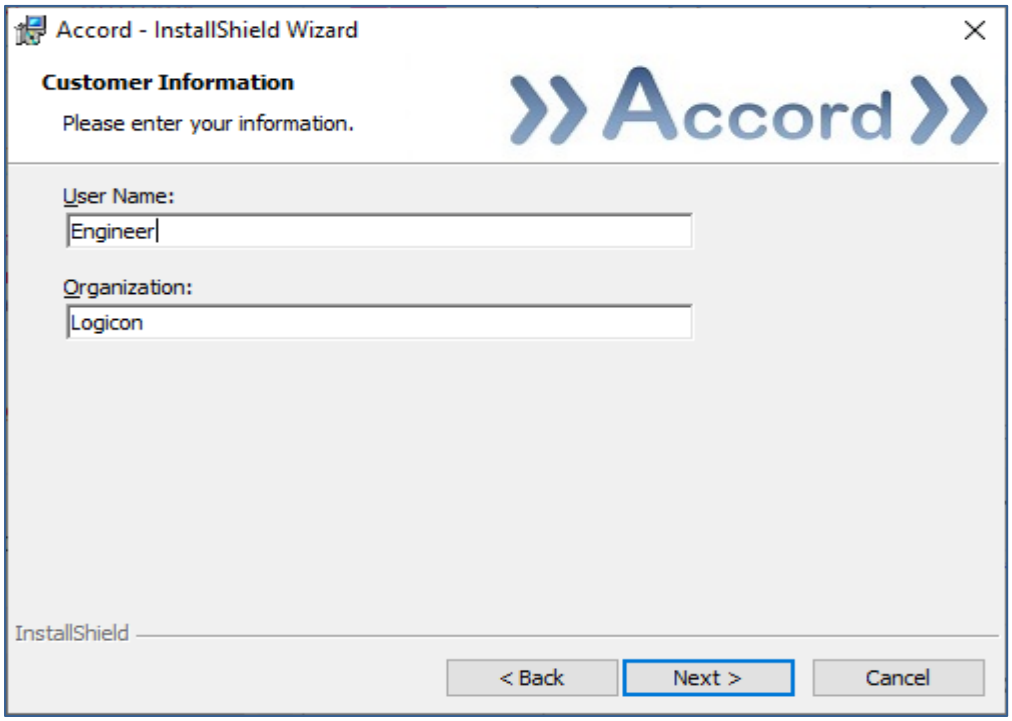
See Accord Designer Guide

2 Installation

Accord Simulator requires a standard PC. Accord Server may require a high performance PC, depending on applications sizes and system requirements.

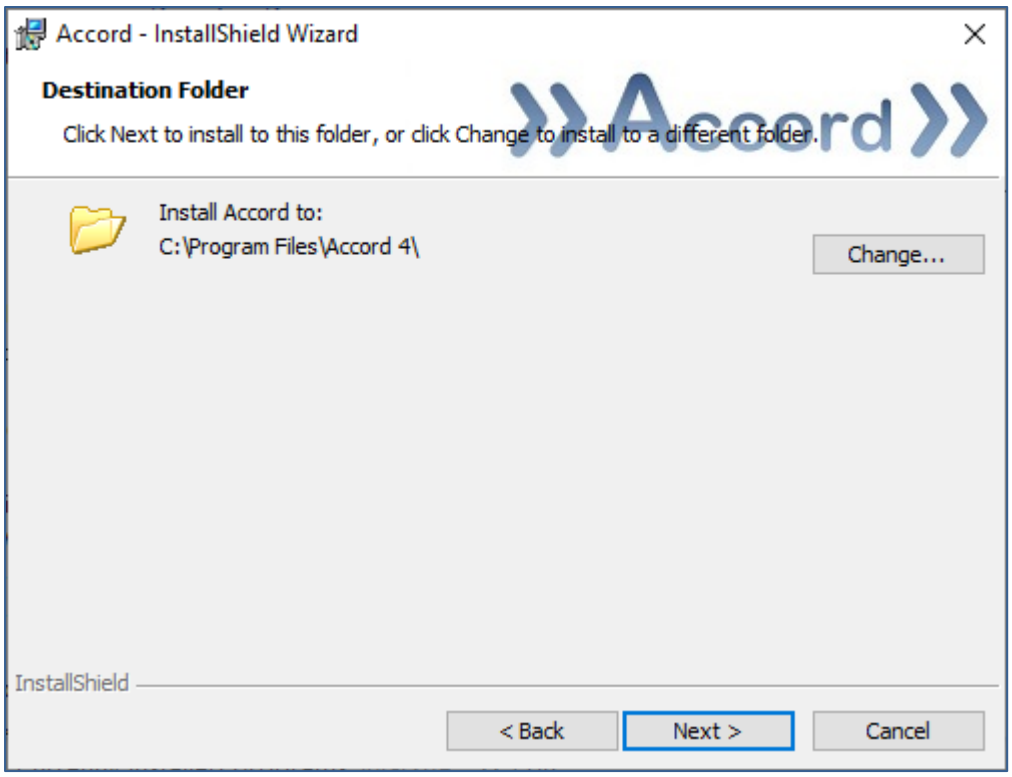
Simulator is installed from Accord Setup Installer.

