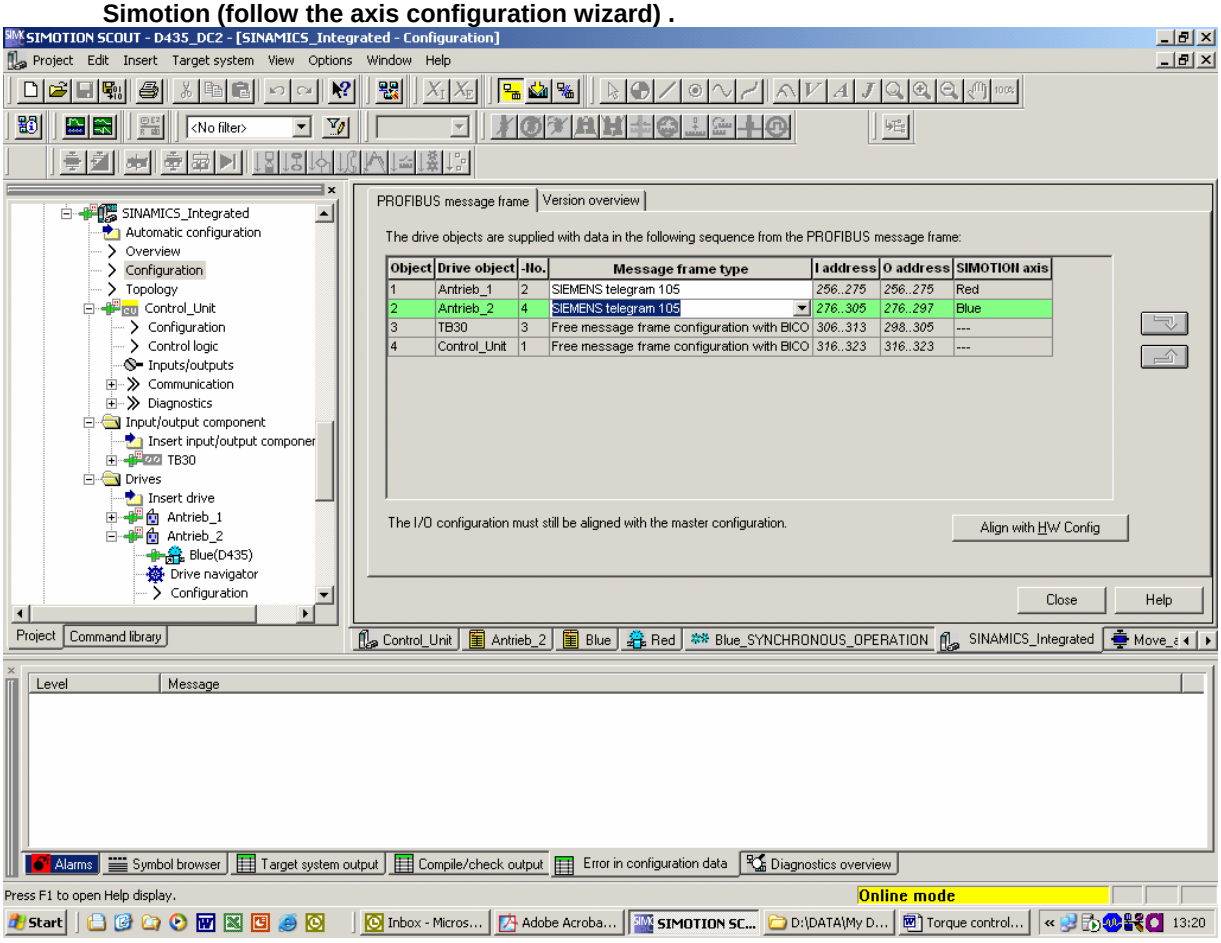
Running Sinamics Drives In Torque Control From Simotion

The Following is intended as a guide only on how to set up a Sinamics axis in Torque control when used with Simotion .

