

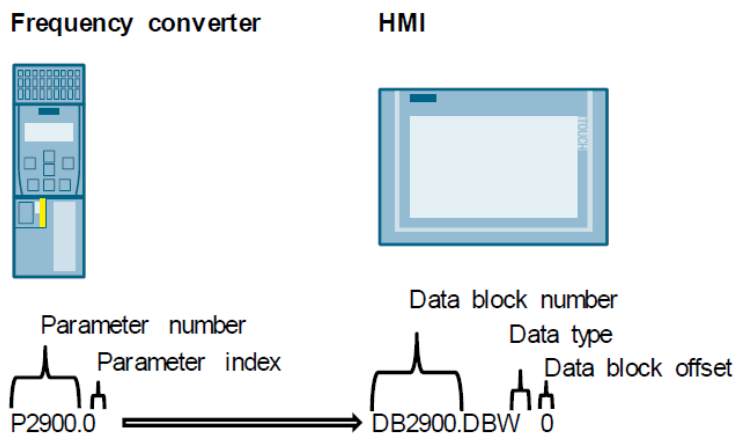


White Paper: How to Display G120 Drive Faults Directly on HMI with No PLC Programming

By Darren McCulley, PCC

Whitepaper: How to Display G120 Drive Faults Directly on HMI with No PLC Programming

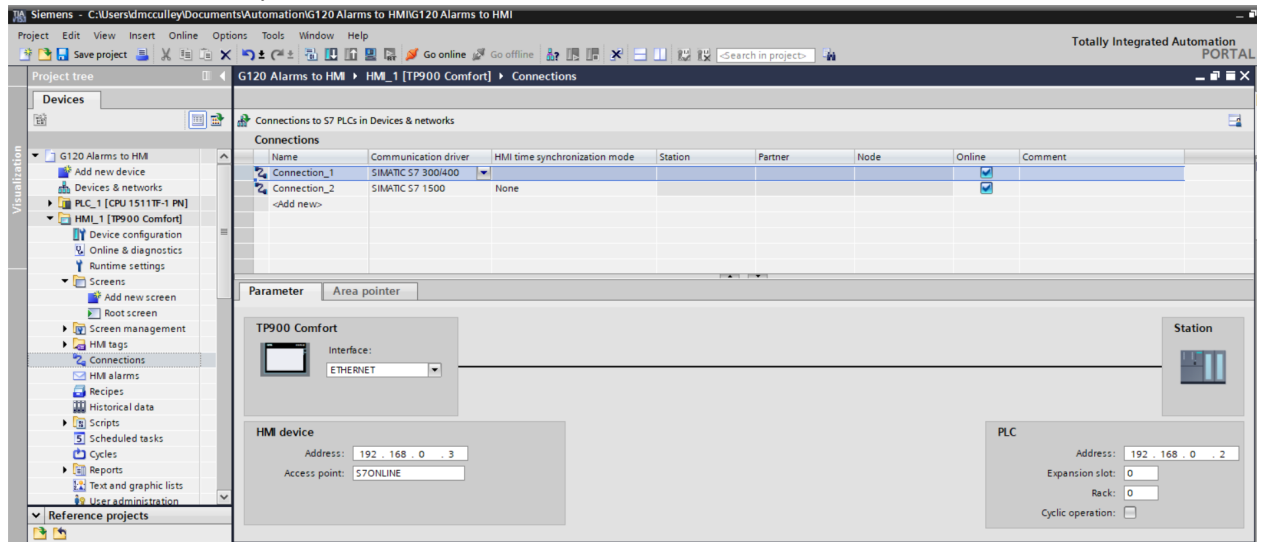
- A. You should have a project with an HMI, and drive setup.
- B. The parameters in a Sinamics drive is accessed using tags via S7 communication. Generally, all parameters can be accessed via the HMI. It depends if a parameter is a read (r) parameter or settable (p) parameter whether a parameter can be written to or observed from HMI direct access. The figure below shows how to access the converter parameters in the HMI. The Parameter Number corresponds to the Data block number, and the Parameter Index corresponds to the Data Block Offset.



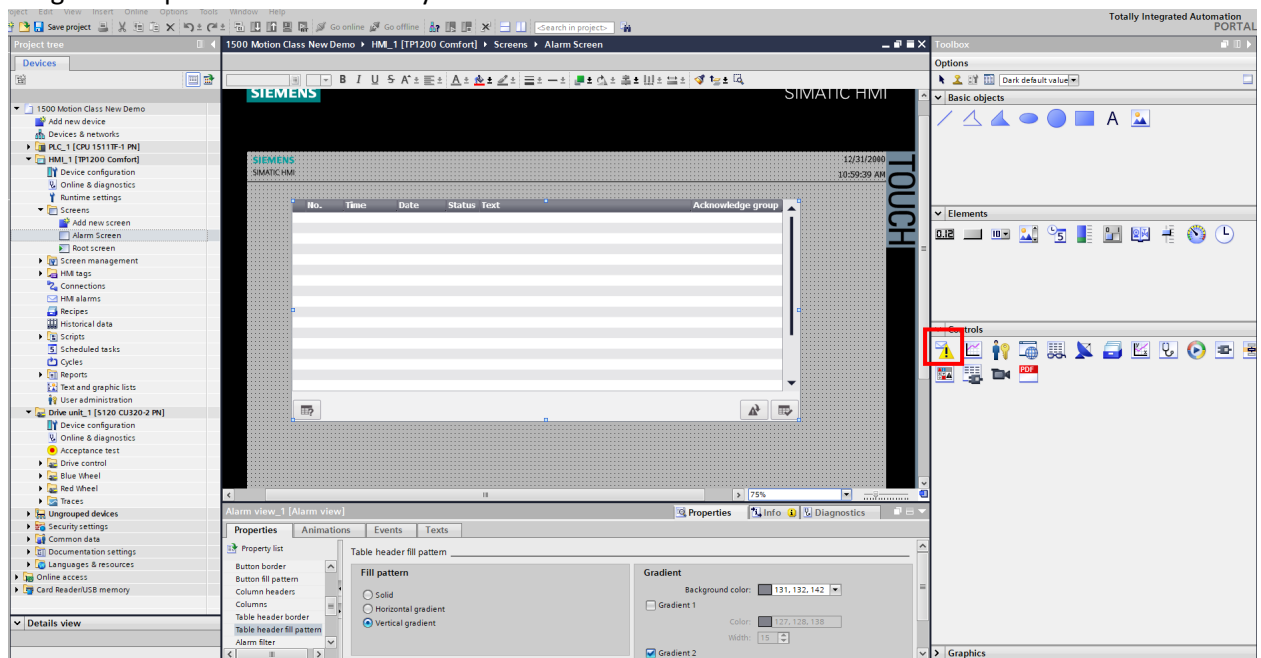
The following assignment is applied:

- Parameter number = data block number
- Parameter index = data block offset
- Data type (byte type tags are shown as DBB, Integers as DBW and DoubleInteger or Real type tags are shown as DBD).

