Using the MCH Unit

When using the MCH Unit (CJ1W-MCH71) instead of the NCF Unit, use the following settings.

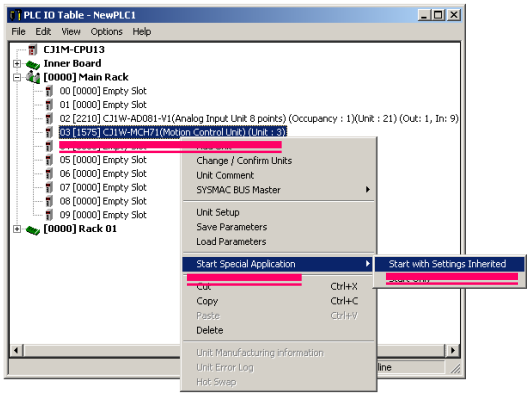
As with Analog Unit, register the MC Unit to the I/O table.
The MCH resides within the Motion Controller.
Then start CX-Motion-MCH using [Start with Settings Inherited].

When opening a stored project file after starting the dedicated tool, select [Start Only].
If [Start with Setting Inherited] is selected, a new project is created.

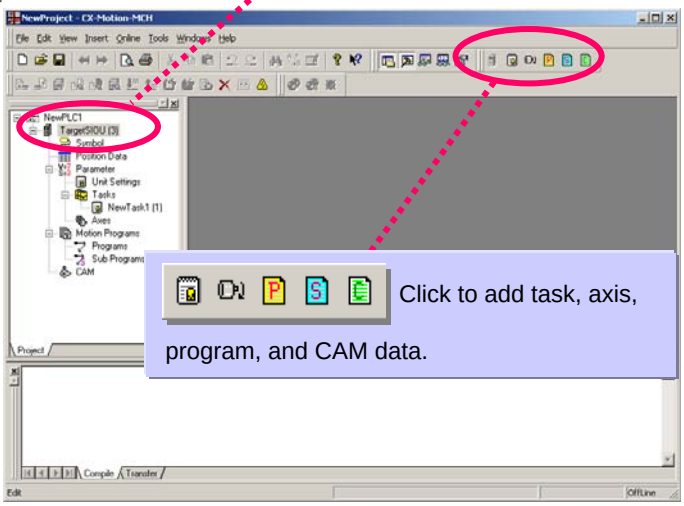
Right-click MCH Unit

Point [Start Special Application]

Select [Start with Setting Inherited]



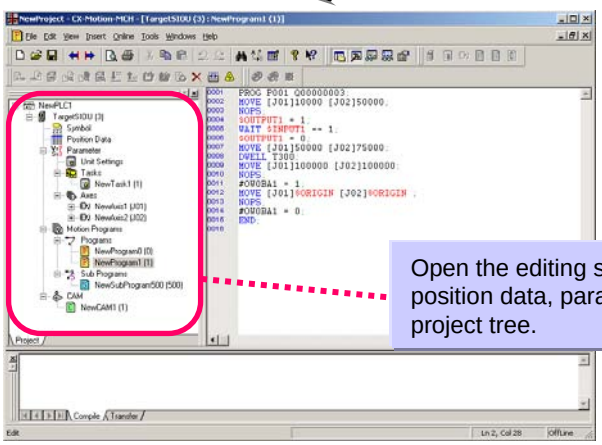
Start the MCH Unit as registered.



Add task, axis, program, and CAM data

Click to add task, axis, program, and CAM data.

Edit position data, parameters, program, and CAM data



Open the editing screen to edit data by double-clicking position data, parameter, program, or CAM data on the project tree.

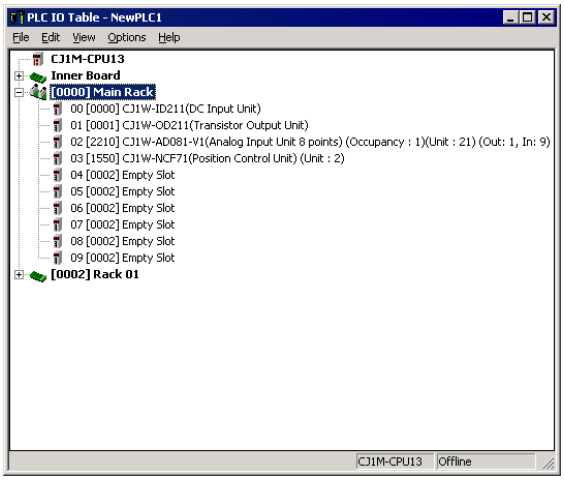
Save the project

Click and save the project to file.