Accord Setup is started and Simulator and any other required modules are selected. Server should be installed, either on this or a networked PC, to provide Database management.

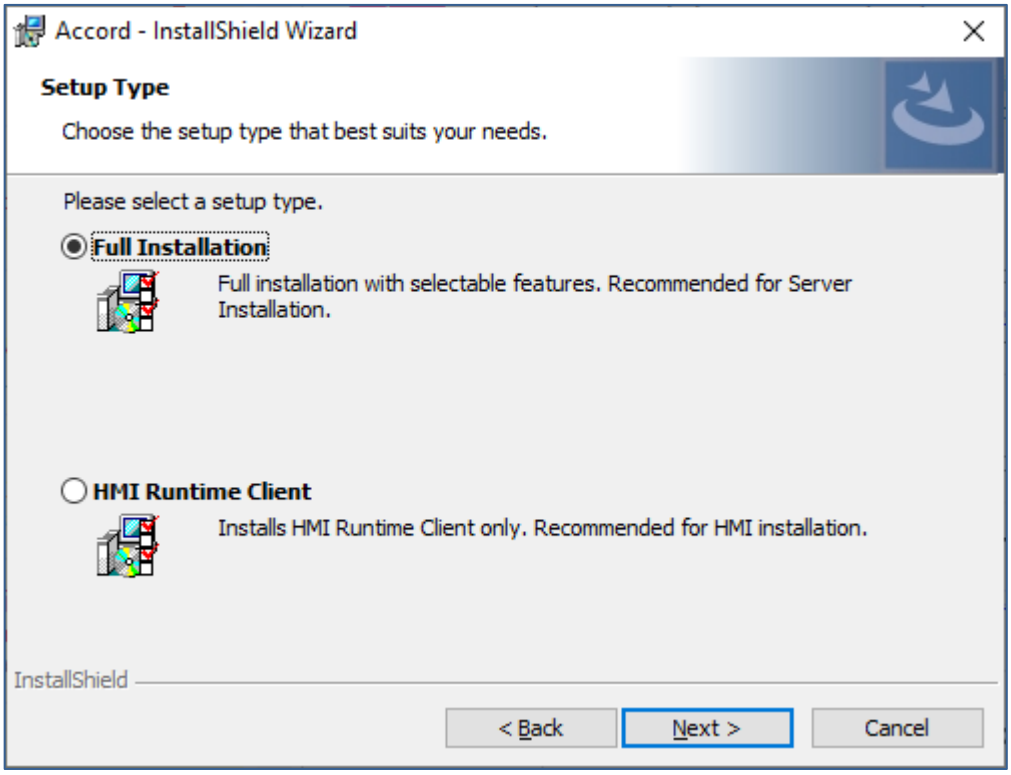


Accord Setup.exe

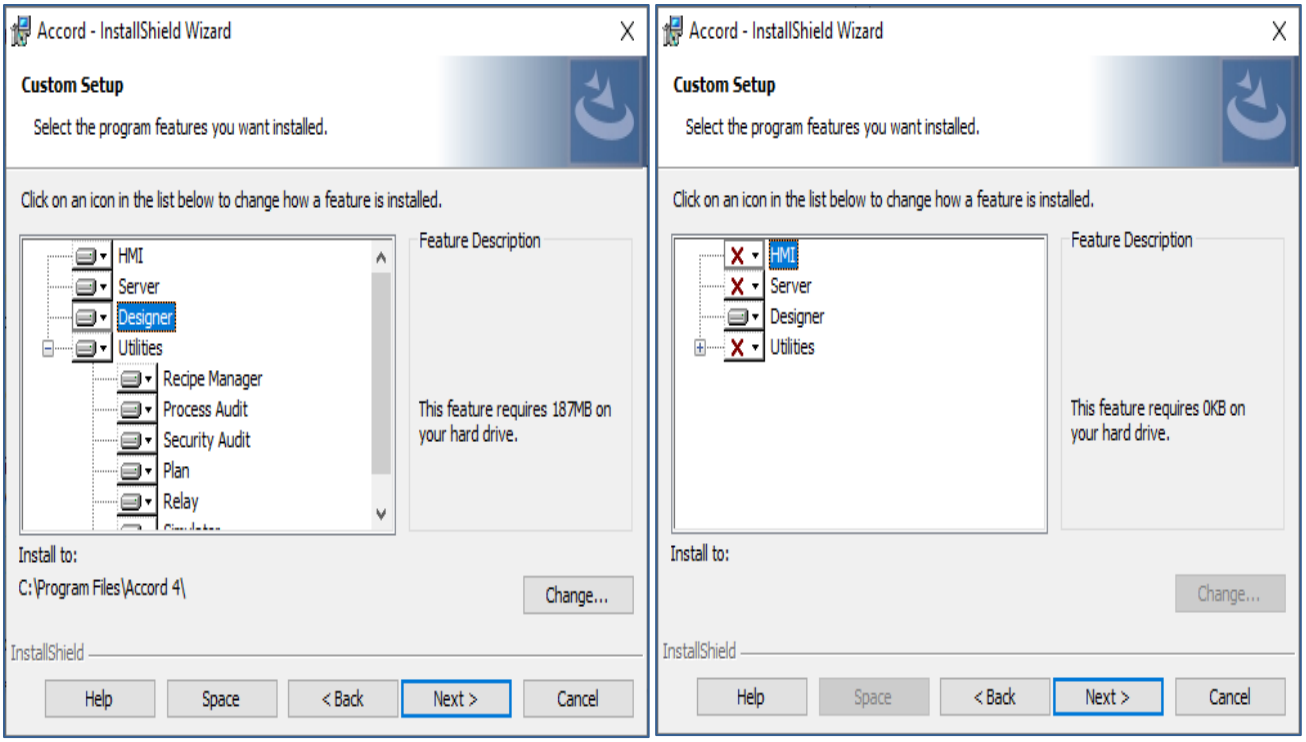
1. Entry of User Name and Organisation