- Under your HMI connections add a connection with the Simatic S7300/400 driver and the station IP address of your drive, mine is 192.168.0.2.



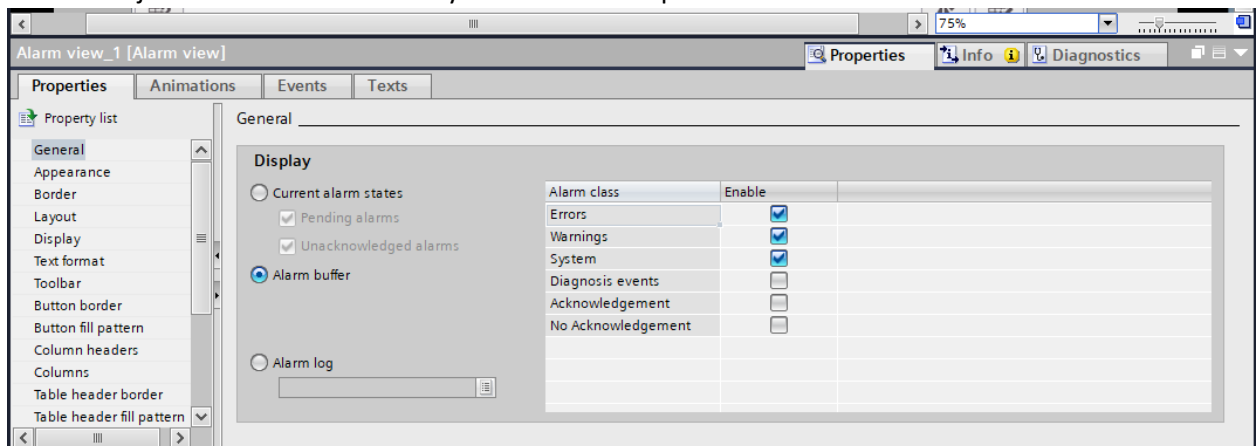
- Drag and drop an Alarm View into your alarm screen of the HMI.



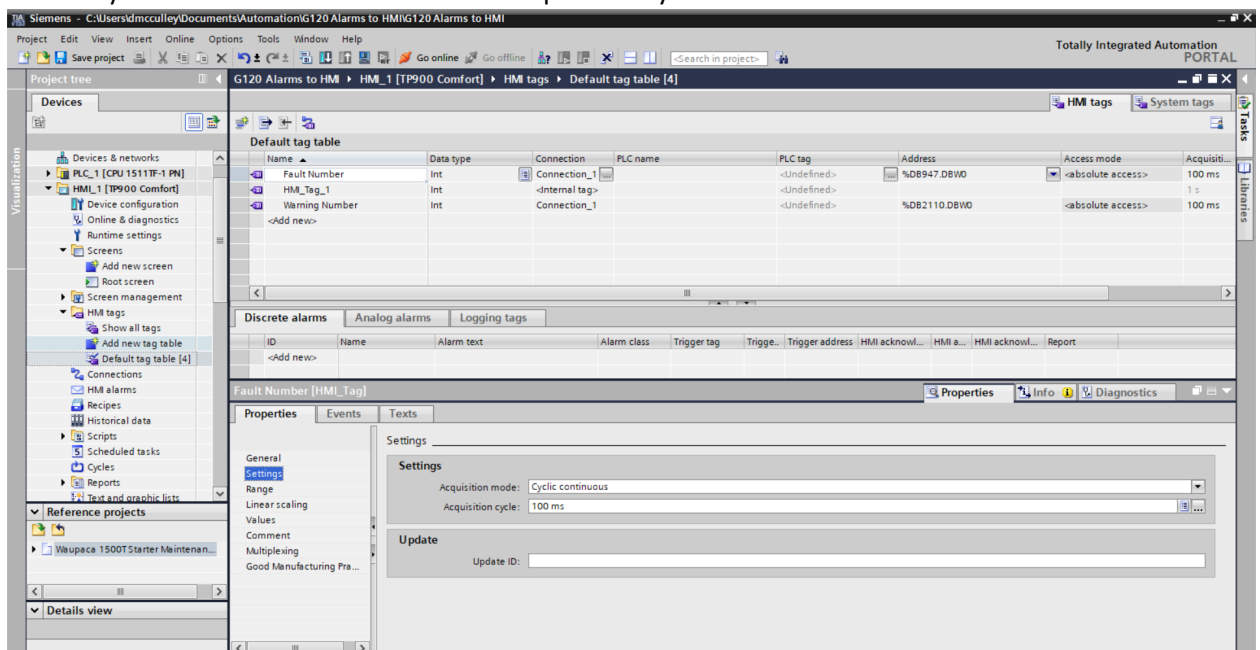
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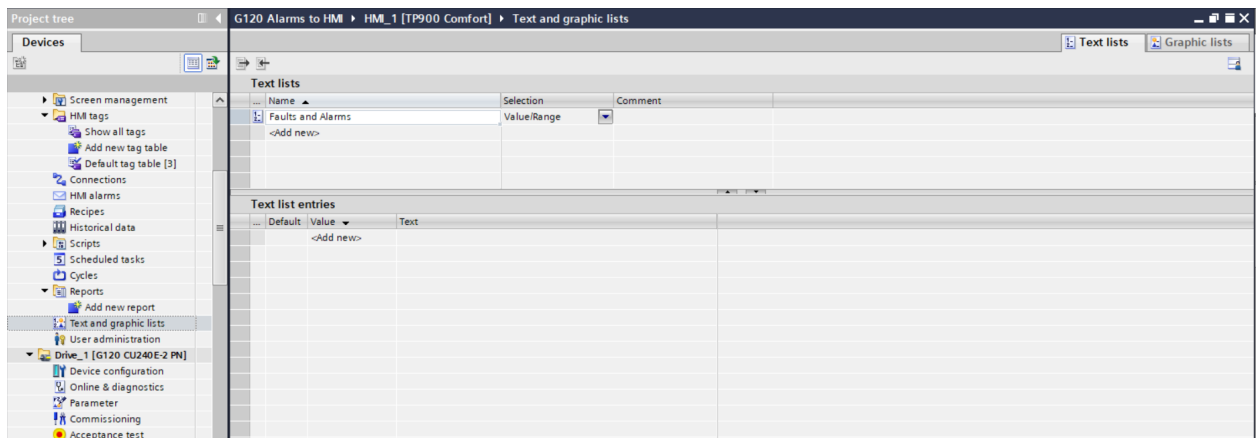
- You can adjust what alarms or faults you see in the Properties tab.