1) **You must first ensure that the axis you have configured is set up with a telegram type the support torque limitiation .Telegram types that support this are :-**
   a. **Message frame 105**
   b. **Message frame 106**
1) **Remember that these message frame types must be set in the Sinamics configuration (P922) , in the Sinamics intergrated config (see below) and in the axis configuration of Simotion (follow the axis configuration wizard) .**



2) **By selecting the message frame Siemens 105 or Siemens 106 in the sinamics , the parameterisation of the torque limits is preconfigured for you (connected)**
3) **You must now setup the scaling parameters in Sinamics for the torque limitation . The parameters to be set are :-**
   a. **P1544 – must be set to 16384 (profibus scaling)**
   b. **P1520 = Motor max torque (stall torque typically)**

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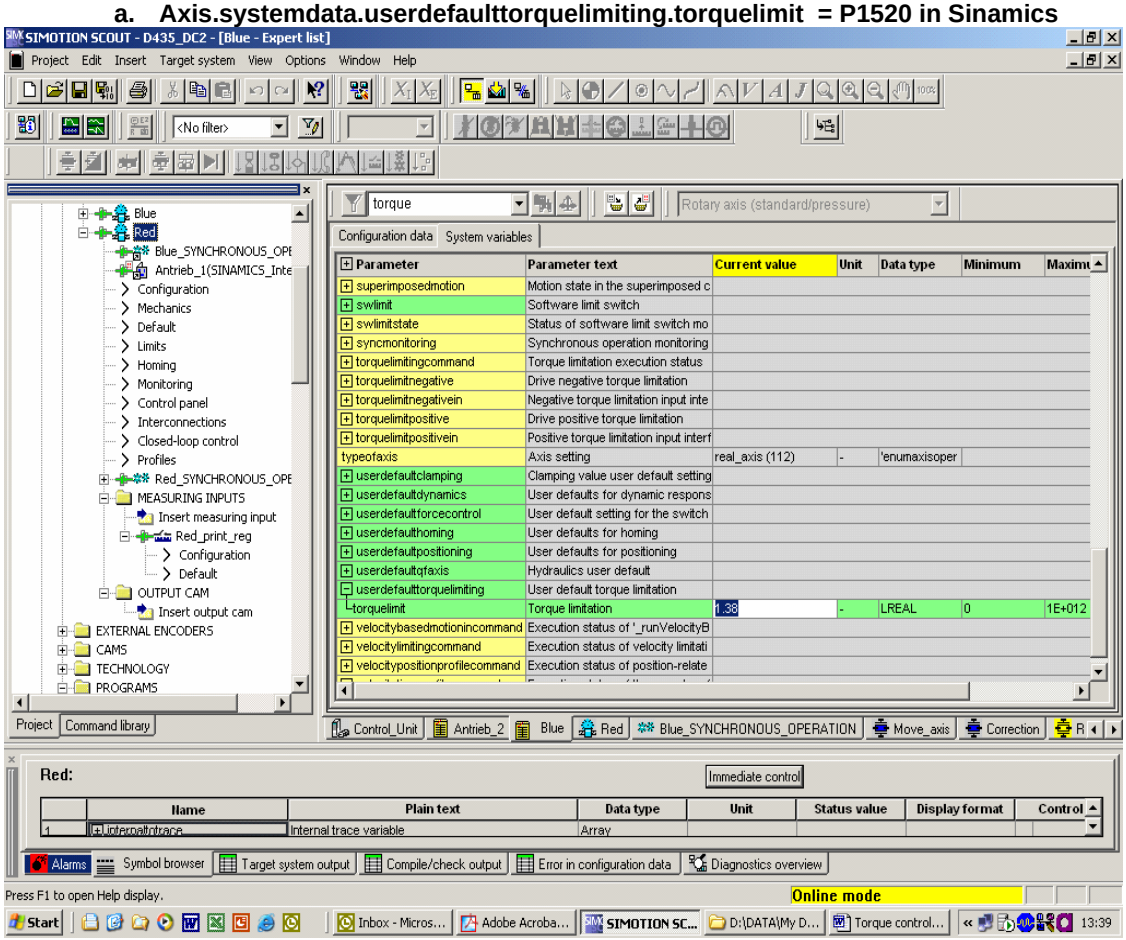
1) **You now need to set a couple of configuration data parameters for the axis in the Simotion Axis configuration expert list :-**
   a. **Axis.systemdata.userdefaulttorquelimiting.torquelimit = P1520 in Sinamics**



   b. **axis.configdata.typeofaxis.setpointdriverinfo.drivedata.maxTorque = P1520 in Sinamics**

