Quick Guide: PROFINET IO Device for Doosan Robot

Used devices:

- SIEMENS s7-1200(CPU 1217C DC/DC/DC) & TIA portal v15.1
- Doosan Robot M1013(M2.3.1)

Used files: (all files are available for download at robotlab.doosanrobotics.com)

- GSDML
- pnio_io_table.pdf
- DoosanRobot_PNIO.udt

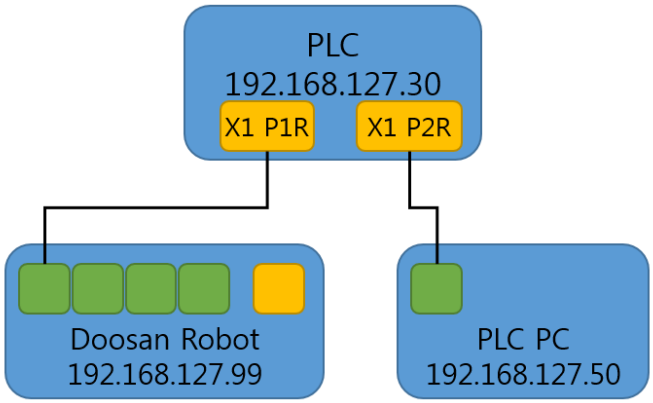
0. Basic

When turn on robot controller, PROFINET IO Device function operates in the background. Therefore, no settings on TP are required.

!!!Note: IP address of PROFINET Device is independent of the IP address of Robot Controller. So IP address for PROFINET Device is set in the TIA portal.

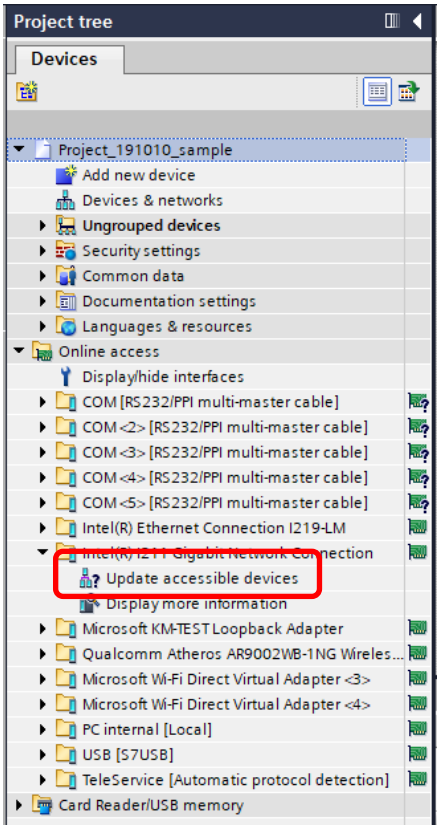
!!!Note: There is internal fixed IP address (192.168.137.100) inside the robot controller in M2.3.1. It is not recommended to connect the PLC and several robot controllers using M2.3.1. This is not a problem since M2.4 (delete the internal IP address). If you must use M2.3.1, it is recommended not to use the 192.168.137.xxx band.