Checking I/O Assignment

As with Analog Unit registration, register the IN and OUT Units.

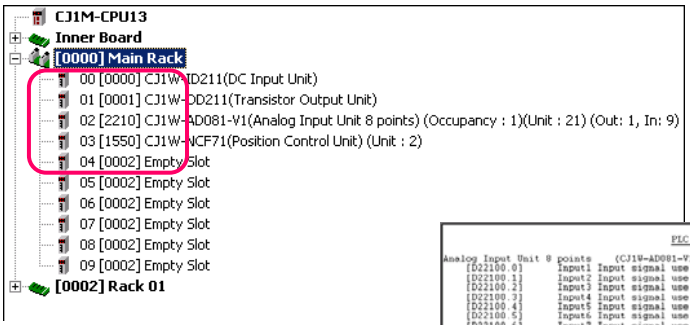
Register basic I/O Unit



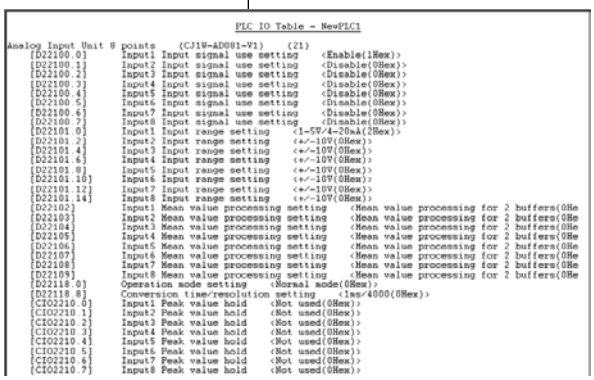
In this example, CJ1W-ID211 and CJ1W-OD211 are selected as IN and OUT Units respectively.

By registering Units to the I/O Table, you can check I/O assignment status.

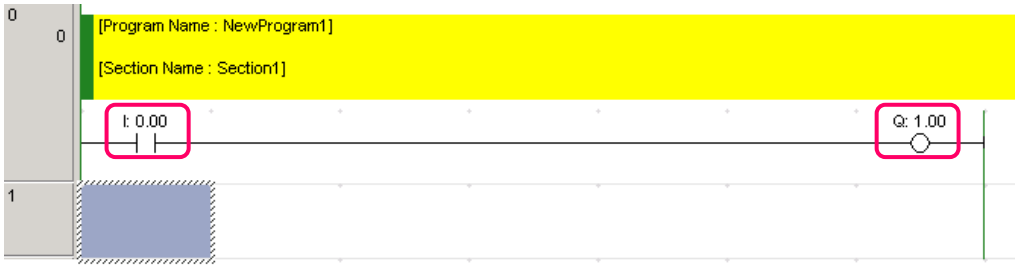
Check I/O assignment



In addition, you can check addresses assigned to actual I/O with a print out.



This I/O assignment information can also be checked by IQ indication (IN:I, OUT:Q) during ladder programming.