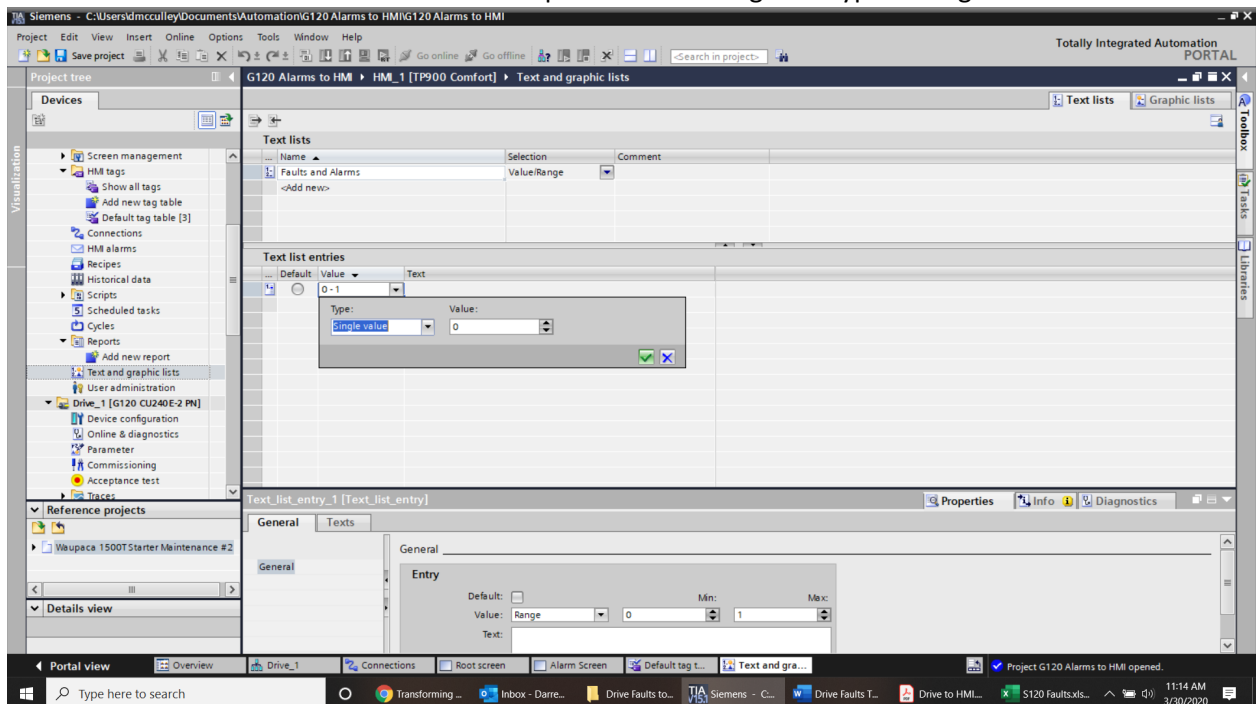
- Open the HMI tag table and configure as below adding a tag for Fault Number and Warning number. Notice the addresses correspond to the parameter numbers for drive faults and alarms. Make sure the connection is the one you setup in step 1. Also make sure the Acquisition Cycle is set for Cyclic Continuous. You can set the Acquisition cycle time as desired.



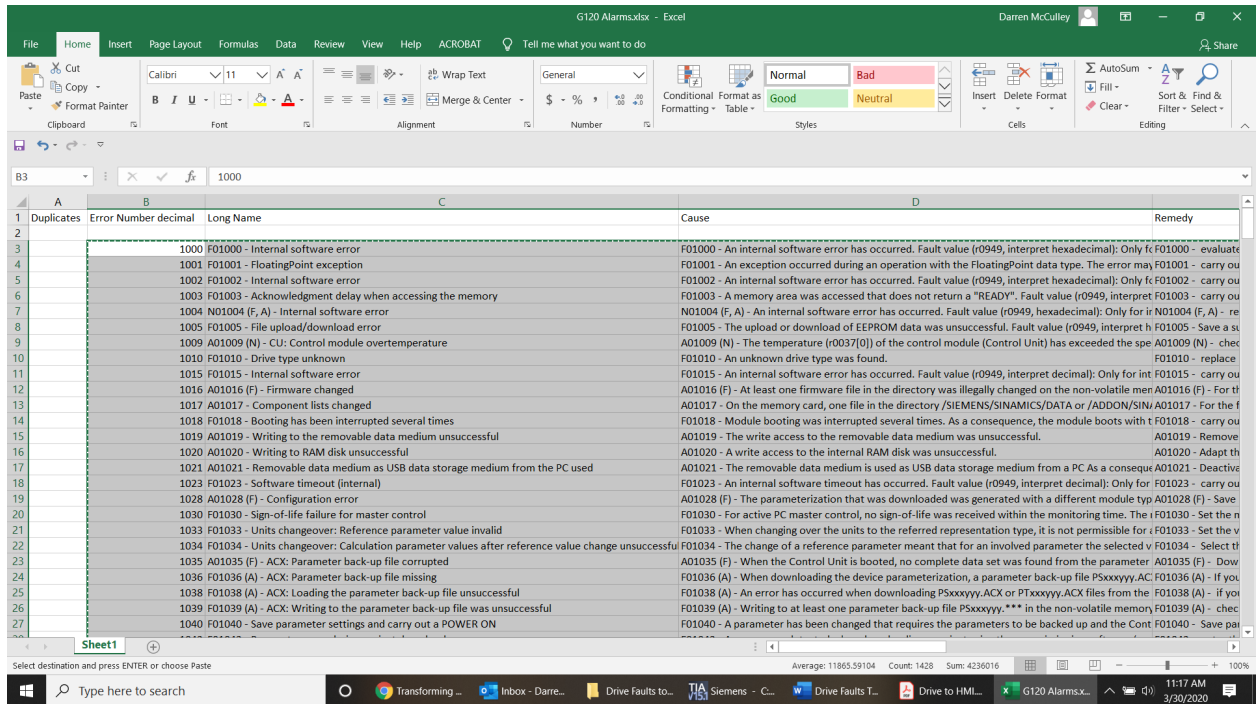
- The fault and alarm list have to be converted in to Excel format using the XML parser. The current faults and alarms can be found at Siemens Industry Online Support:
<https://support.industry.siemens.com/cs/products?mfn=ps&lc=en-WW>.
Information on how to use and download the XML Parser is at the following link:
<https://support.industry.siemens.com/cs/document/77467239/transforming-warning-and-error-messages-of-a-sinamics-drive-with-the-aid-of-the-xml-parser-and-integrating-them-into-a-step-7-hmi-project?dti=0&lc=en-WW>
Download and install the XML parser or download the Excel formatted fault list from the PCC website.
- Under the Reports menu item, create a Text List for fault and warning messages of the drive called Faults and Alarms.