Please refer to the picture below

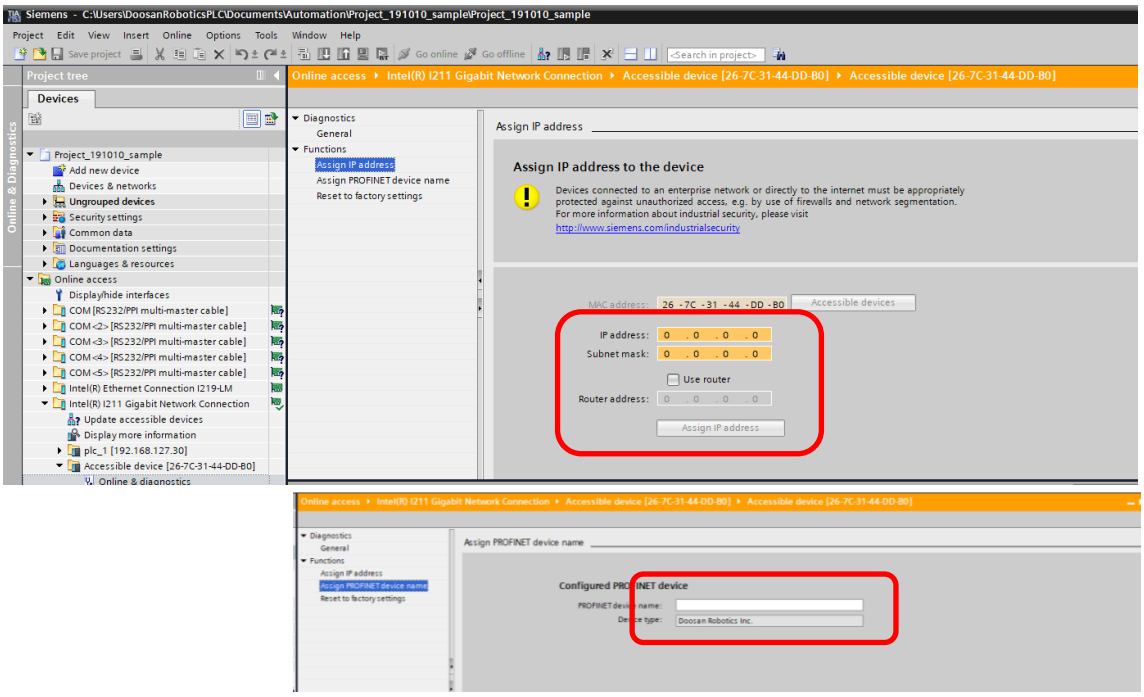


1. TIA portal : Assign IP address & PROFINET device name

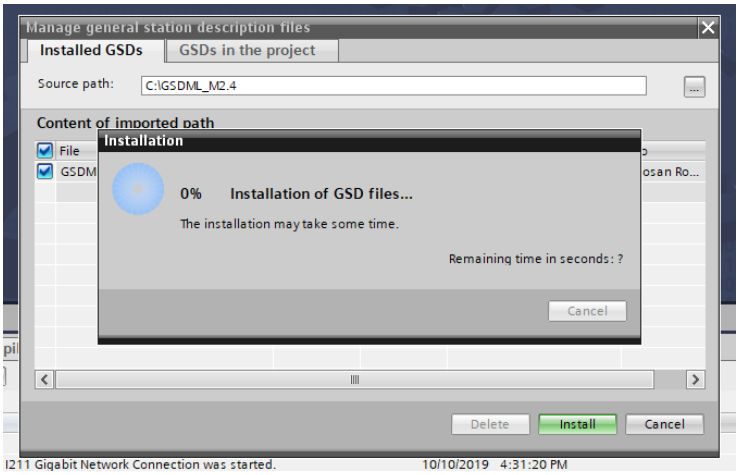
   - Click the [Online Access – Network device – Update accessible devices] to find a device.



   - Select the device and assign IP address & PROFINET device name(doosan-robot).

