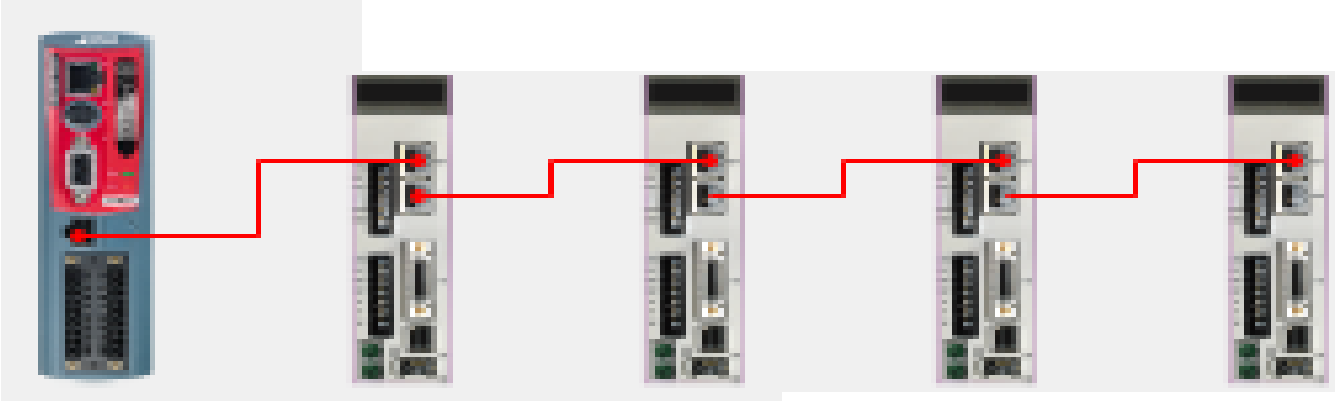
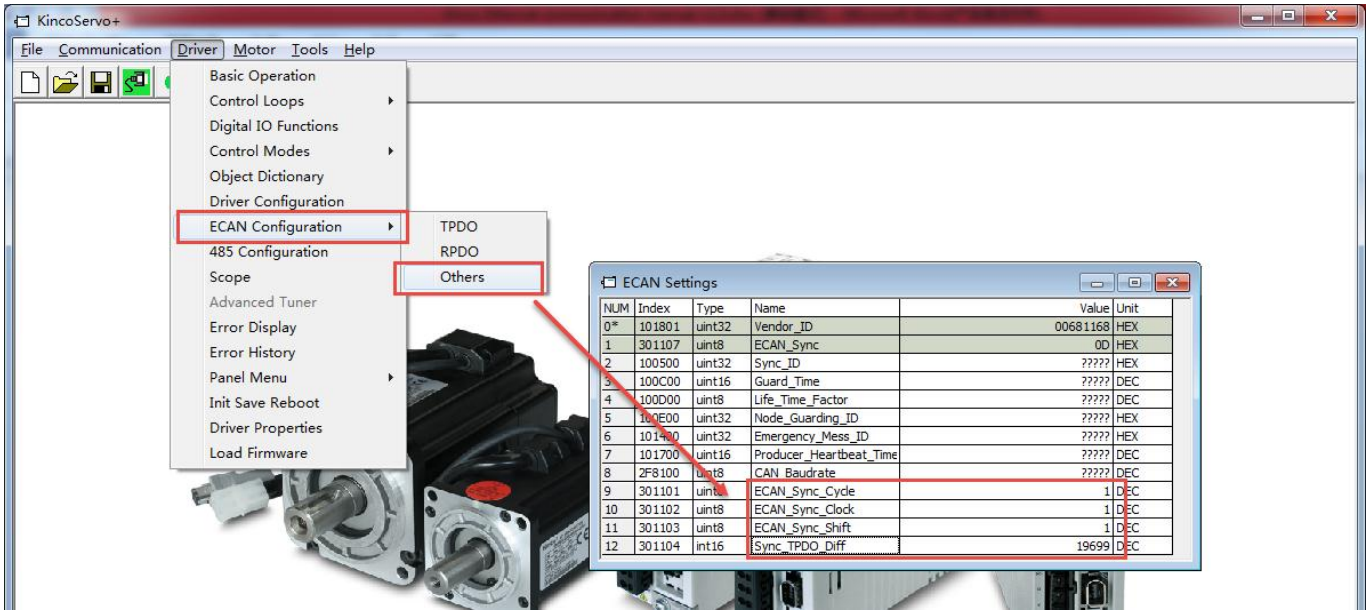
Ethercat communication guide between Trio and Kinco Servo