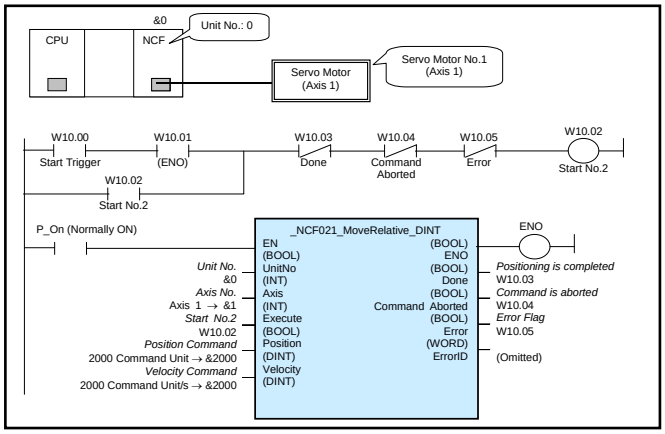


Programming

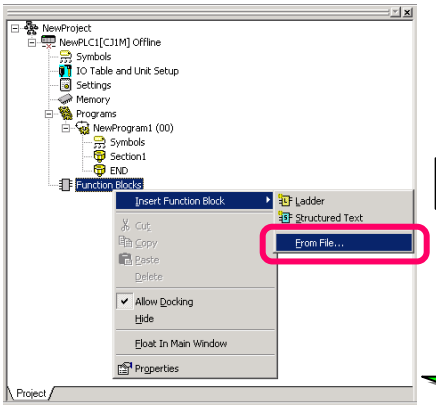
This section describes programming with Library (OMRON Standard Libraries) that allows easier connection to OMRON's Components. OMRON Standard Libraries is a group of Components provided by OMRON, which can be categorized into two types; FB Components (OMRON FB Library) to be used for a ladder program and SAP Components (Smart Active Parts Library) to be used for an indicator.

- NCF Unit Programming with OMRON FB Library

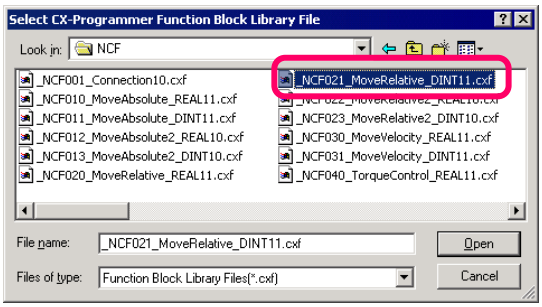
  Servo motor (axis 1) connected to Unit number 0 NCF is moved to position 2000 (command Unit) with speed of 2000 (command Unit/s) by relative move command.



Right-click from Function Blocks



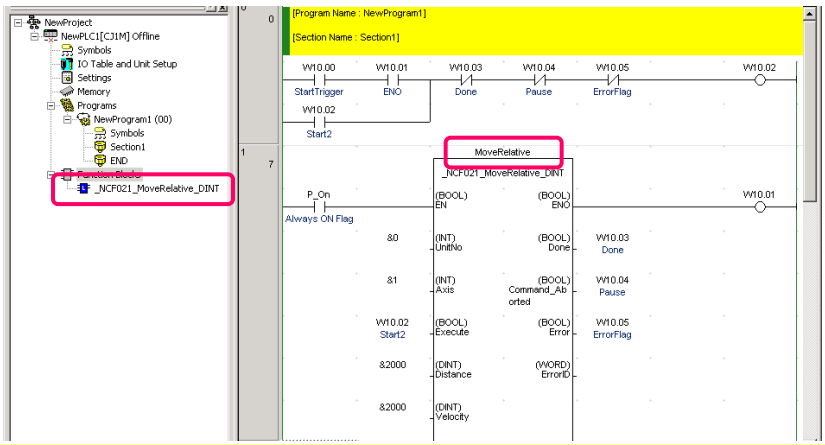
Select a folder from [Omronlib] > [Position Controller] > [NCF]



Select OMRON FB Library "_NCF021_MoveRelative_DINT12.cxf "

Call the selected OMRON FB Library on the ladder, then enter its name (instance name) (in this example, "MoveRelative"). Then create a ladder program as shown below.

Enter "MoveRelative" for instance name. Then create a ladder program



OMRON FB Library is a collection of Components that OMRON provides as a Function Block to use functions of OMRON's Units for PLC and FA Components much easier on a PLC program. * For details, see *FunctionBlock StructuredText Introduction Guide*, Chapter 1.

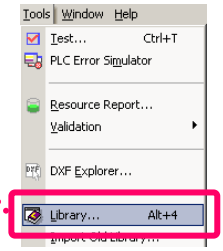
How to use Smart Active Parts

See Library

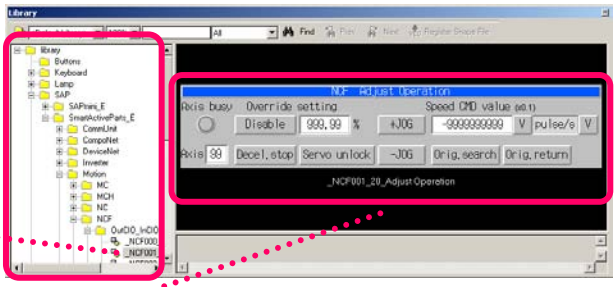
This section describes how to use Smart Active Parts. In this example, NCF Smart Active Parts "Adjust Operation" is used.