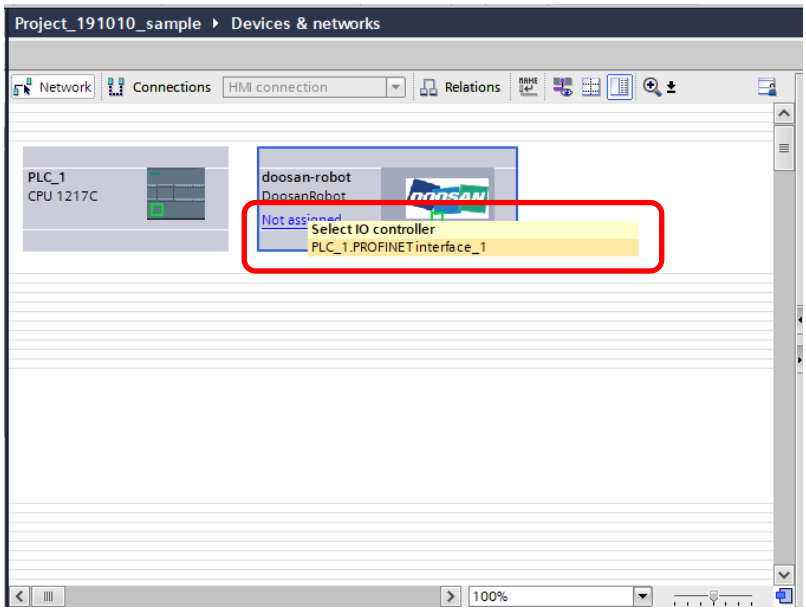


2. Install the Doosan Robot's GSDML file into the TIA portal.

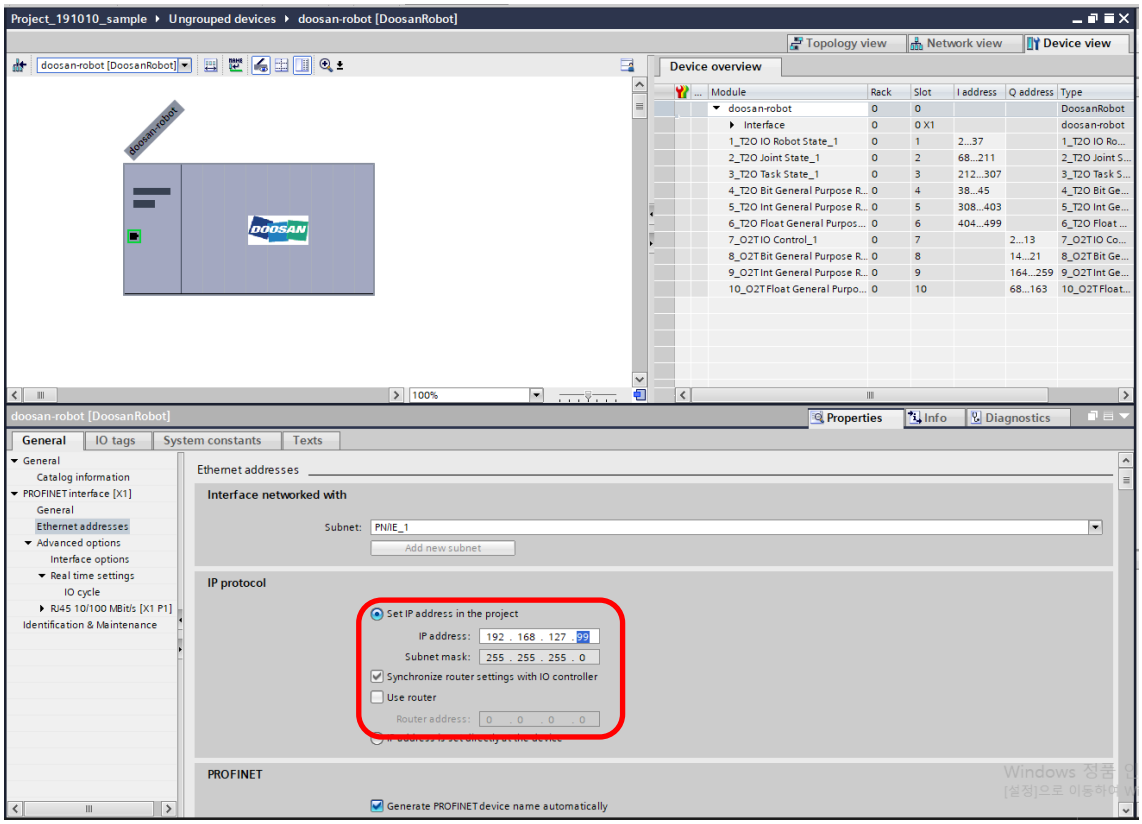