2. Installation Folder selection

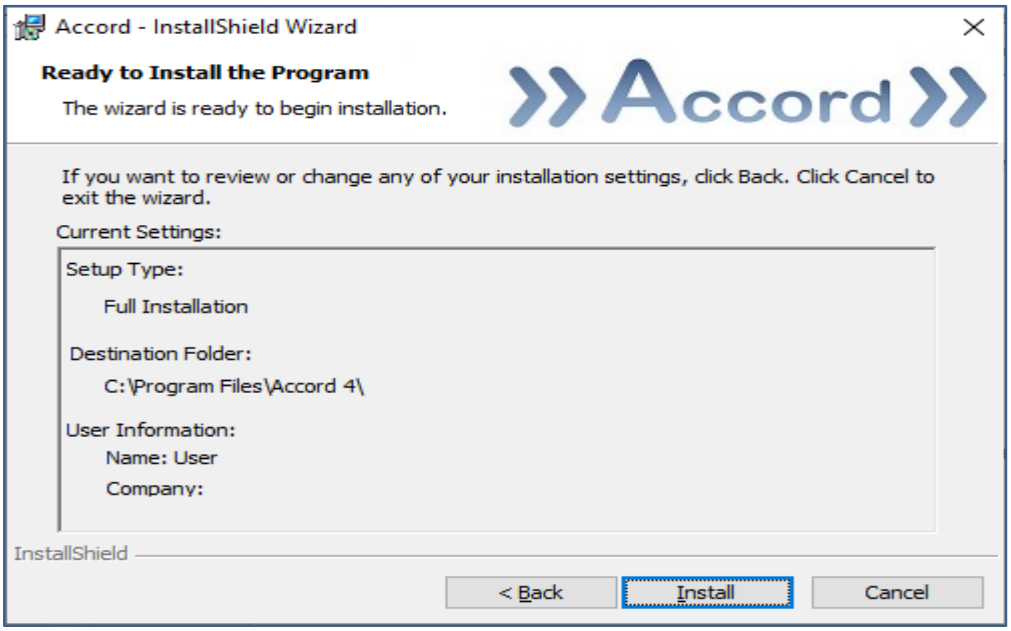


3. Installation selection



4. Selection of Simulator and any other required modules. The installation is to a ProgramFiles folder but may be changed. Server must be installed on this PC or on a networked PC.