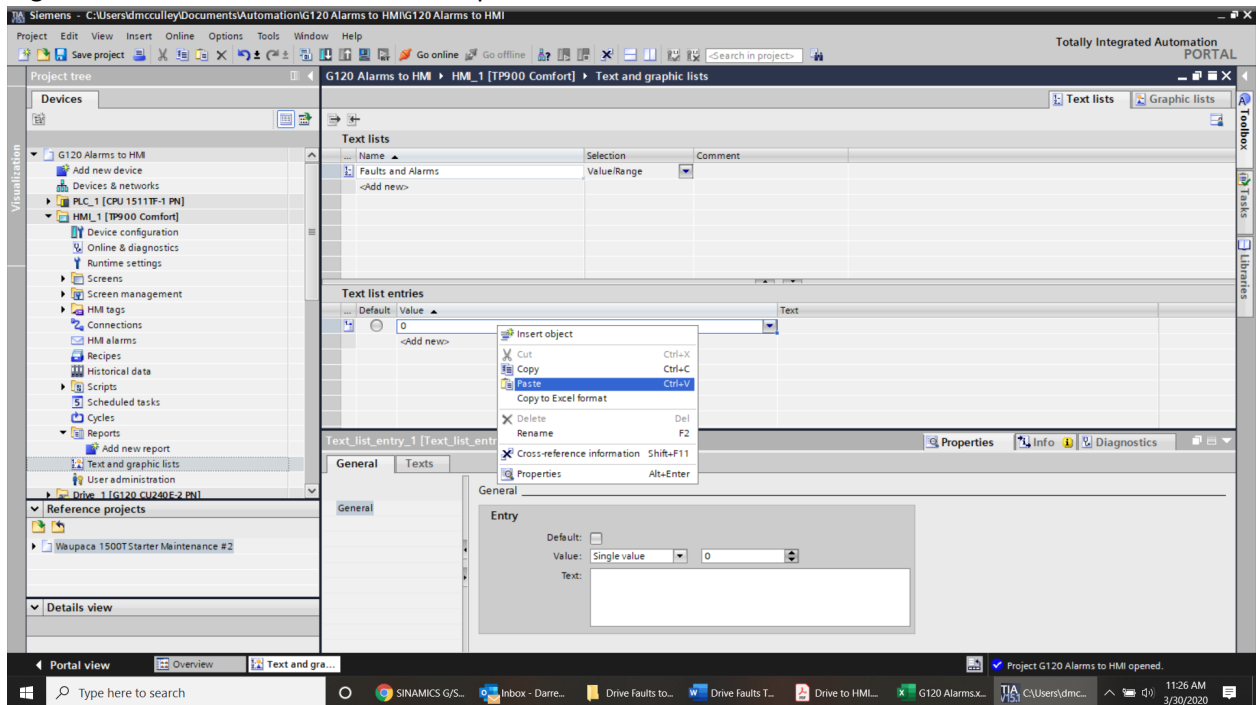
- Double click on <Add new> then click the drop down and change the type to Single value.