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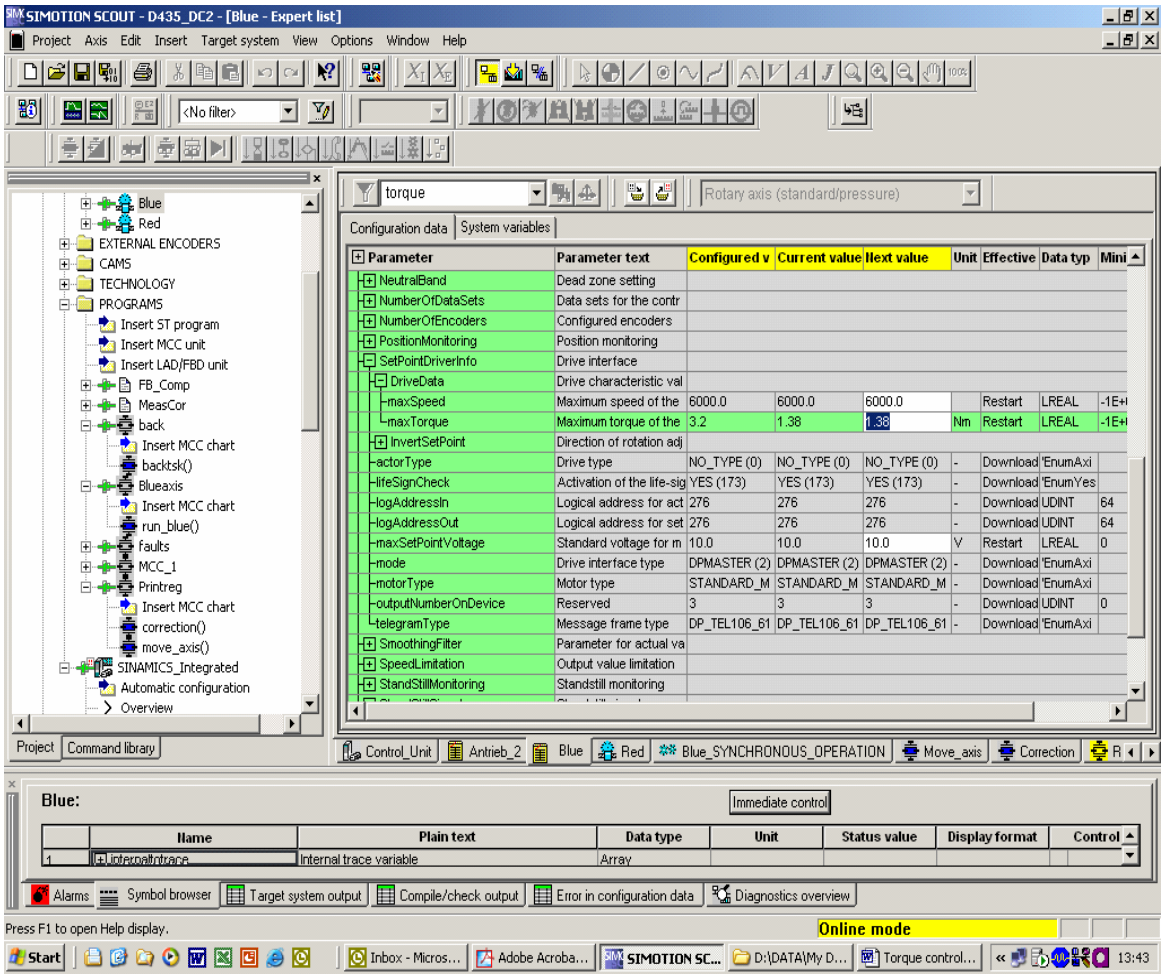

1) **In your Simotion project now , to activate a torque limit , there is an MCC command called "Switch on Torque Limitation" .**
   a. **Example of use :-**