Note: Modules are selected to be installed by default. Right-click to deselect installation of a module.



5. Installation is completed on pressing Install.

2.1 Initial connection to Accord Server.

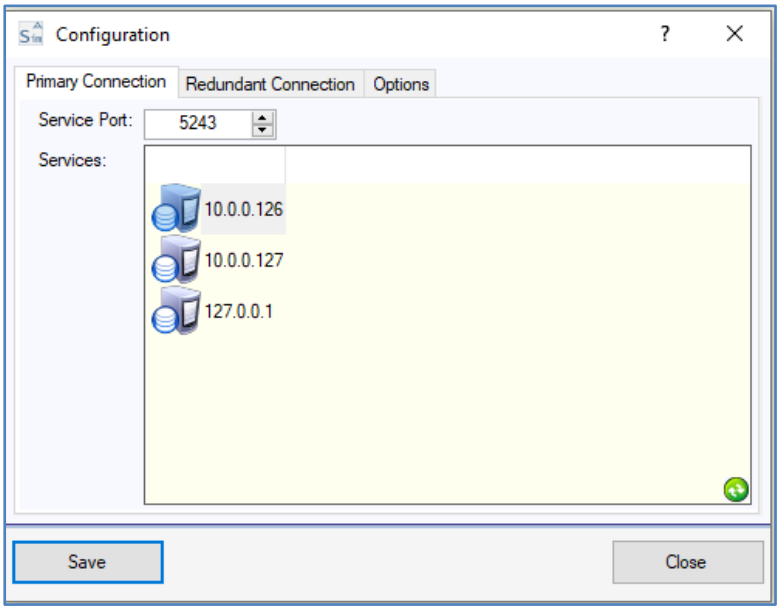
Once installed the Simulation module must connect to an Accord Server for data. Simulator should find the Server module automatically if it is on the same PC.

Start Simulator. Check for the Connected to Service status at bottom of Screen.

Accord Simulator Connection Status area

1. If Disconnected or not connected to required IP then perform Search by clicking on the Connection Status (highlighted above).

This will cause following popup to appear with Green Refresh button at Bottom.



Accord Service Selection window

Click on the Green Refresh button to begin search for Accord Server by IP address. This will find the available Accord Servers, with appropriate IP addresses.

Select required Server.
If this does not return an appropriate Server IP then
Check that Accord Server is running.
Check that Accord Server PC is connected, if it is another PC.

After connection Log-In by clicking on the User in the bottom of the Screen. Ensure that the User is already listed as a User in Server settings Security section.

Accord Simulator Connection Login area

3 Profile Configuration

Accord Simulator provides the ability to set up simulated value changes to devices when specified events occur. This is done through the creation of simulator profiles. Each profile allows for the addition of value controls. These profiles can then be enabled and disabled, allowing the user to choose which set of values they want to use during simulation.

3.1 Creation of a Simulation Profile

The Simulation Profile is created within the application Management section which is accessed by selecting the Manage button in the top right. Clicking on "+" New Button begins configuration of a Simulation Profile.

Management Button

New Profile Button

The Profile is configured by adding rows to the profile using the buttons on the righthand side. The Profile can be saved when complete.