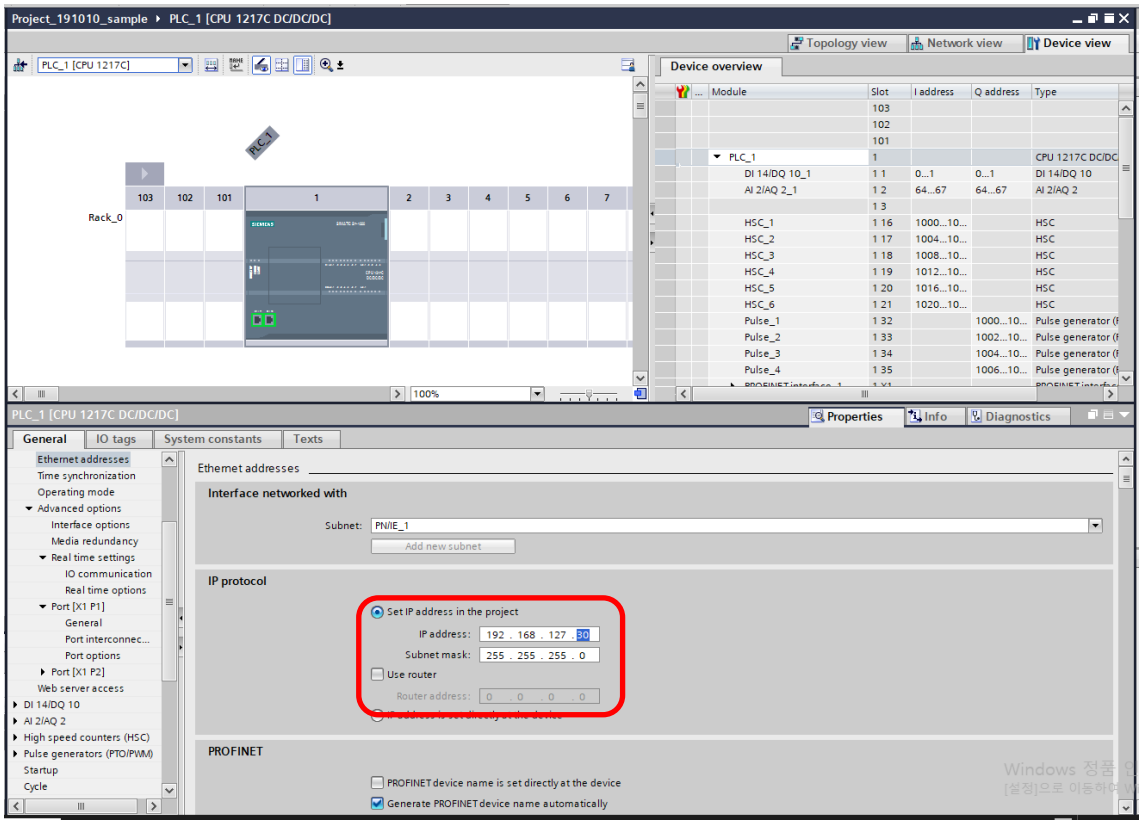
3. Add (doosan-robot) device.

   On the (doosan-robot), click the "Not assigned" and assign the PLC.