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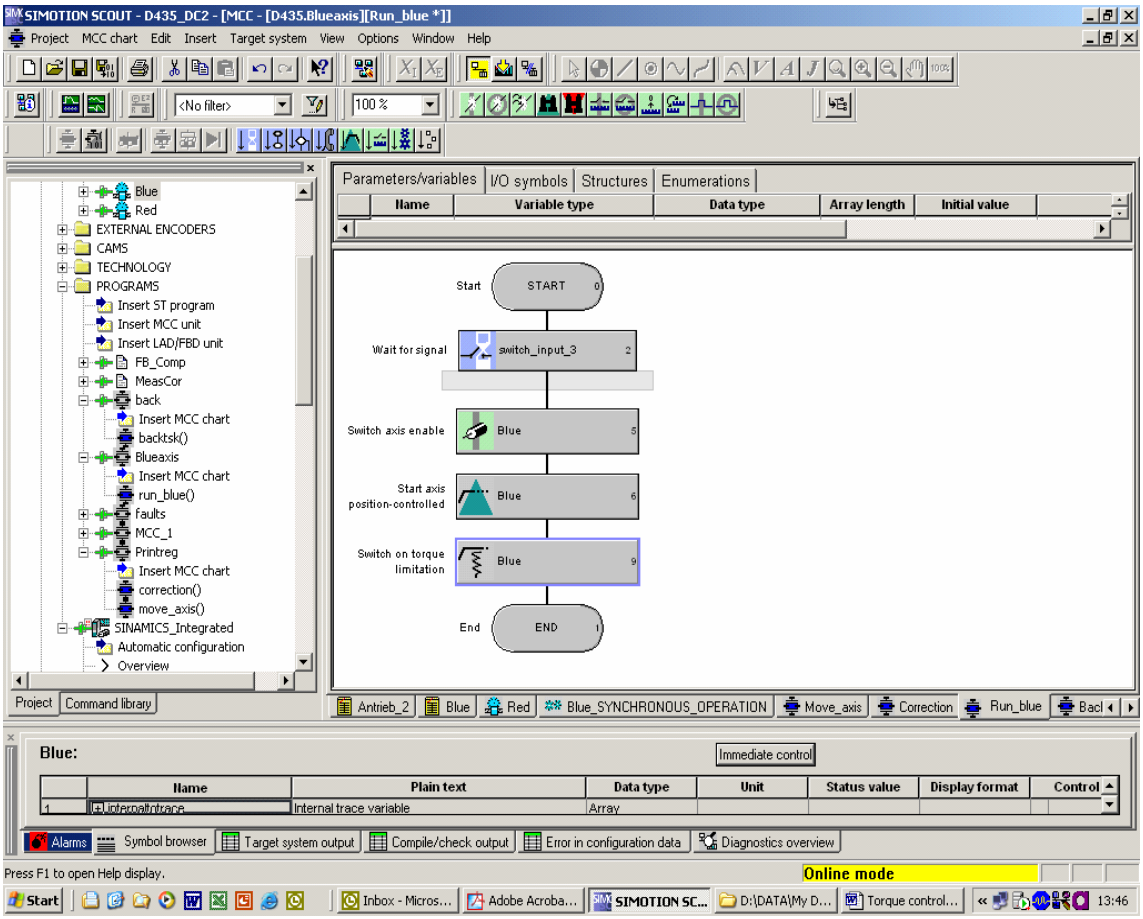