Profile Configuration buttons:

 Move a Row up in the Priority List

 Move a Row down in the Priority List

 Make a new Row, for a new Action

 Delete a Row to remove an Action

 Edit selected row

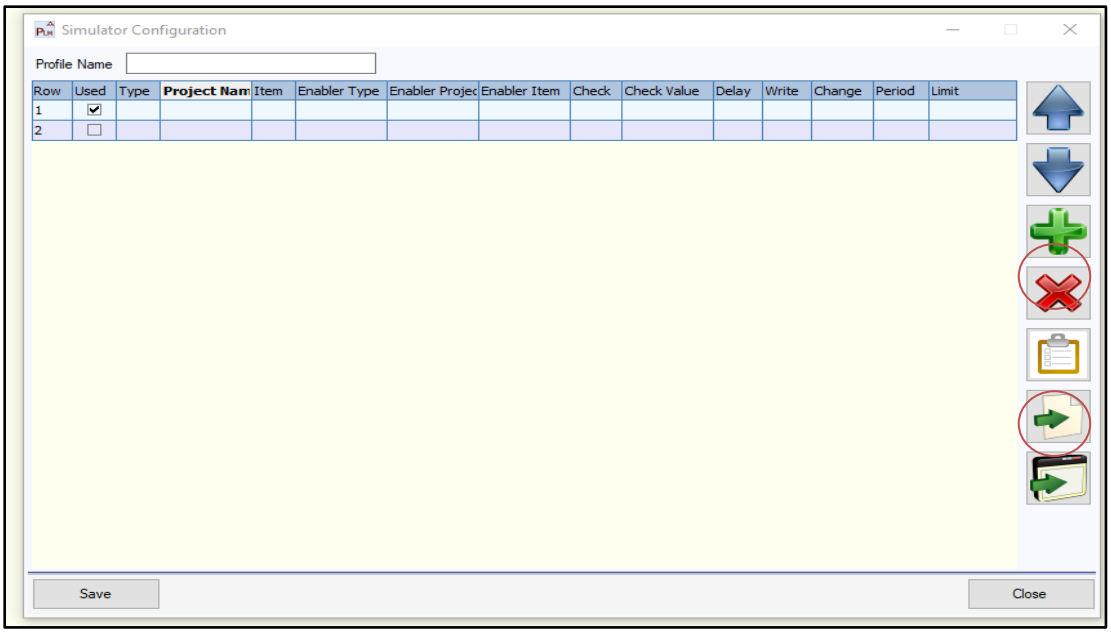
 Export Simulator Configuration

 Import Simulator Configuration

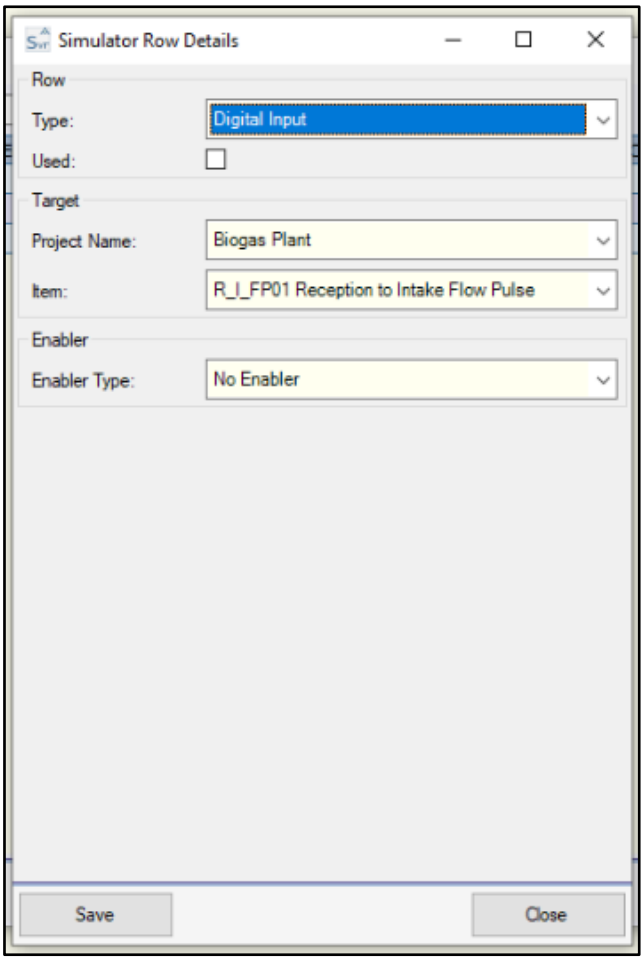
3.2 Configuration of the Profile

The Profile configuration is presented as Rows and Columns, where each Row is a separate action to be carried out by the Simulation Module and the columns provide configuration of the action.

To add a row, click the “+” button, or to edit the row, select the row, then click the edit button.