1. Devices connection

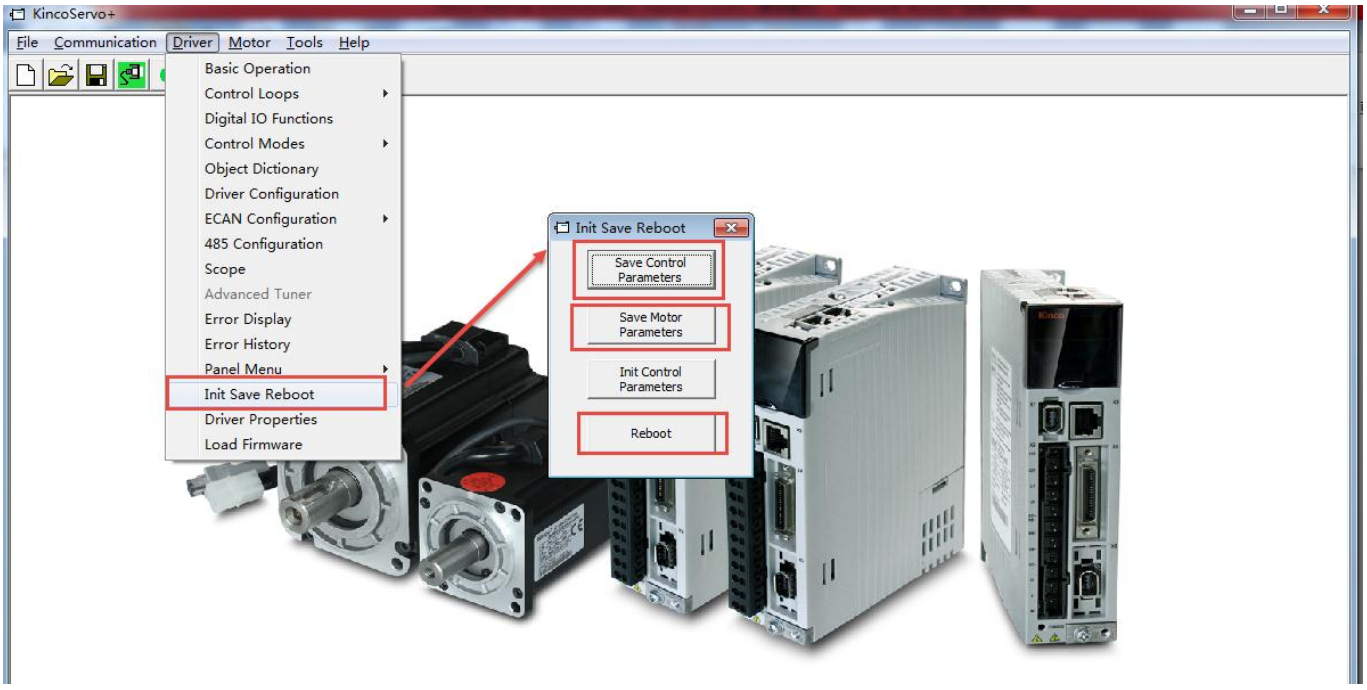


2. Servo setting

Set synchronizing period of servo driver first. Make sure synchronous clock mode (ECAN_Sync_Clock) is opened and synchronous cycle (ECAN_Sync_Cycle) = 2ms (value=1). Recommend to use 1ms (value=0) or 2ms (value=1). For 4ms and 8ms, they lose the signification of using Ethercat. Servo supports 1,2,4,8ms synchronizing period only, even controller can support more. Synchronous point offset (ECAN_Sync_Shift) is used to adjust the shaking phenomenon when synchronous signal of controller is different with command signal. Normally, recommend to set to 1. It means 62.5us synchronous signal shift at servo side after received command signal. The last parameter is synchronous signal lost counting. It counts the times of synchronous signal from controller to servo.



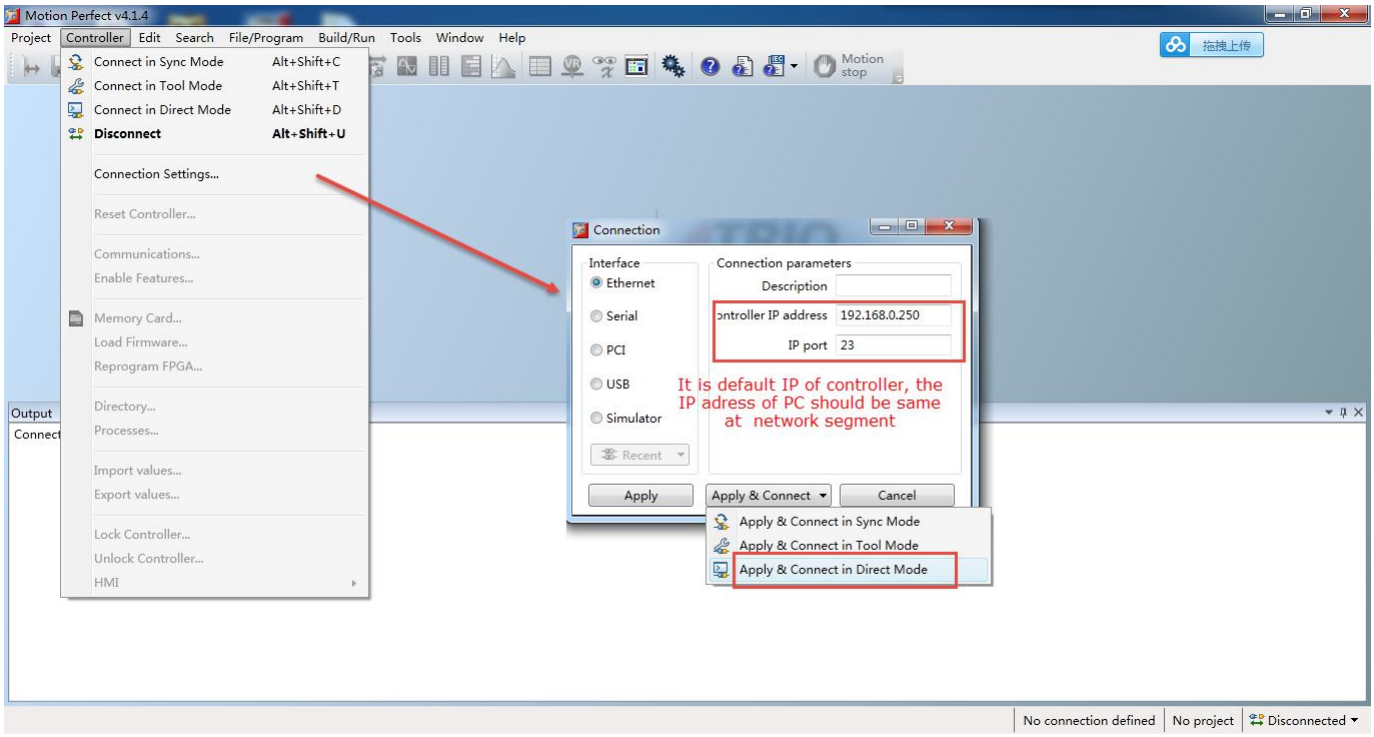
Above all parameters setting are valid only after saving control parameters and motor parameters and reboot.



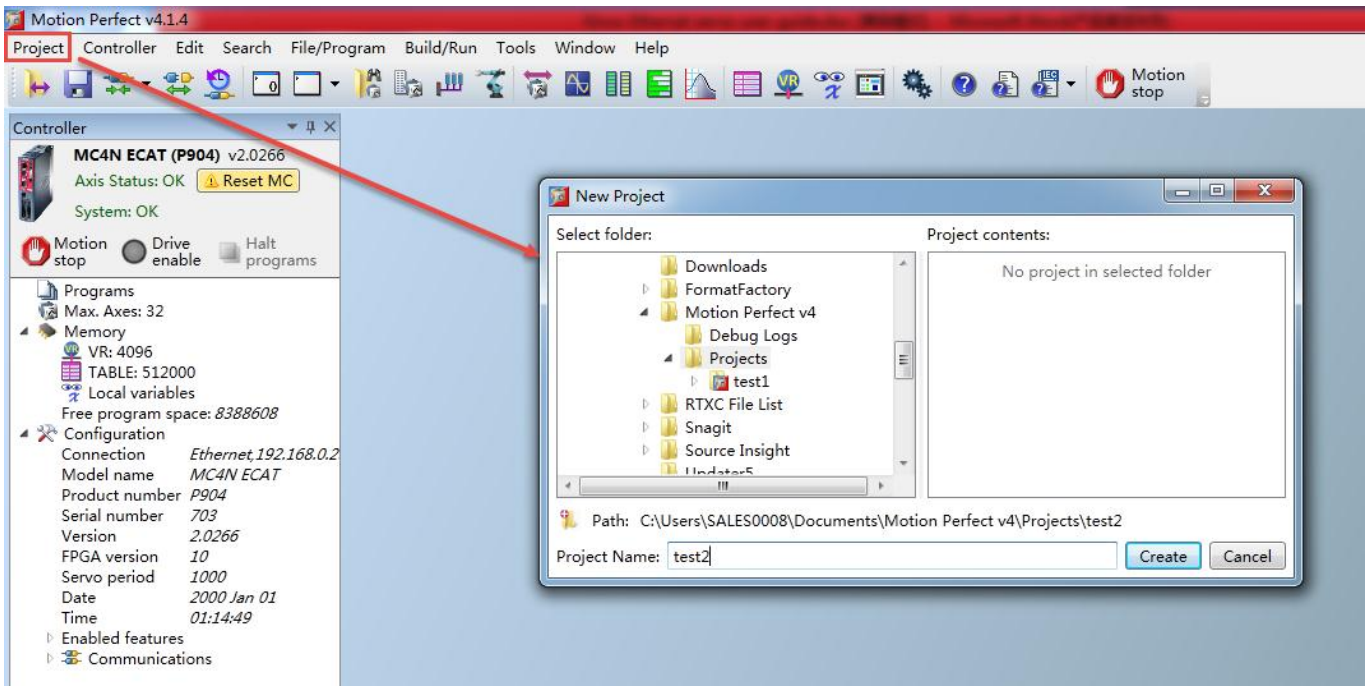
During control servo, if it needs to adjust the performance of servo PI parameters and other parameters, please refer to servo user manual.