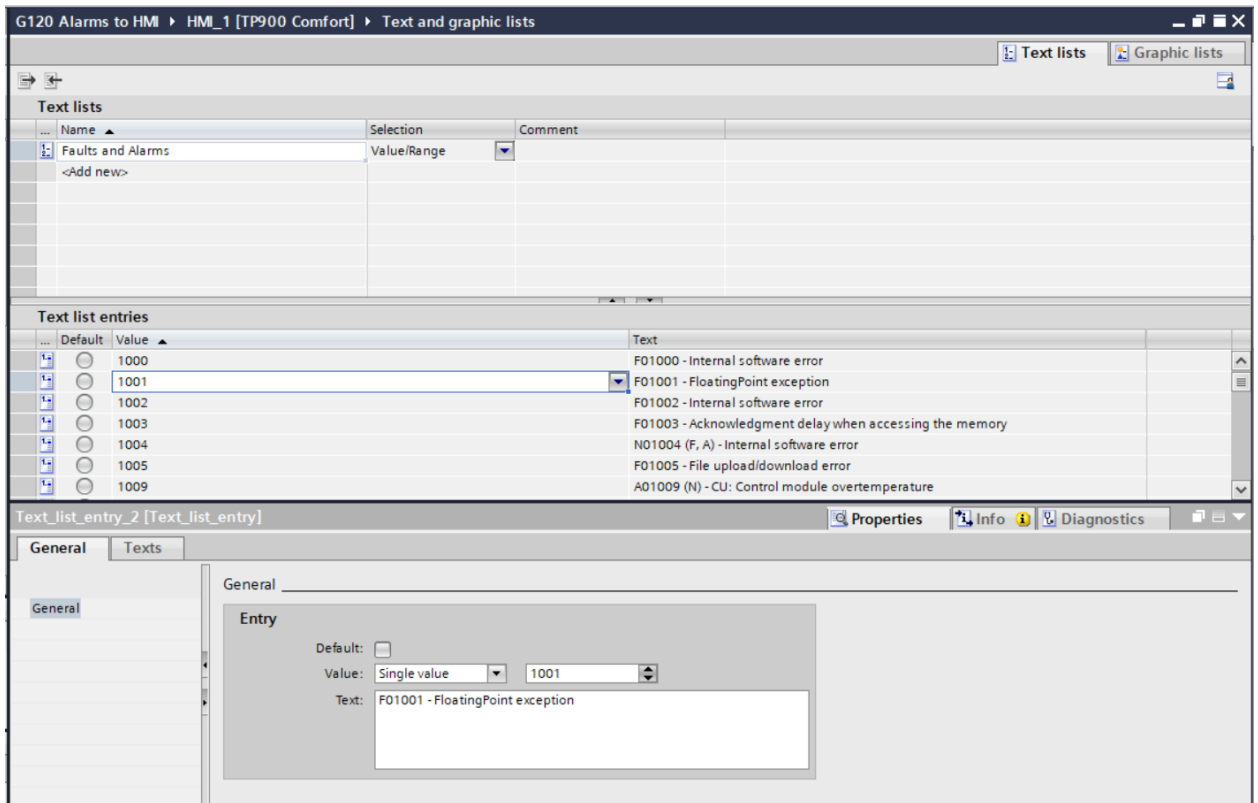


8. Highlight all the faults and alarms in Excel and copy them.

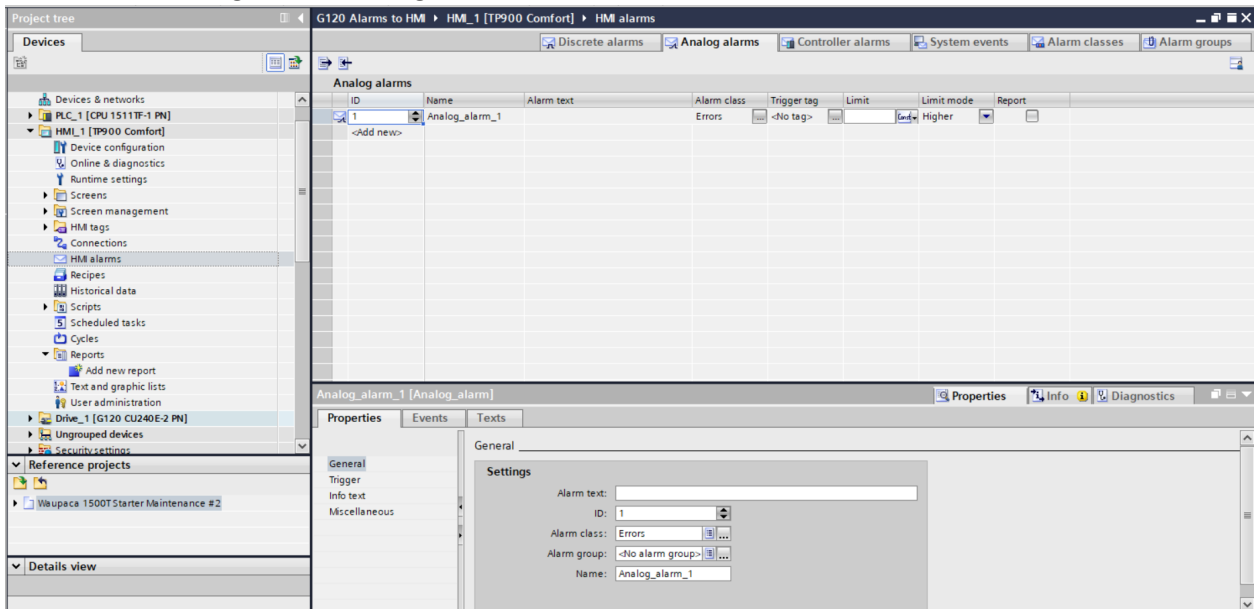


9. Right click in the Value box and choose paste and overwrite the values.





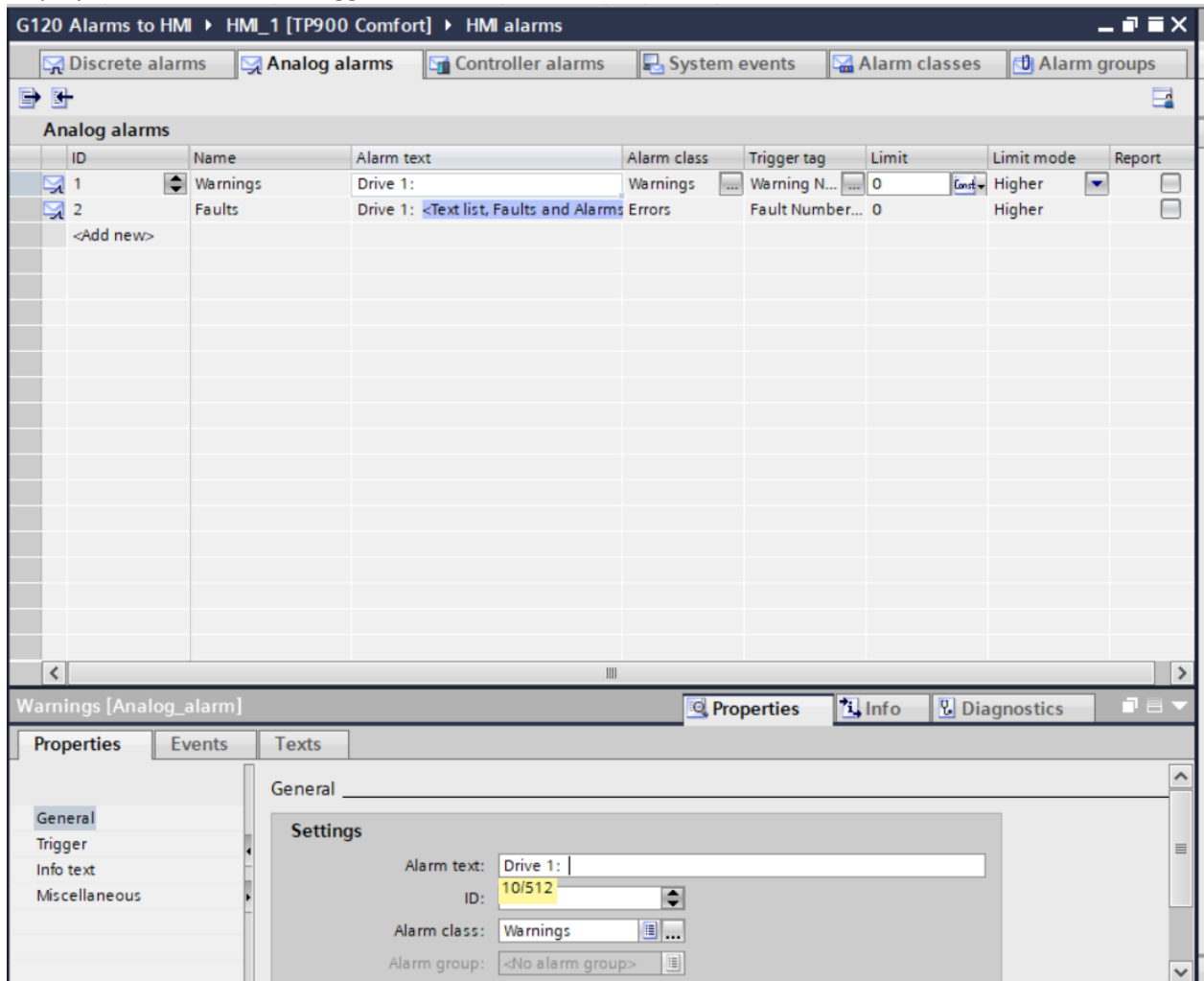
10. Under HMI alarms go to the Analog Alarms tab and add a new alarm.