Edit/Add Action



Row Initial Selection types

Configure the selections for the row per options below:

1. "Used" cell enables the row. This box may be ticked / unticked after the profile is saved to allow for quick changes to behaviour.

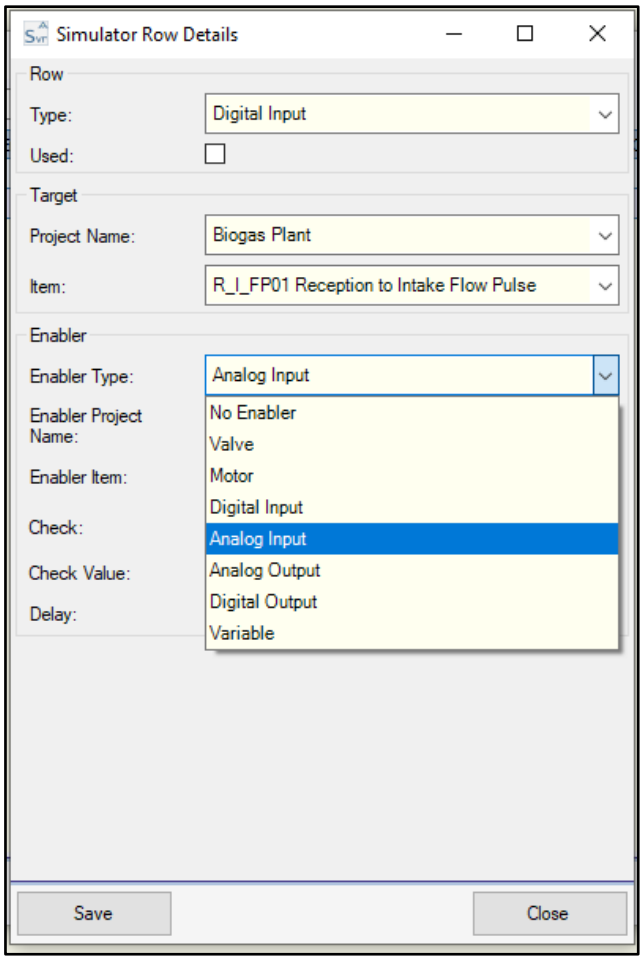
2. "Type" dropdown is used to select the required Item type
   The following item types are available:

Digital Input -	Selection of a Digital Input to go True
Analog Input -	Selection of a Analog Input to go to a Value
Valve Fail -	Write that a Valve will Fail
Motor Fail -	Write that a Motor will Fail
Analog Fail -	Selection of a Analog Input for a Fail
Variable -	Selection of a Variable to go to a Value

3. "Target" for Selection of the Project and the Item to be changed.
   The following item types are selectable:

Always -	This row will always be active.
Valve -	This row will be active when the selected valve is active / inactive (state selected in the next column).
Motor -	This row will be active when the selected motor is active / inactive (selected in the "Check" dropdown).
Digital Input -	This row will be active when the selected digital input is active / inactive (selected in the "Check" dropdown).
Analog Input -	This row will be active when the selected analog input is above / below a specified value (selected in the "Check" and "Check Value" dropdowns).
Analog Output -	This row will be active when the selected analog output is above / below a specified value (selected in the "Check" and "Check Value" dropdowns).

Click the dropdown next to "Enabler Type" to select the enabler type for the row. A row will be active when the enabler event occurs. If a target or action has multiple enabler events simultaneously true then the last row of that target/event will be activated.



Enabler Selection

4. Click in the dropdown next to “Enabler Item” and select the particular item of type in Step 5.
5. Click in the dropdown next to “Check” to select check type.
   The following check types are selectable:

Enabler Type:	**Check:**
No Enabler	N/A
Valve, Motor, Digital Input	Active, Inactive
Analog Input, Analog Output	Above (>), Below (<) This compares the current value of the Analog Input / Output to the value entered in the “Check Value” dropdown.

6. If the Enabler Type is either Analog Input or Analog Output, click the dropdown beside the “Check Value” column header and enter the desired value.

7. Click in the dropdown beside the “Delay” column header and enter the desired time (if any) in seconds to have as a delay once the row has been satisfied before it is activated.

8. If the Row Type is set to Analog Input or Variable, the Simulation Module can either write a configured value once the row is activated, or change the value by a set amount per time period to a limit.