3. Parameters setting in controller

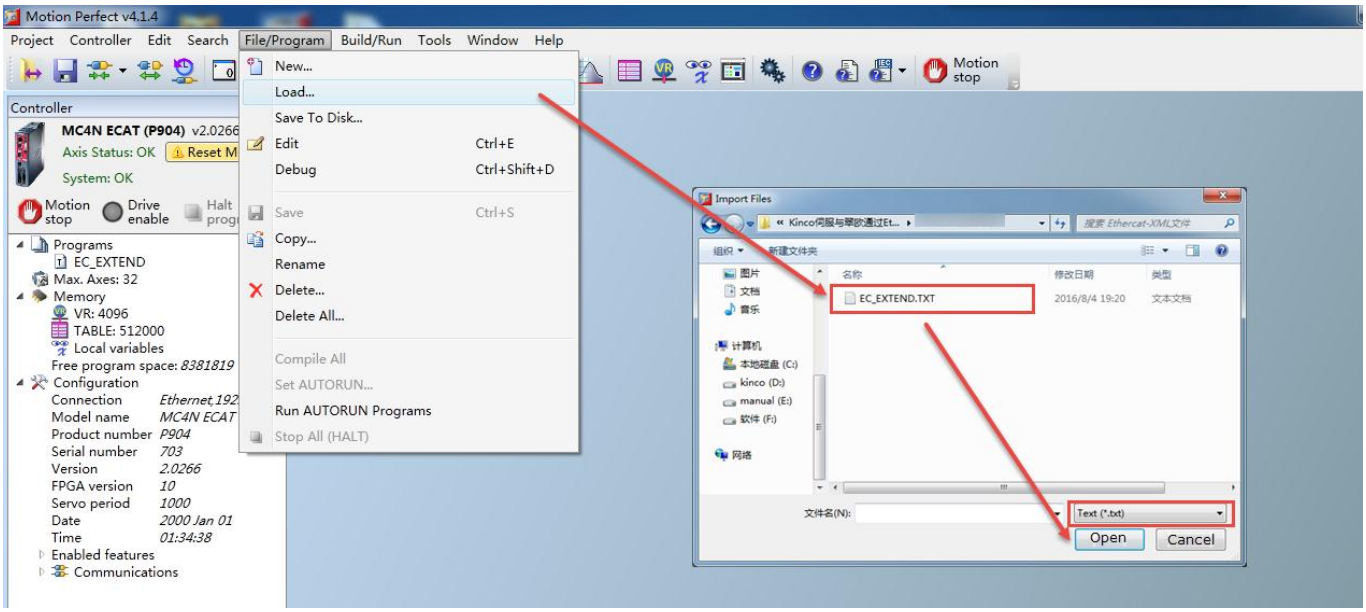
Use Ethernet cable to connect PC and controller and open Motion Perfect V4 software and choose Direct Mode for connection.



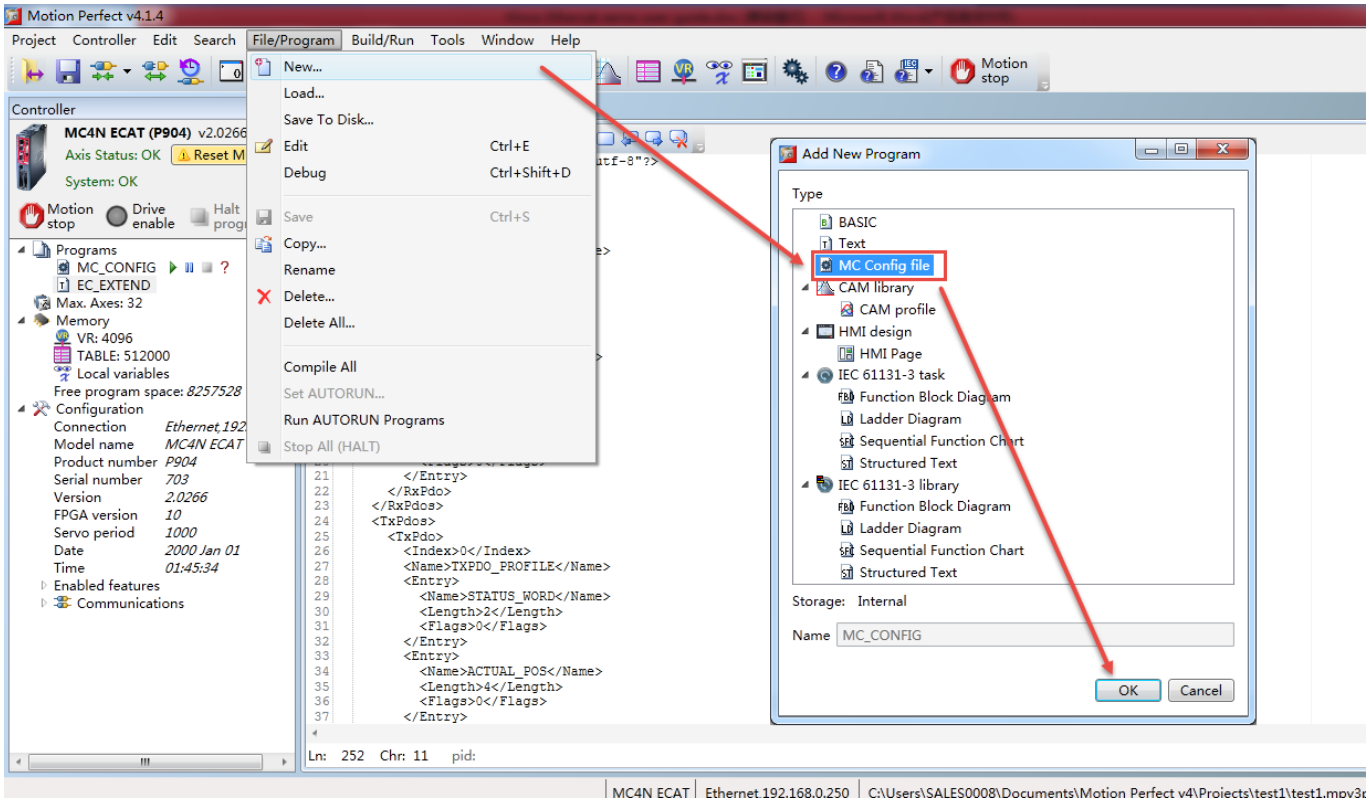
Click Project→New... to create a new project.