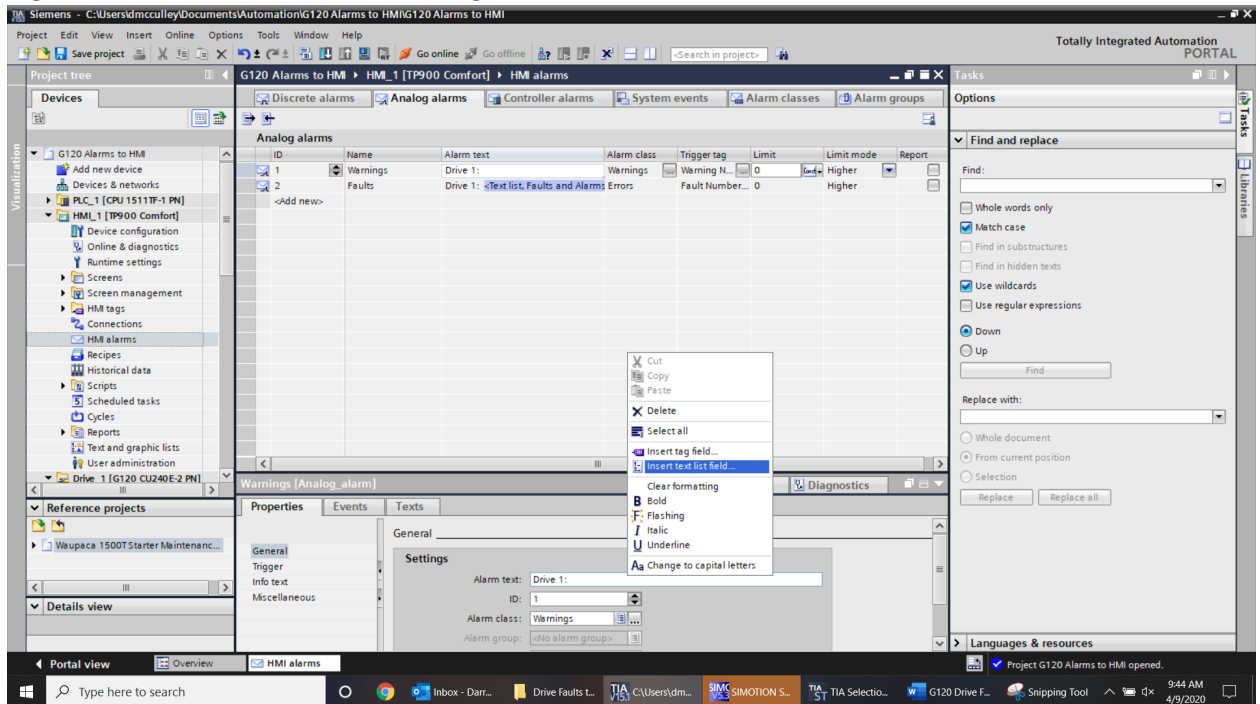
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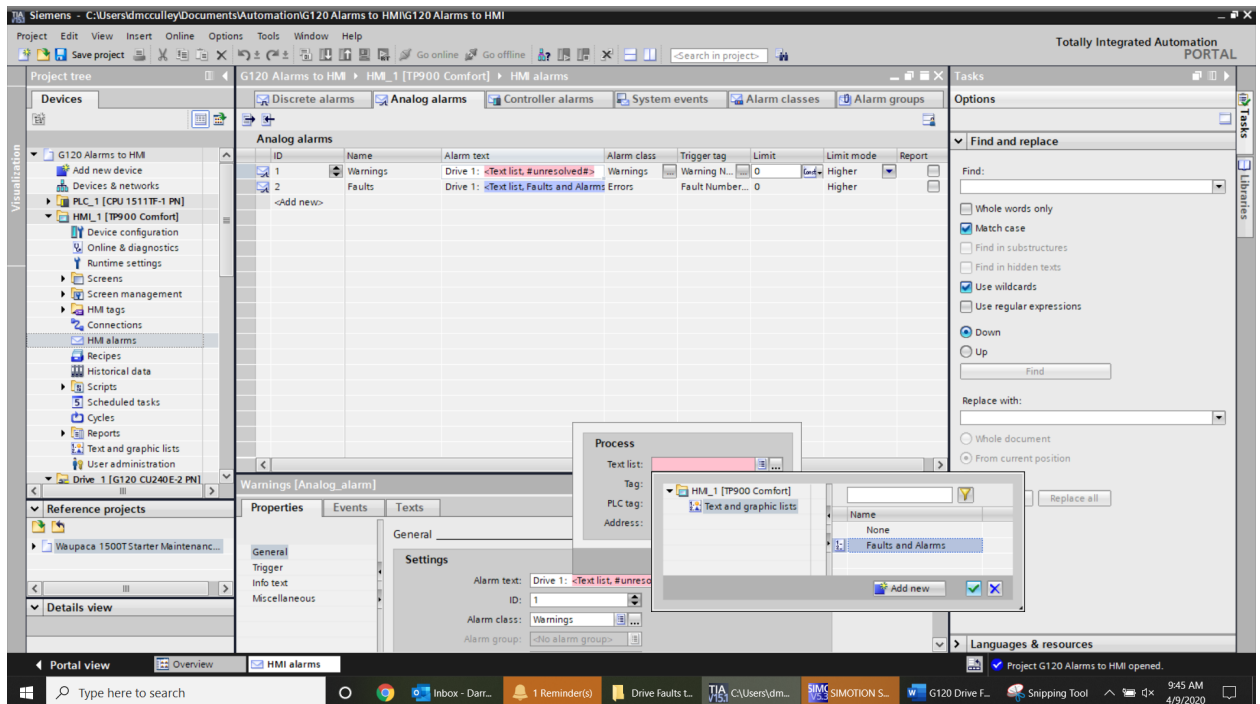
11. In the Inspector Window go to the Properties tab then General. Type in the name of the drive object that the alarm pertains to, my first one is for my Drive. You can add any text you want to display when this alarm is triggered.



12. Right click on the Alarm Text window again and this time choose Insert text list field...



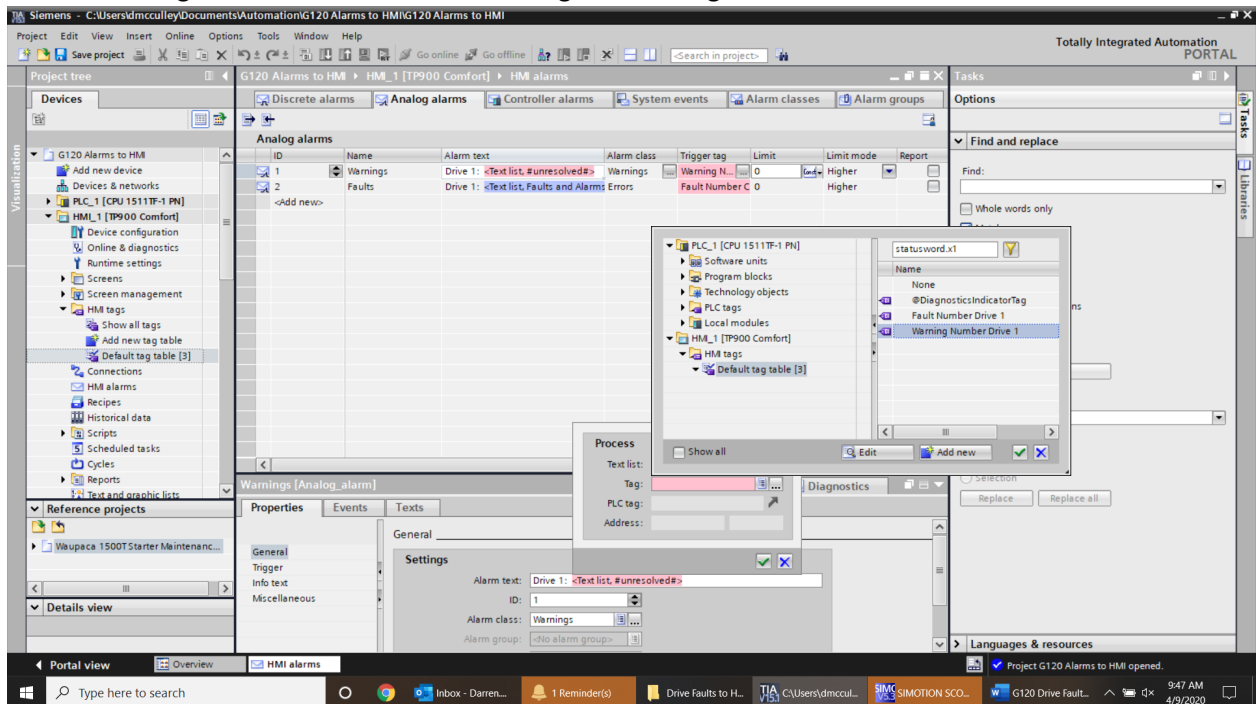
13. Click on the Text List icon and choose the Faults and Alarms text list.