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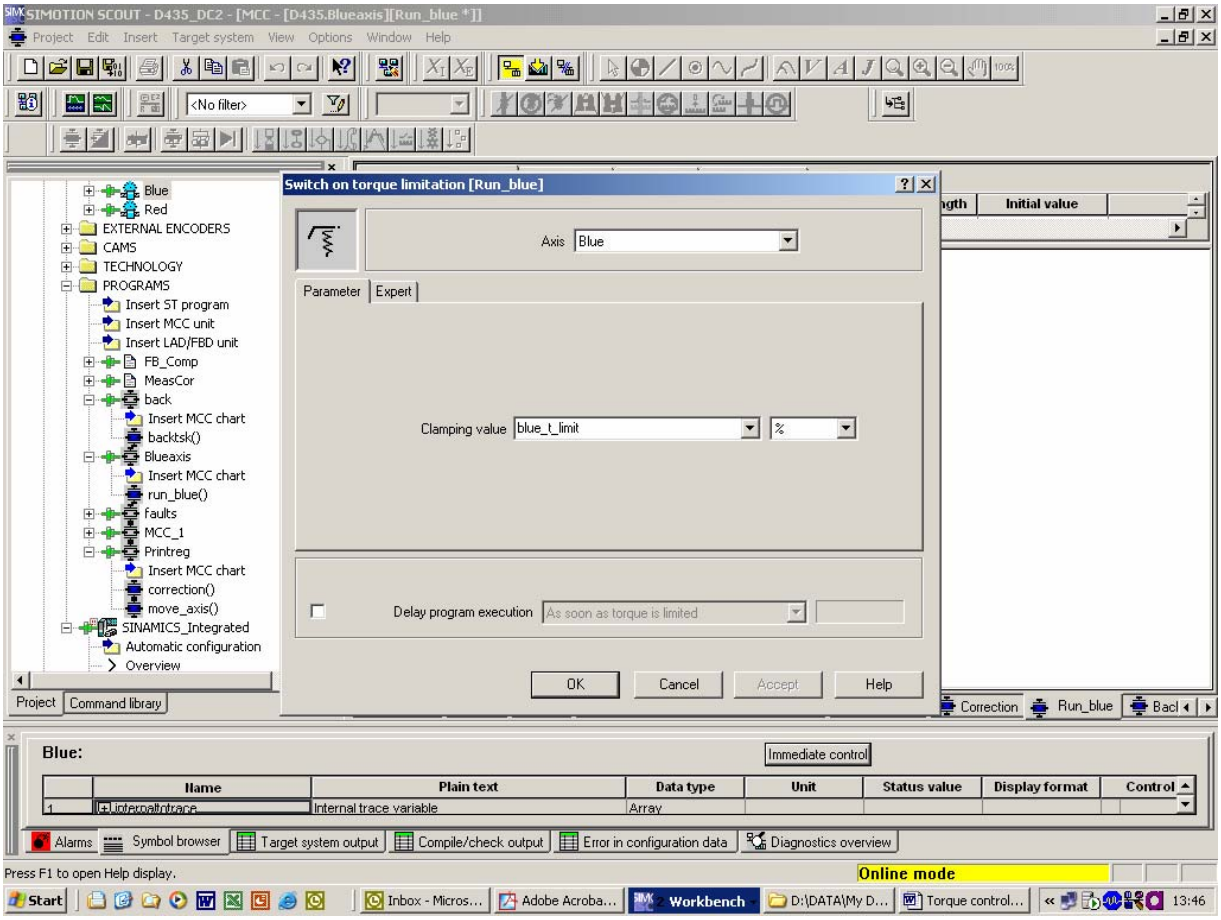
7) Inside this block you can now specify the torque limit in Nm or in % of max motor torque . This torque limit can be a fixed value entry , or a variable from your project .



Note :-

This command can be used in an MCC task . If you need to change the torque limit value constantly (according to a variable such as roll diameter for example) then you can call this block cyclicly in the background task , just be sure to untick the delay program execution tick box at the bottom of the command dialog box , as above !

If the command is restarted (i.e you change the torque limit before you turn off the torque limit control) you will get an error reaction (

Information: Reset 01/22/92, 04:25:30:325 am D435 : Blue Information 30002 : Command aborted (reason: 2, command type: 1018)

This error is due to the restarting of the torque limitation command , an can easily be masked out (note this is actually just an information message , and not an axis error) .

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TRQRED (torque reduction)

This setpoint can be used to reduce the torque limit currently active on the drive.

When you use manufacturer-specific PROFIBUS telegrams with the TRQRED control word, the signal flow is automatically interconnected up to the point where the torque limit is scaled.

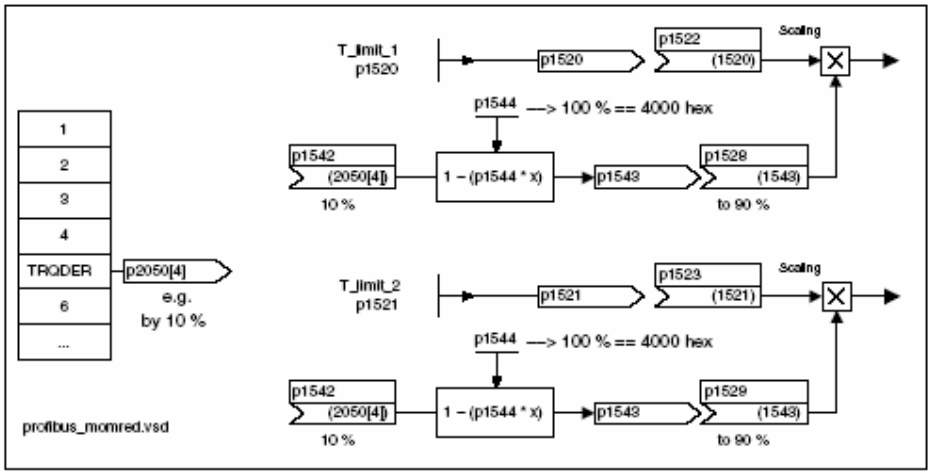

Fig. 4-9 TRQRED setpoint

TRQRED specifies the percentage by which the torque limit is to be reduced. This value is converted internally to the amount by which the torque is to be reduced and normalized via p1544.

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