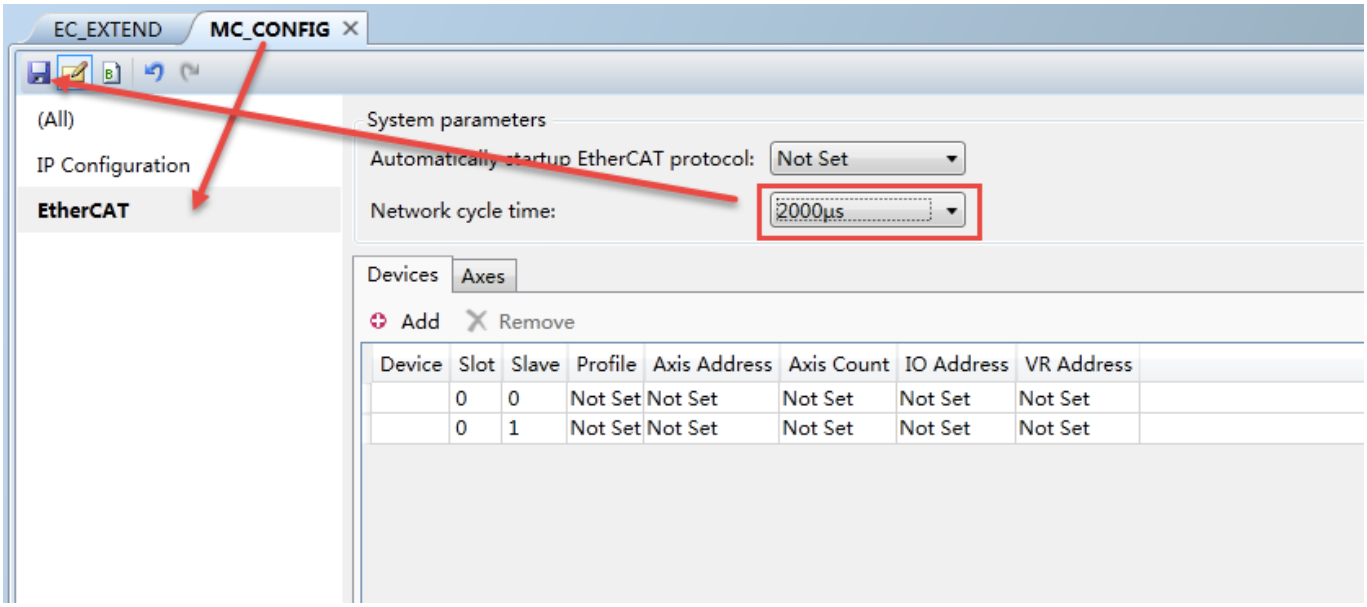
After created the project, software will change to sync mode automatically. First, import slave information file, while Trio controller doesn't support import XML file directly, the slave information file needs to be written already in software when the software is released. Before unsupported, use below guide to import slave information file EC_EXTEND.TXT. This file can be downloaded in Kinco website.



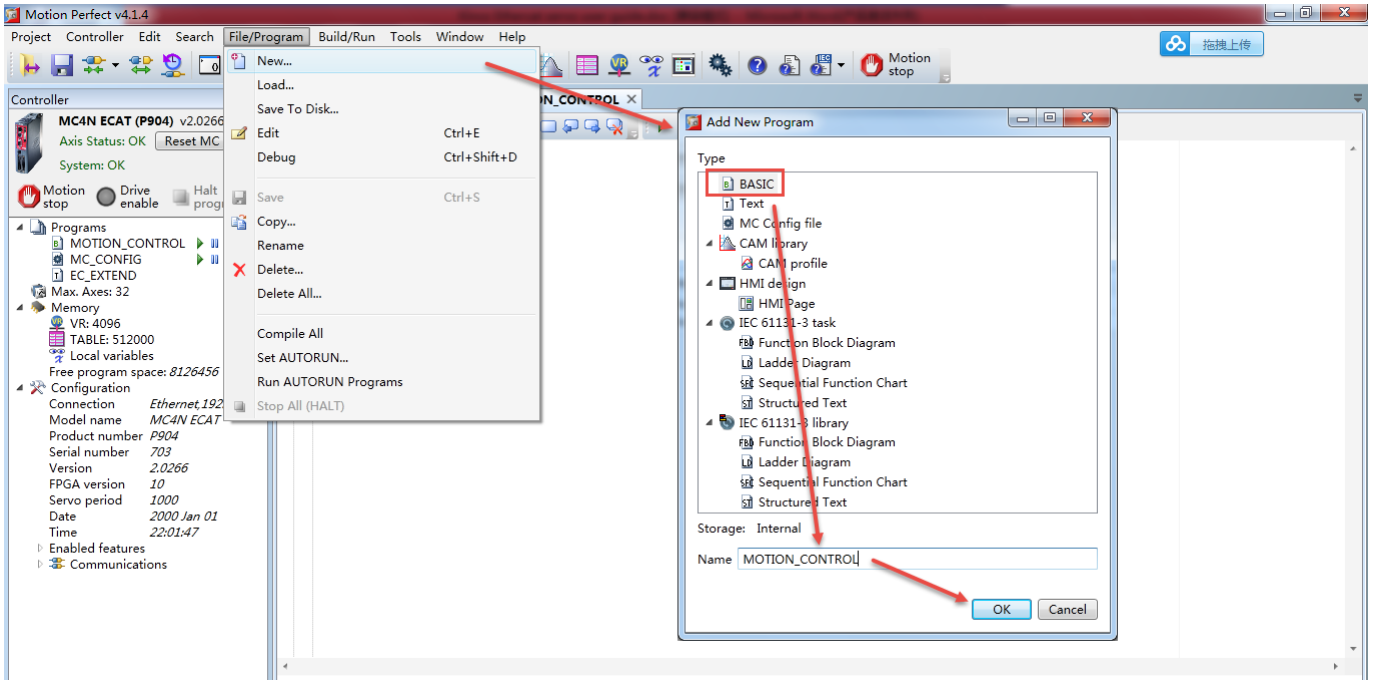
Create MC_Config file as below.