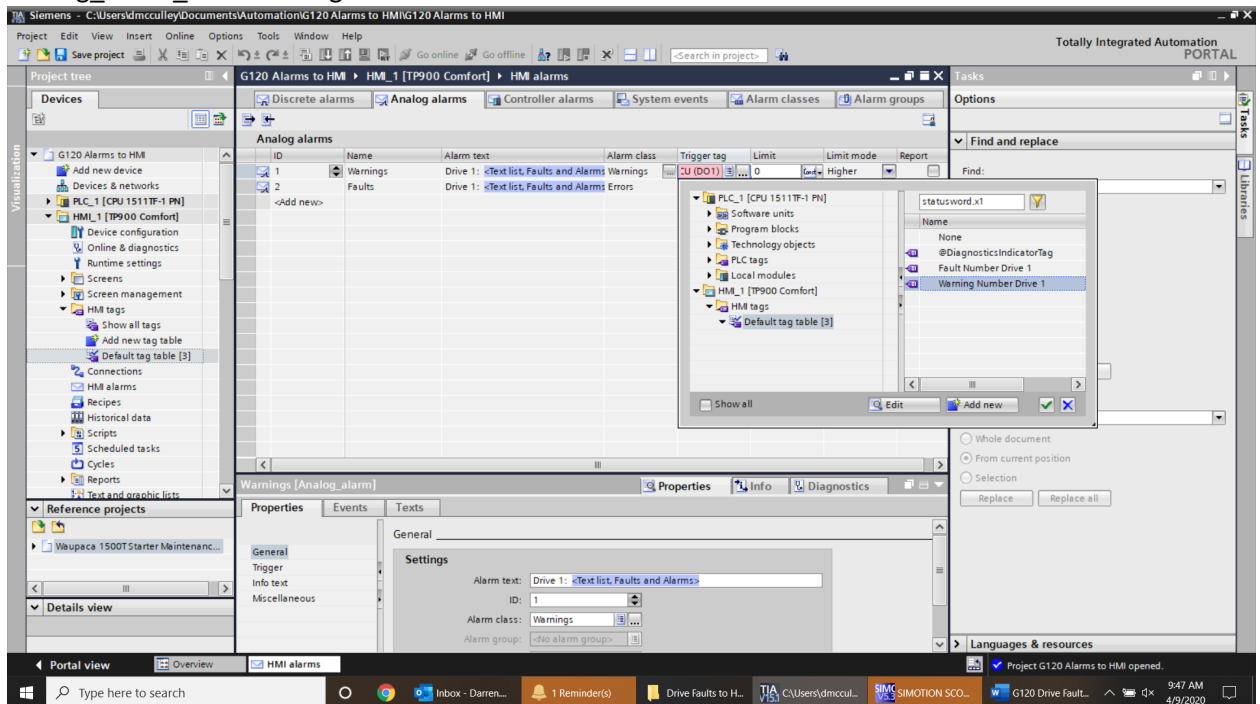
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14. Click on the tag choice and choose the Warning Number tag.



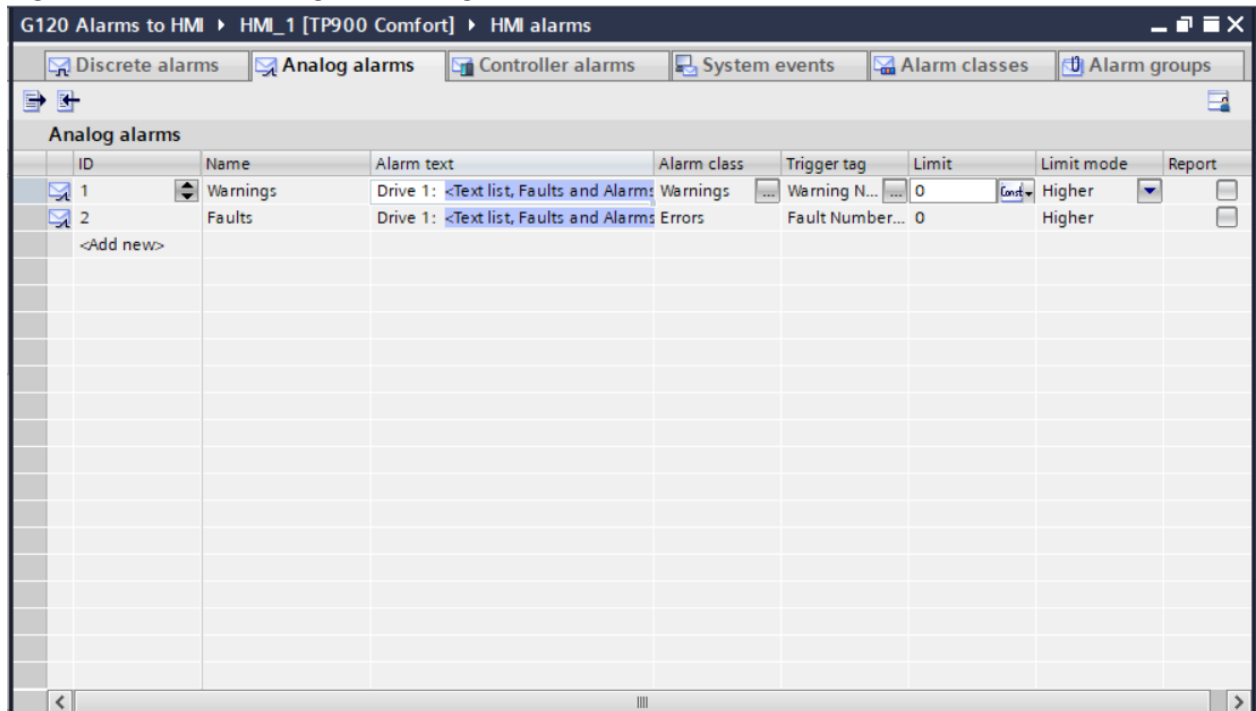
15. In the Analog Alarms tab choose the Trigger Tag as Warning Number. Rename the Analog_alarm_1 to Warnings. Set the Limit to Constant and enter a value of 0.