   - To set the configured single value, simply enter the value beside “Write” .
   - To set a changing value, follow the following steps:

     i. Enter the value by which the device will increment beside “Change”.

     ii. Enter the time (in seconds) between each increment beside “Period”.

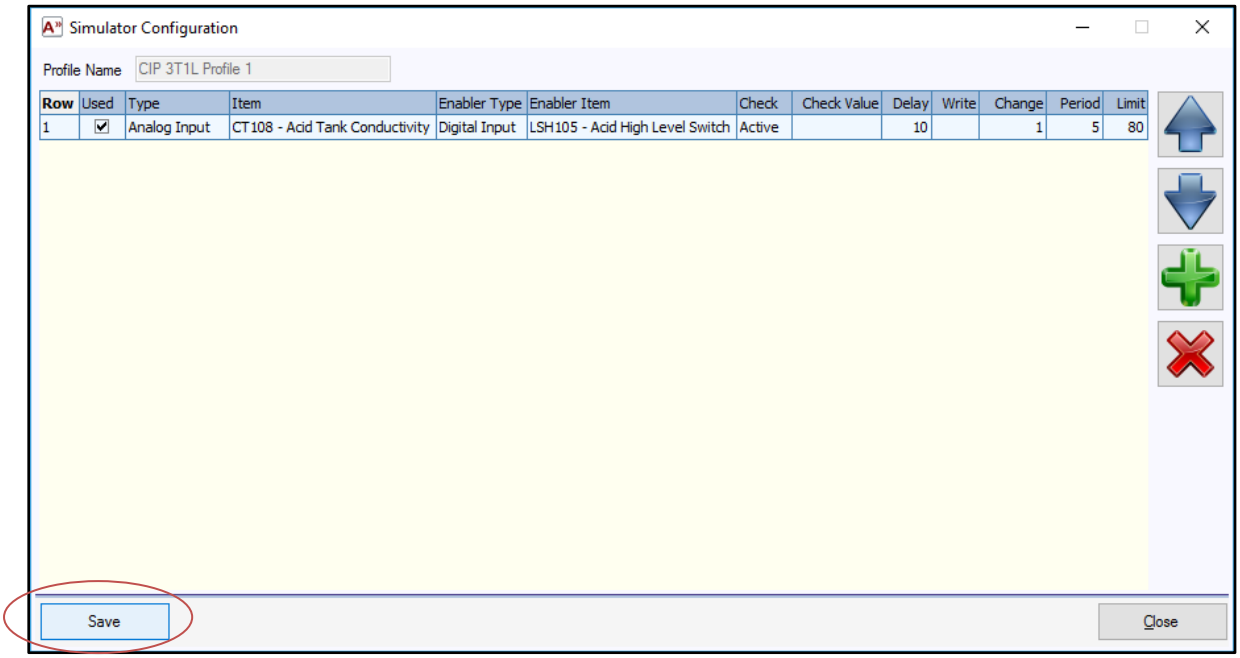
     iii. Set the limit at which the incrementation will stop beside “Limit”.

9. If required, click the “+” Add button to add a new row, and repeat from Step 1.

   A Row may be deleted from the schedule by selecting the Row and using the “x” Delete button.

3.3 Save the Profile to the Saved Profiles

Click on the Save button to save and close the Profile.



Simulator Profile to be Saved

4 Profile Manager Screen

When a Simulator Profile is saved it may be started from the Manage screen. Only one Profile may be active at a time.

To view the existing Profiles click on the Manage button.

Saved Profiles

The following functions are available, by selecting the Profile and using the buttons to the right of the panel.

 Make a New Profile

 Delete Selected Profile

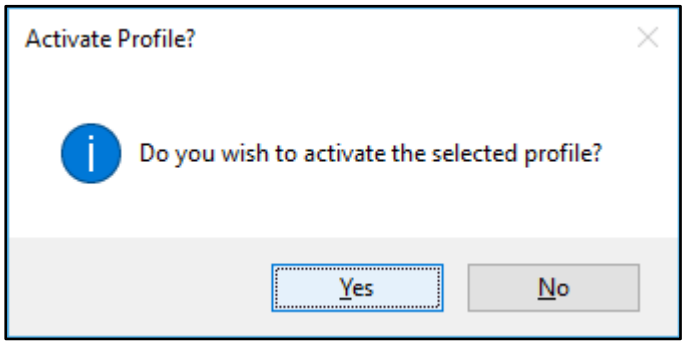
 Edit Selected Profile

 Activate Selected Profile

4.1 To Activate a Profile:

Select the Profile and click on the Activate Selected Profile button at the side of the Panel.