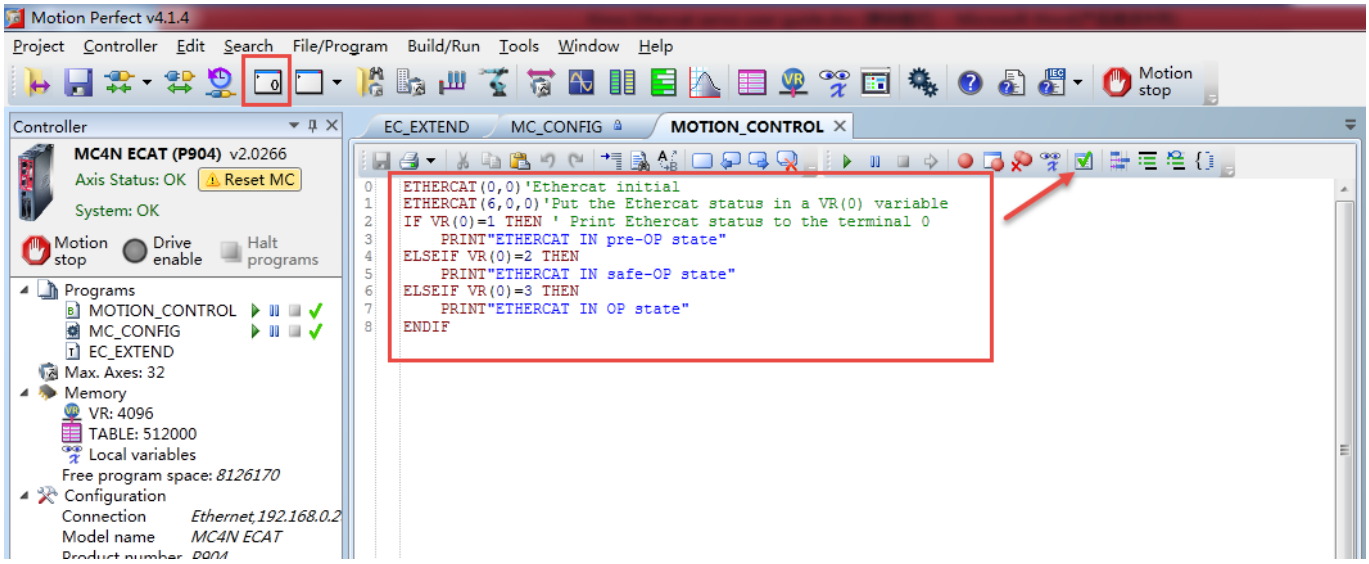
Set sync cycle time in MC_Config and then save it. The time must be same with servo driver. The others parameters can be set as default and please refer to related user manual for more details.



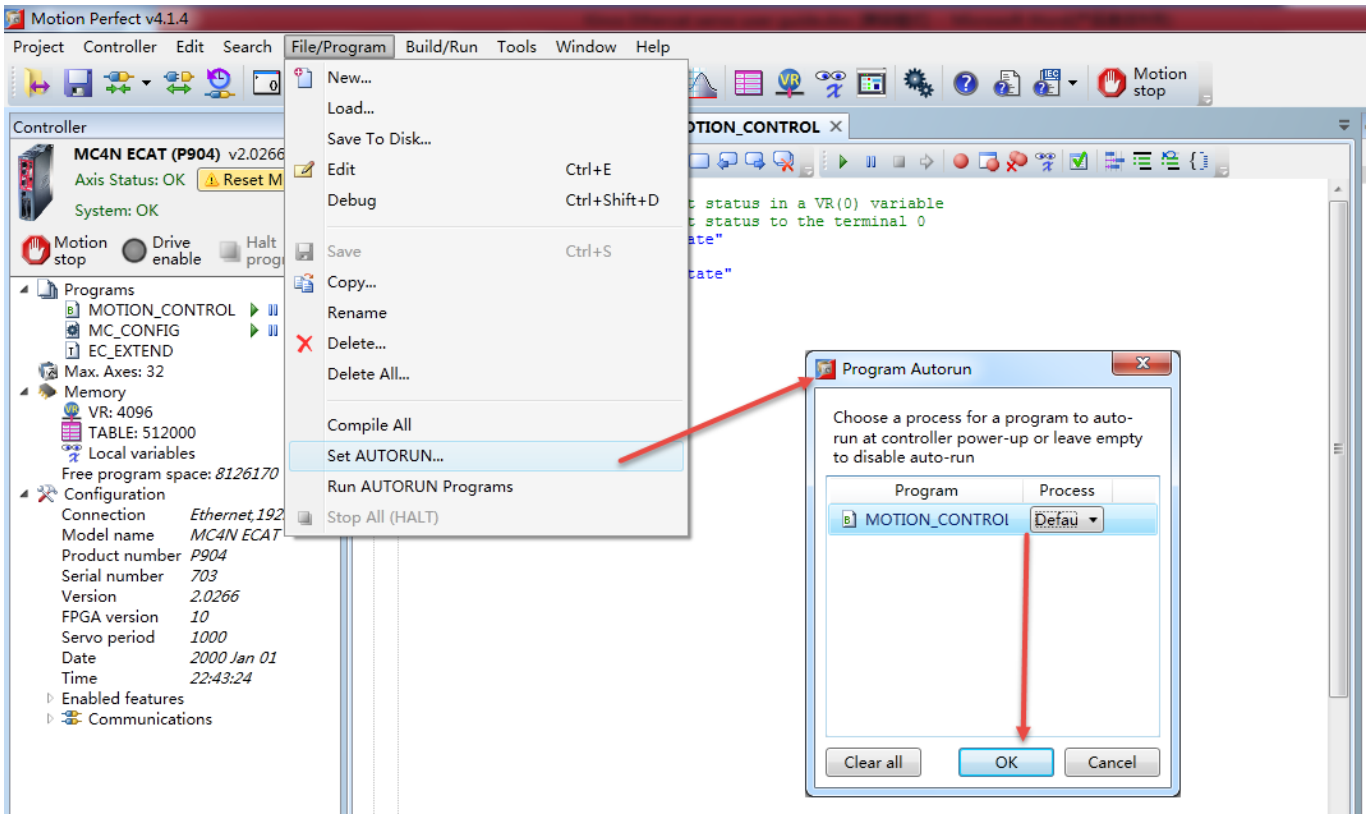
Create a Basic program as below steps of arrow.



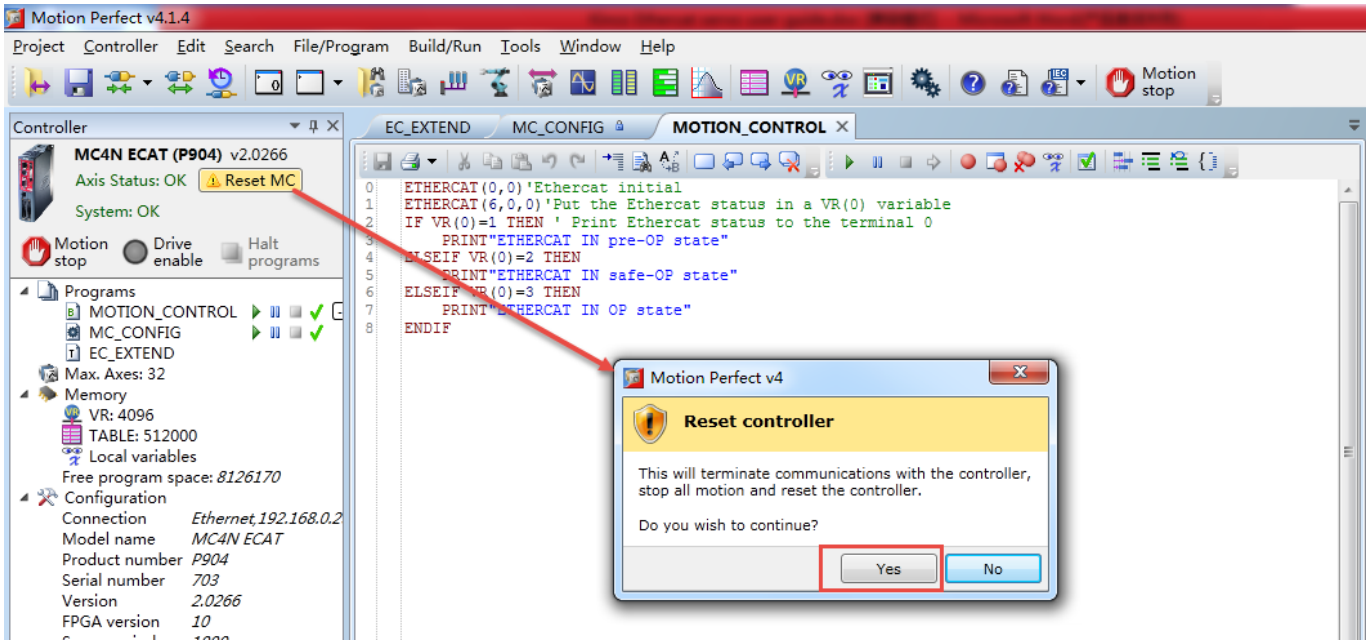
Write a Ethercat initial program then save and compile. Finally, open a terminal window on channel 0 to display related information.