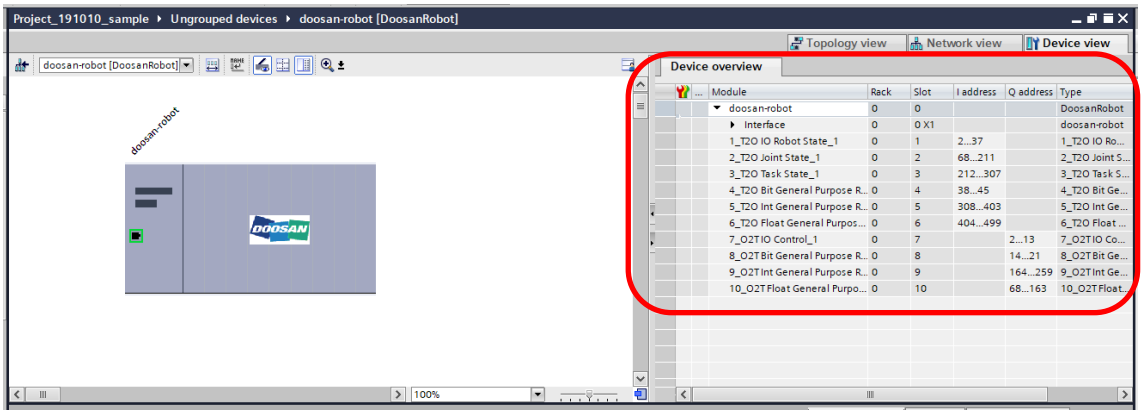


4. Set the IP address for (doosan-robot) & PLC.

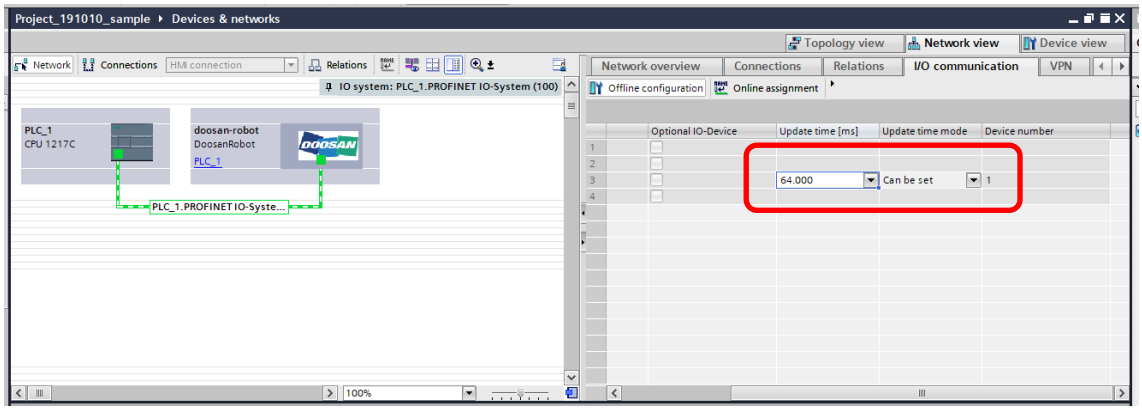




5. Add the desired I/O module for (doosan –robot)