A Profile Activation Confirmation dialog will appear, click on Yes to confirm.



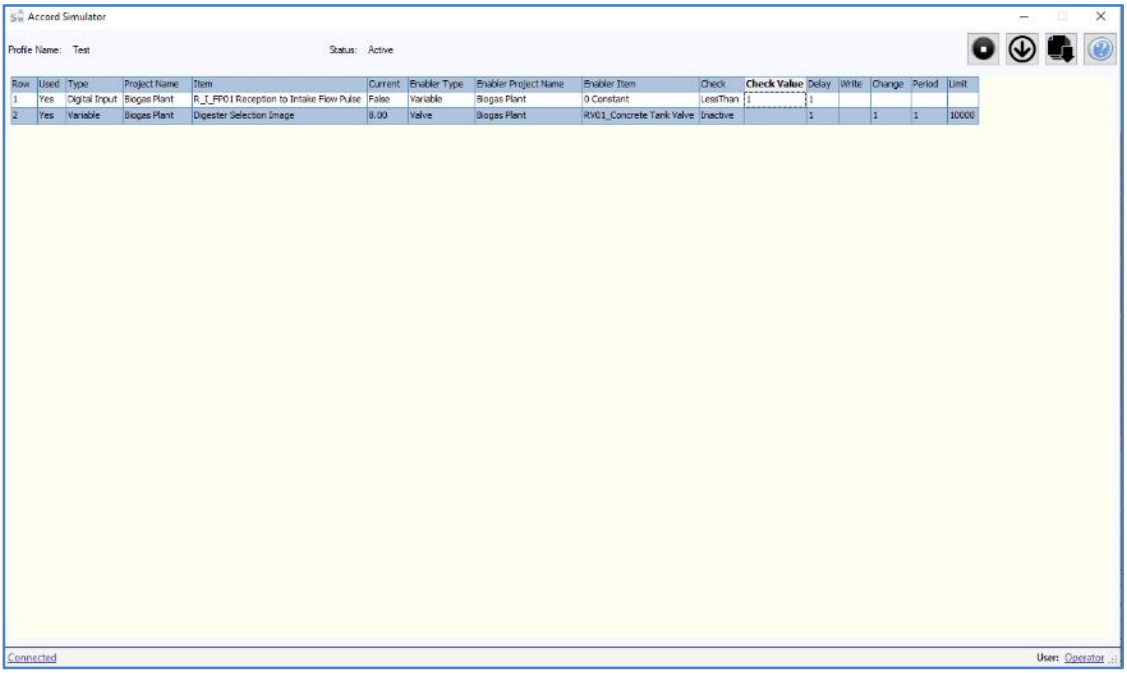
Profile Activation Confirmation

Once Activated, the Profile Active Column becomes ‘True’.

5 Current Profile Screen

When a Profile is activated it becomes a Current Profile.

Click on Current button to see the Status of the Profile.



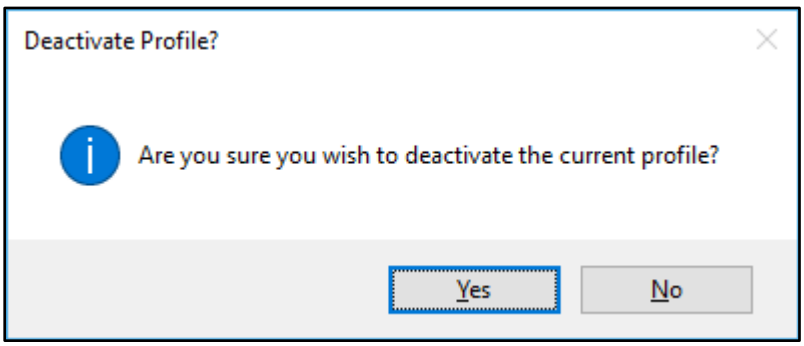
Current Profile Status

Rows highlighted in blue are rows which are currently active.

5.1 To Deactivate a Current Profile

To Deactivate a Profile: Click on the Deactivate Profile button.

A Profile Deactivation Confirmation dialog will appear, click on Yes to confirm.



Profile Deactivation Confirmation