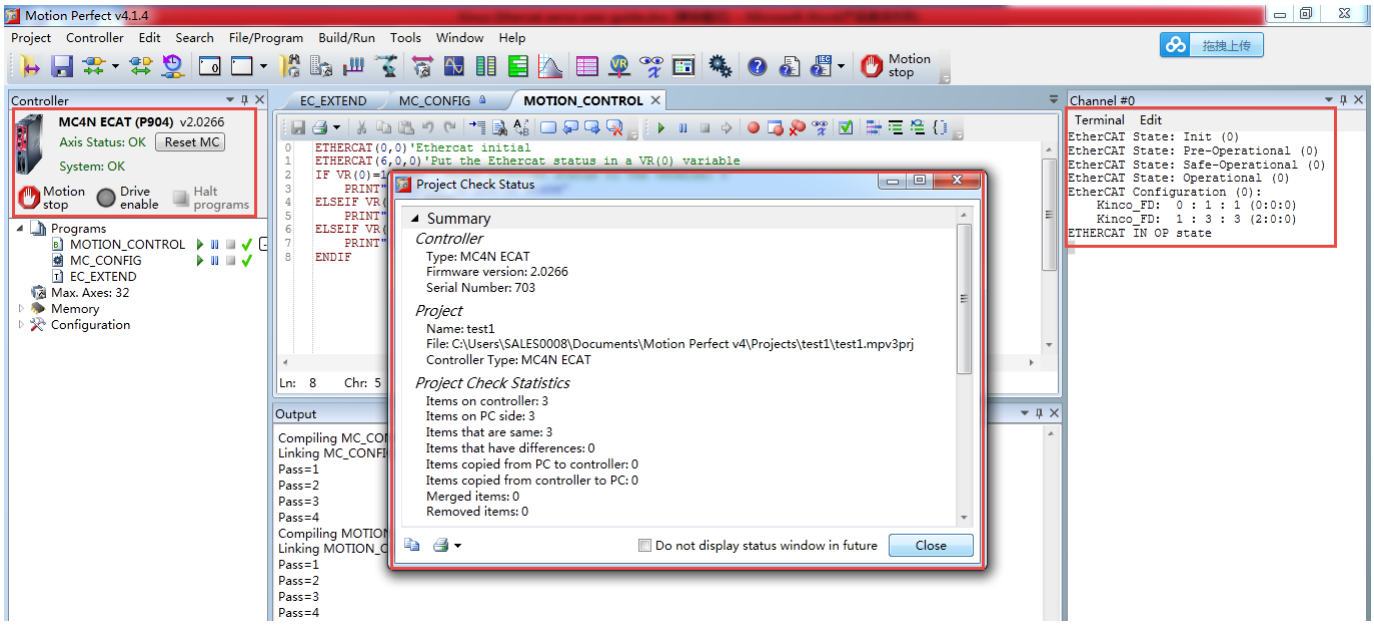
Set auto run for this program.



Reset motion controller to apply new configured information and program.

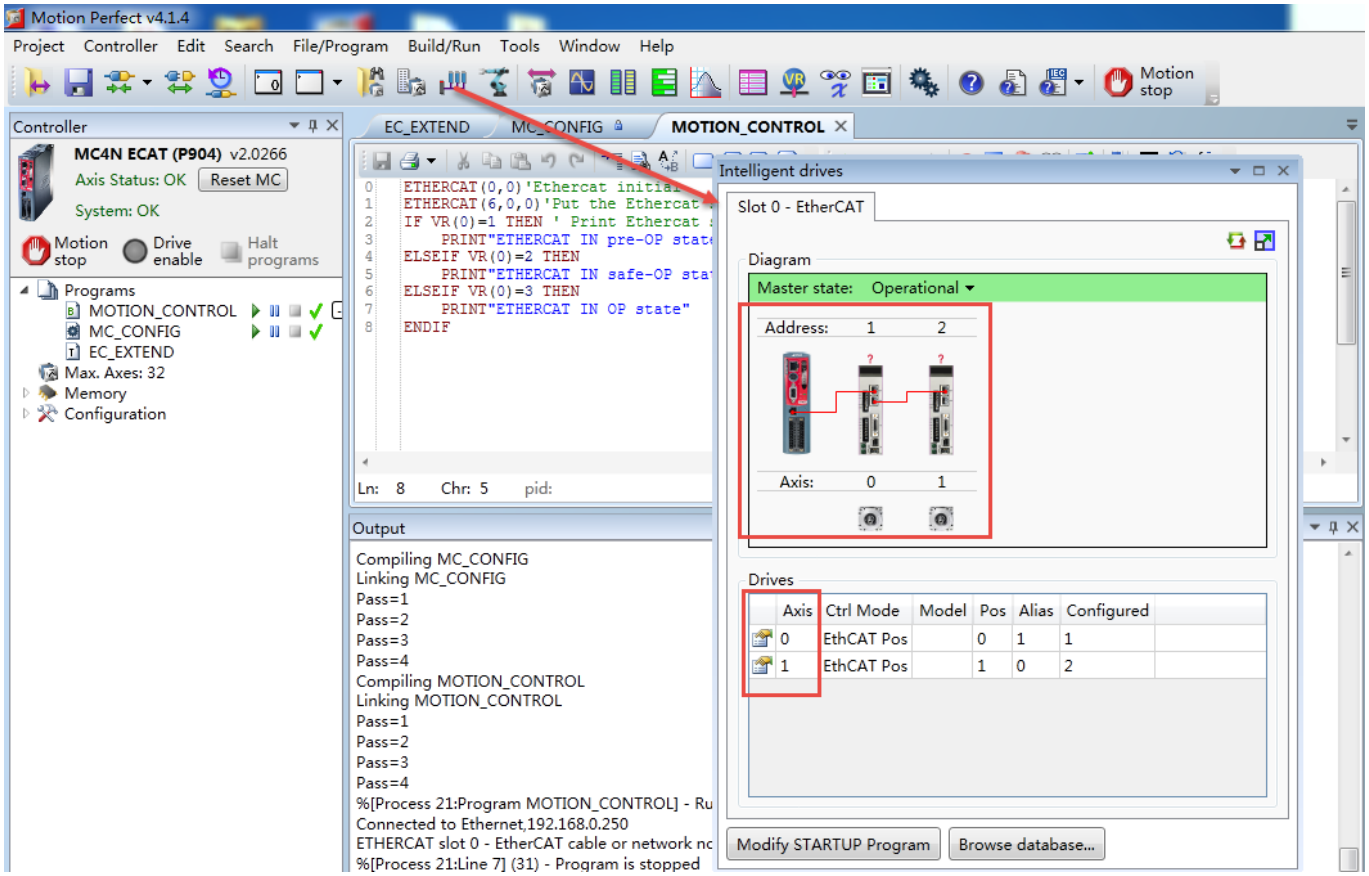


After successful reset, the frame like below (it needs 2min at least for this controller when reset and power on). At the middle area, it is project information file. At left side, it shows the status of controller and slave driver. At right side, it shows the information in window channel O that the Ethercat initial program has been executed successfully and the system has found Kinco FD slave which is in Ethercat OP state (Operation state) also.