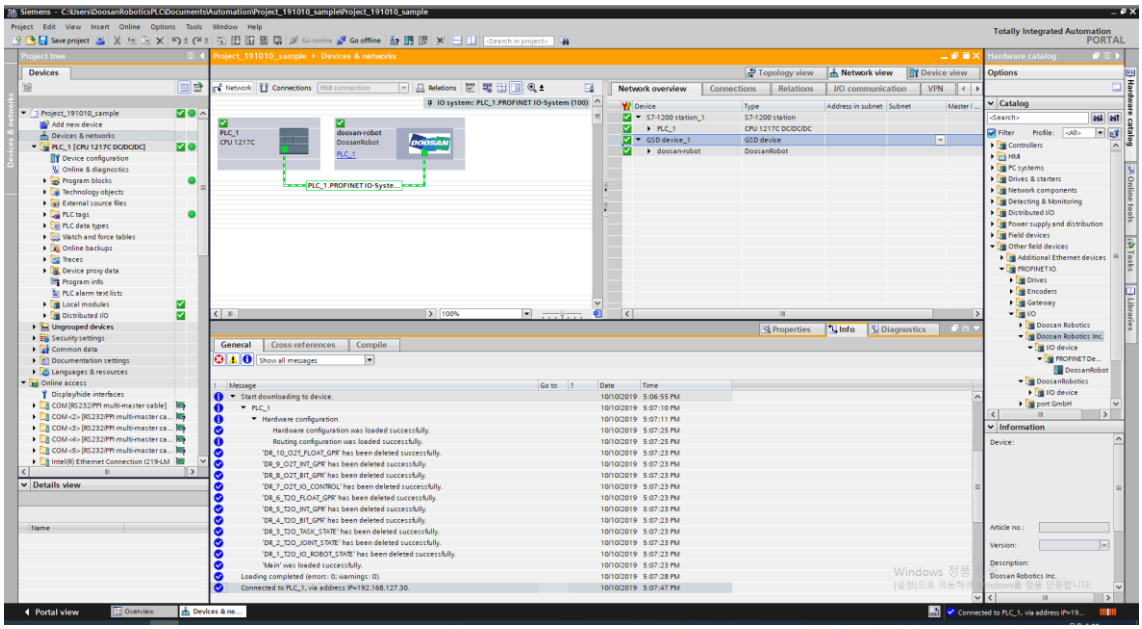


6. Modify update time. (Higher than 64ms is strongly recommended)



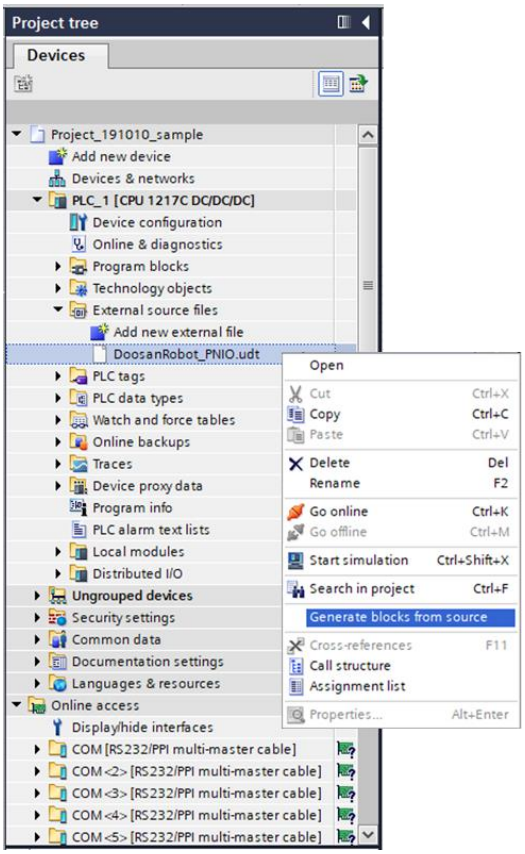
7. Compile & Download hardware configuration to the PLC.