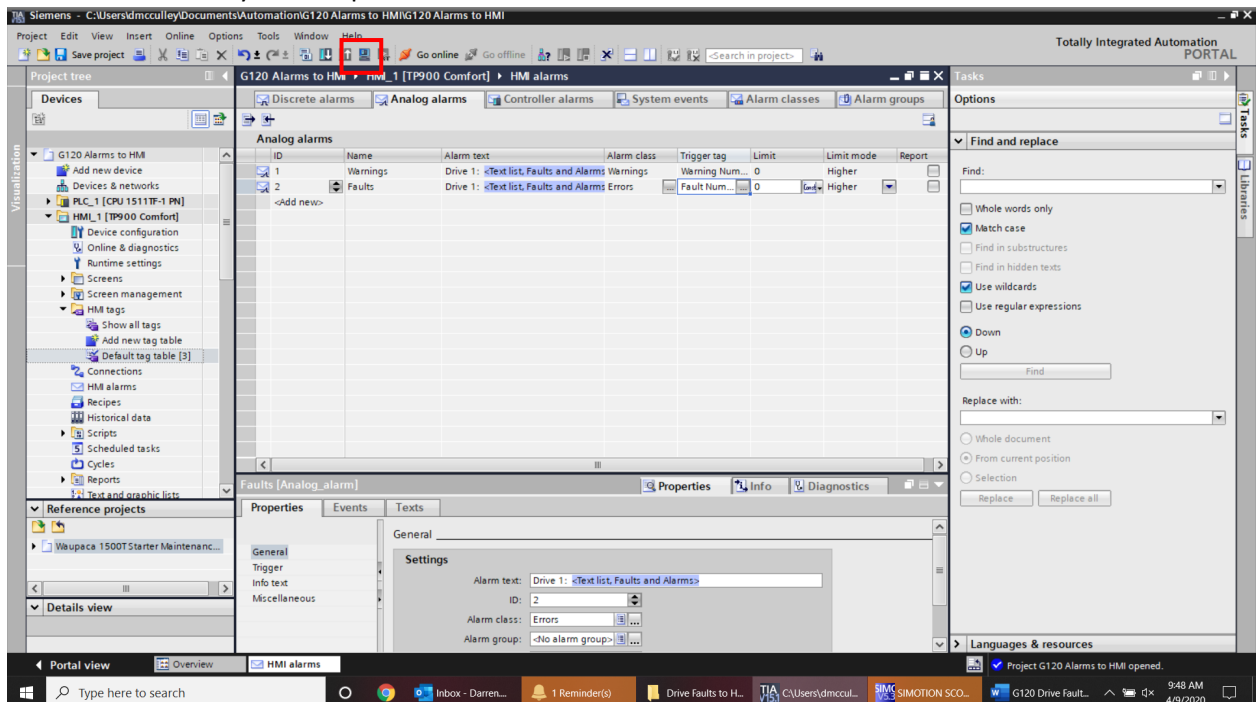
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16. Repeat the same steps but make sure to add Fault information as below using the Fault Number tag instead of the Warning Number tag:

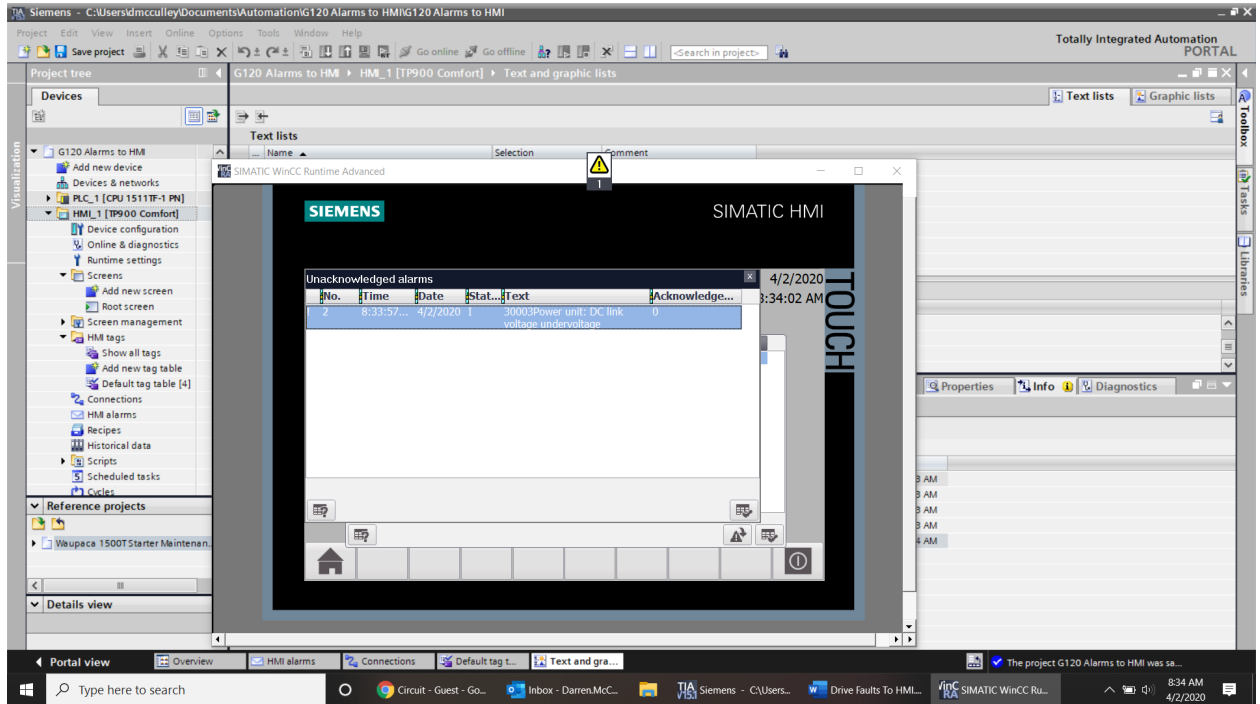


17. Save and compile your HMI. You can use HMI Simulation to test the application if you have your drive connected to your computer.



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18. I created a DC link undervoltage fault on my drive and you can see the alarm display on my simulated HMI.



19. You can setup the fault and alarm messages for multiple drives by adding another HMI connection with the correct drive address, setup appropriate tags and add more alarms and faults to the analog faults screen for the drives. Make sure to name the drive faults and alarms appropriately as in step 11.