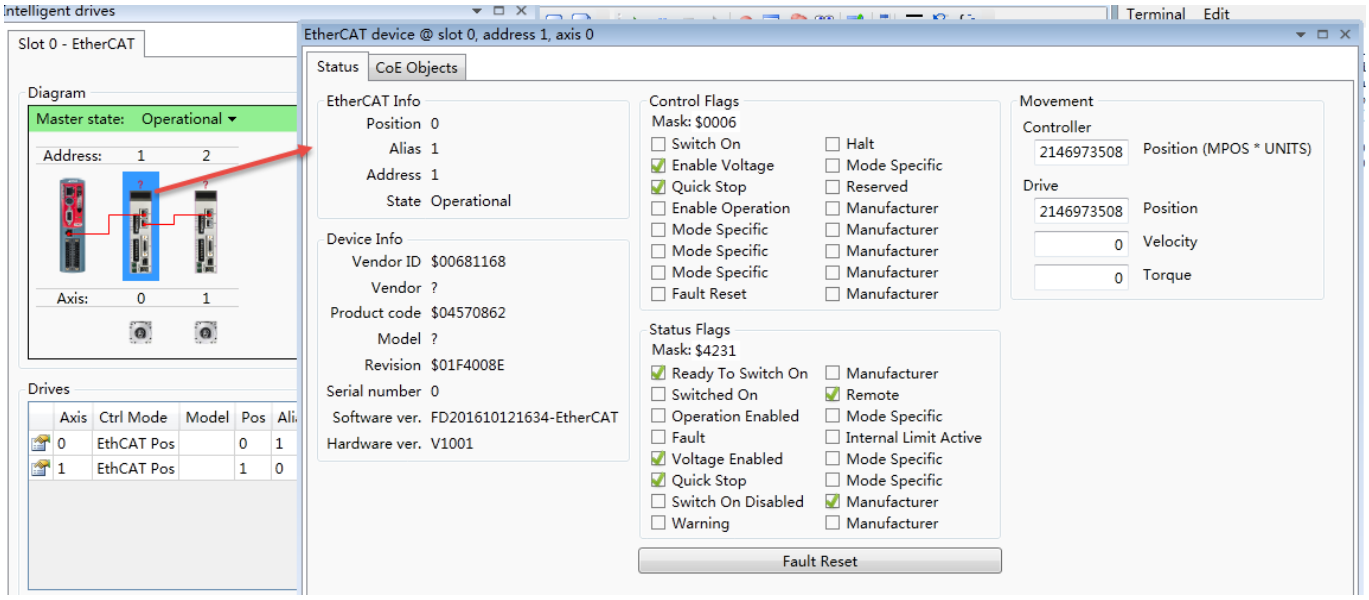


By intelligent ID, it is able to monitor more information about Ethercat network.

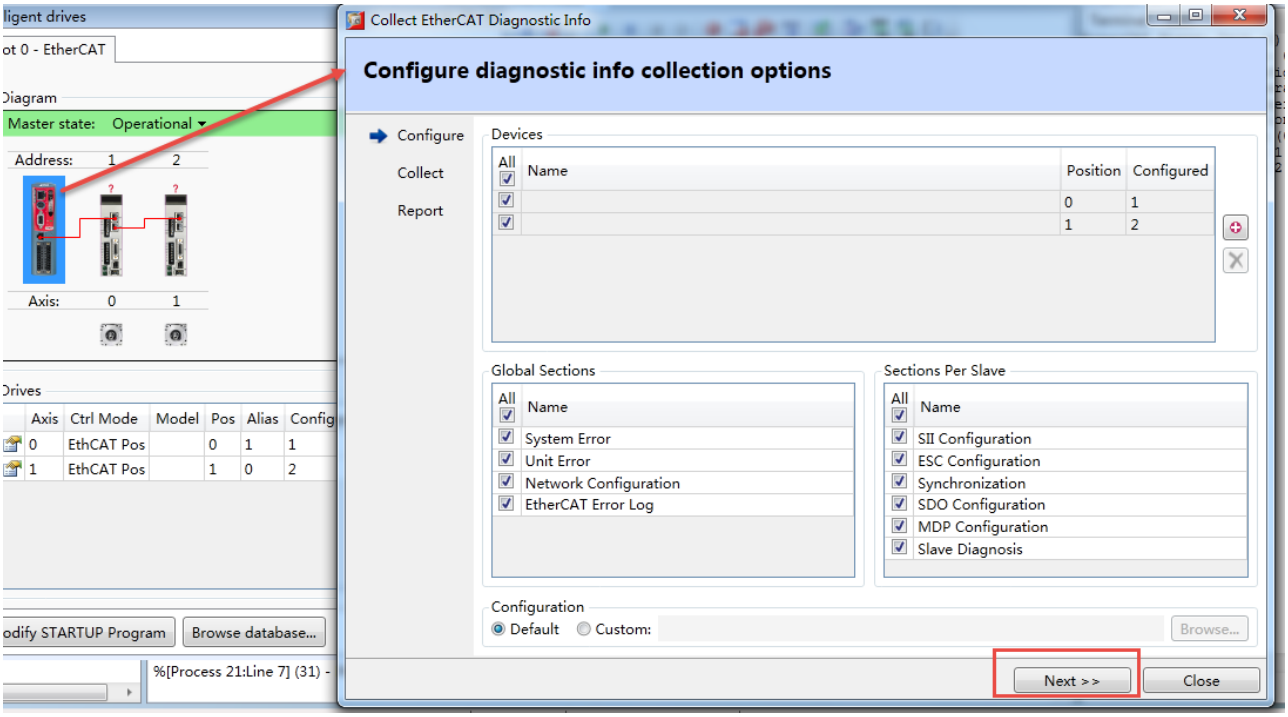
As below, master station has connected two slave stations successfully and distributes the axis to 0 and 1. And master station regards the control mode of slave station as default is position mode.