8. Go online on the PLC

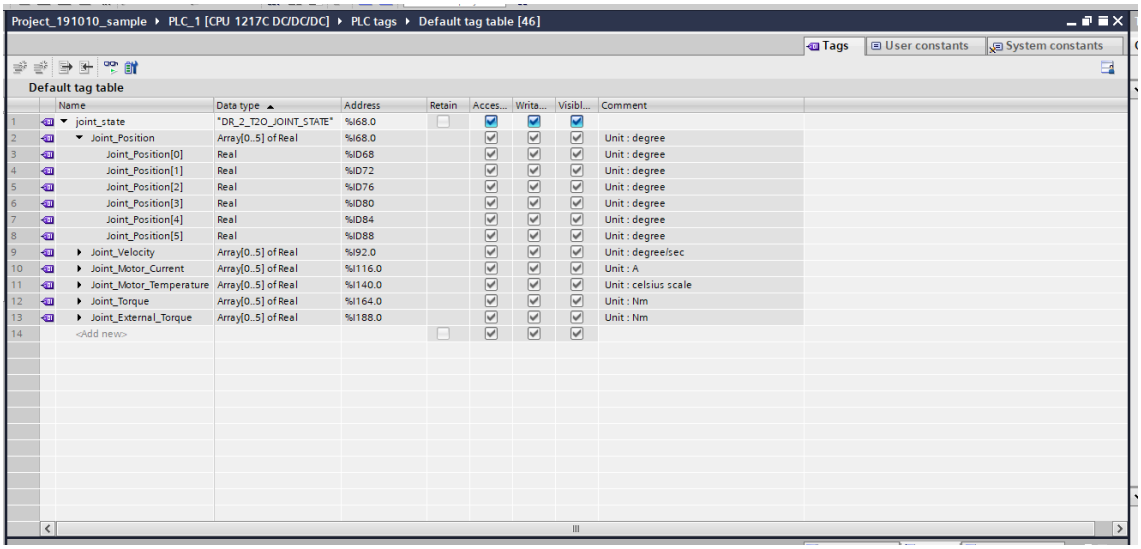


[Next step is for checking data]

9. UDT import & generate block from source



10. Make tag table



11. Swap for 4byte Data

e.g) DR_1_T2O_IO_ROBOT_STATE : Analog Input/Output 0/1

DR_2_T2O_JOINT_STATE : All Data

DR_3_T2O_TASK_STATE : All Data

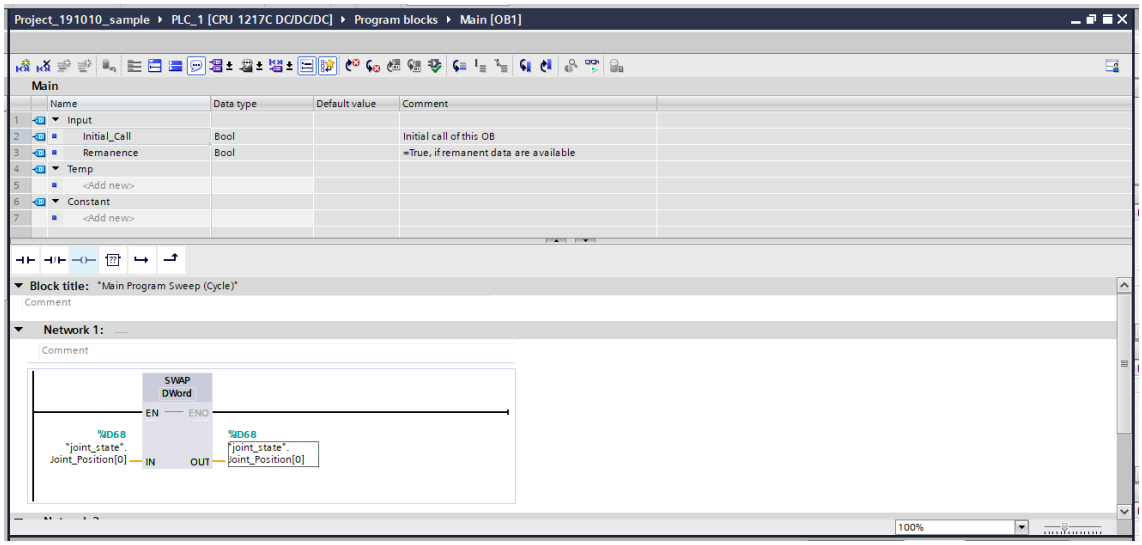
DR_5_T2O_INT_GPR(General Purpose Register) : All Data

DR_6_T2O_FLOAT_GPR(General Purpose Register) : All Data

DR_7_O2T_IO_CONTROL : Analog Output 0/1

DR_9_O2T_INT_GPR(General Purpose Register) : All Data

DR_10_O2T_FLOAT_GPR(General Purpose Register) : All Data



12. Check Data(After Compile – Download to Device – Go Online)