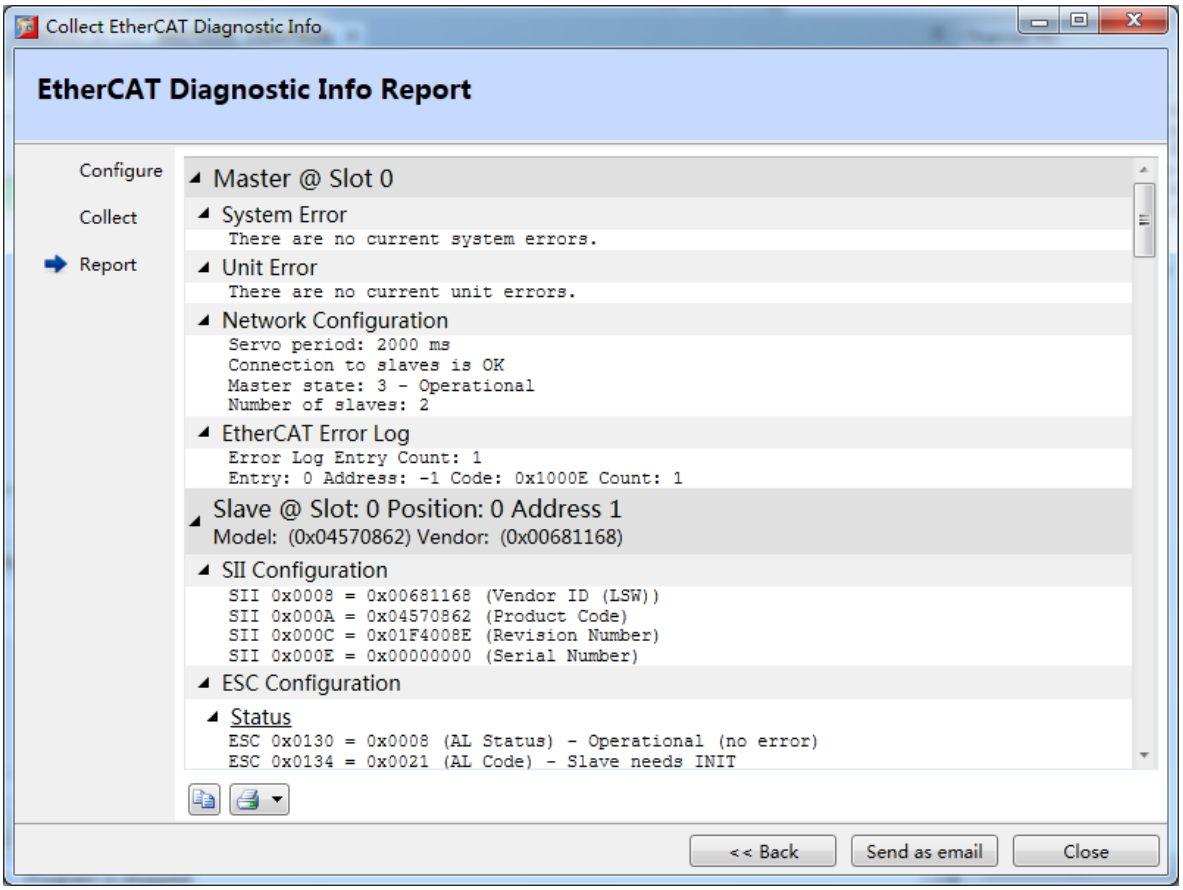


Double click icon of slave drivers, it will show inforamtion about this salve station.

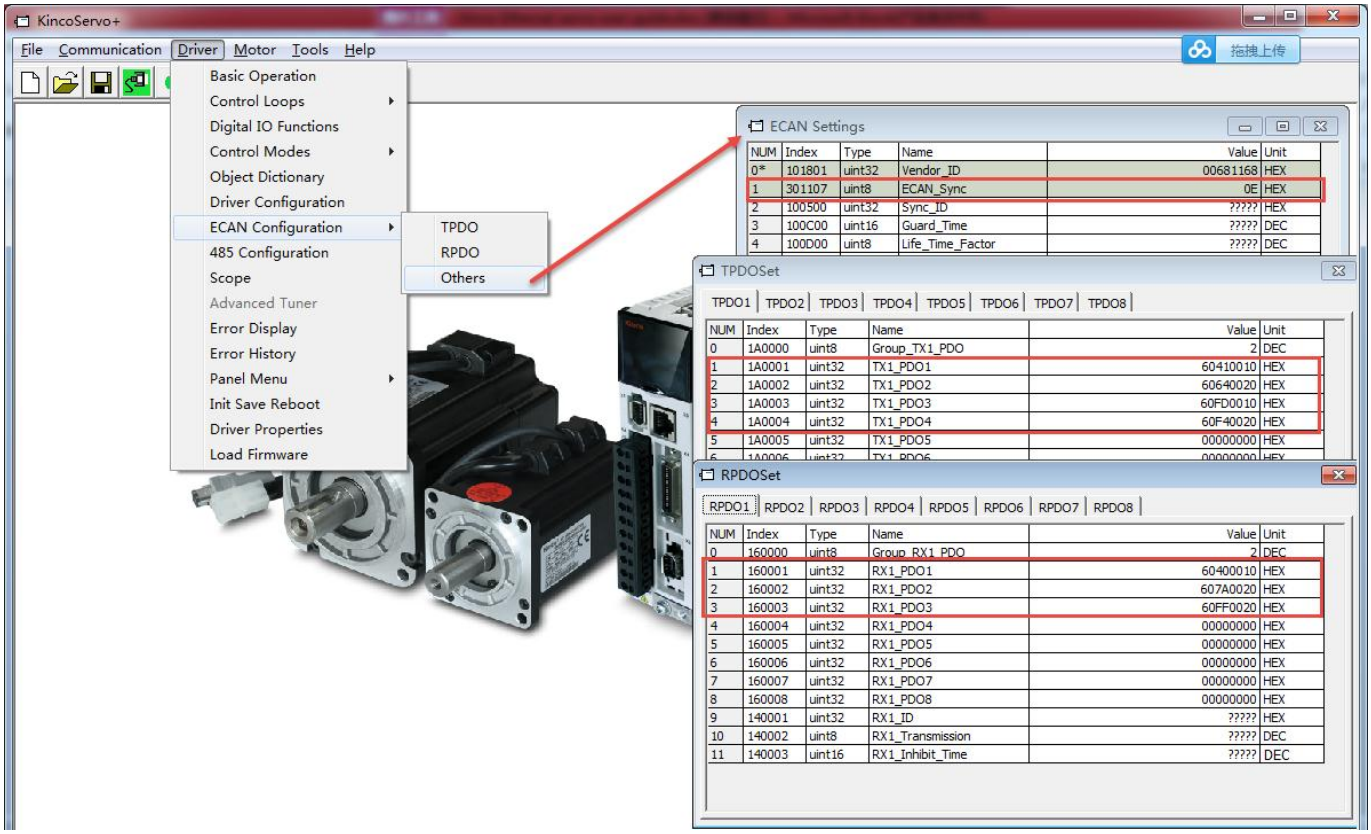


Double click icon of master station and click Next to collect a report about initial information of Ethercat network. This report can show the configuration of network as a reference.





At the same time, it can be found in Kincoservo software that the master has configured PDO to driver and connected with driver successfully. In others table, it shows that if there is sync data or not. If non-zero value is changing continuously, it means there is sync data and is updating also. Meanwhile, if the statue LED of Ethercat on driver is on constantly, it means under operation state.



According to information above, it indicates that the motion controller connects with drivers successfully via Ethercat.