From [Start] menu, select [Programs] > [OMRON] > [CX-One] > [CX-Designer] > [CX-Designer Ver.□] to start CX-Designer. (Or select [All Programs] > [OMRON] > [CX-One] > [CX-Designer] > [CX-Designer Ver.□].) Select [NS8-TV0[]-V2] and [System Version 6.0] or later.

Select [Library] from the [Tools] menu

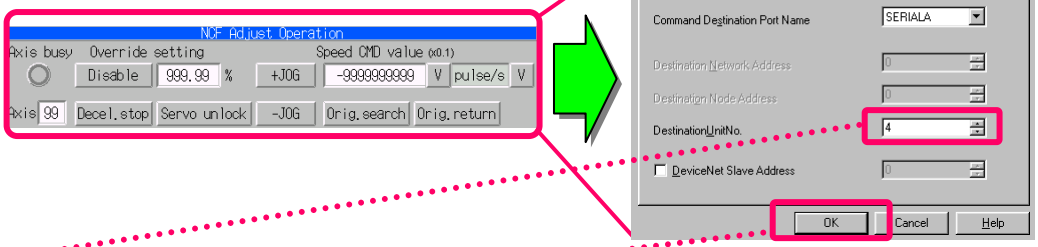


Place Smart Active Parts on the screen.



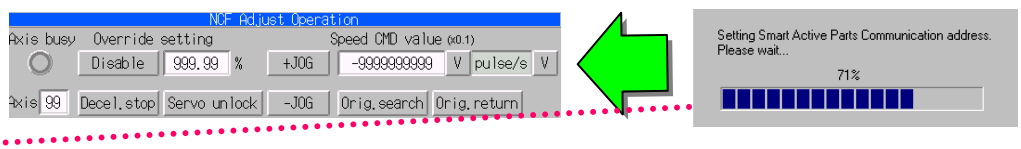
1. Select SAP - SmartActiveParts_E - Motion - NCF - OutCIO_InCIO folder
2. Select _NCF001_xx _Adjust Operation (Check the Title)
3. Drag & drop it on the screen.

4. The selected Smart Active Parts are displayed on the screen.



Setup Smart Active Parts

1. Double-click
2. Set 4 to the Destination Unit No.
3. Click [OK]



Smart Active Parts Setting is complete

Setup is completed at 100%

4. Communication address is automatically calculated according to the corresponding Unit.

Save the Project.

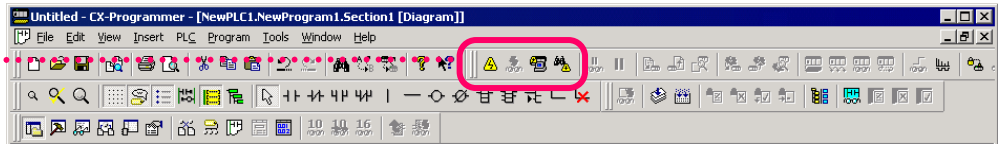
Refer to Page 2-13 "Saving Project" for details.

Offline Debug

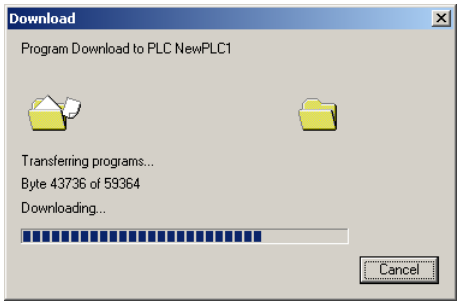
This section describes how to debug a program using CX-Simulator, a ladder simulation tool, without the PLC.
Additionally, Switch Box Utility is used as a virtual input tool.

Click 

(Simulator connection button)



Program transfer starts.

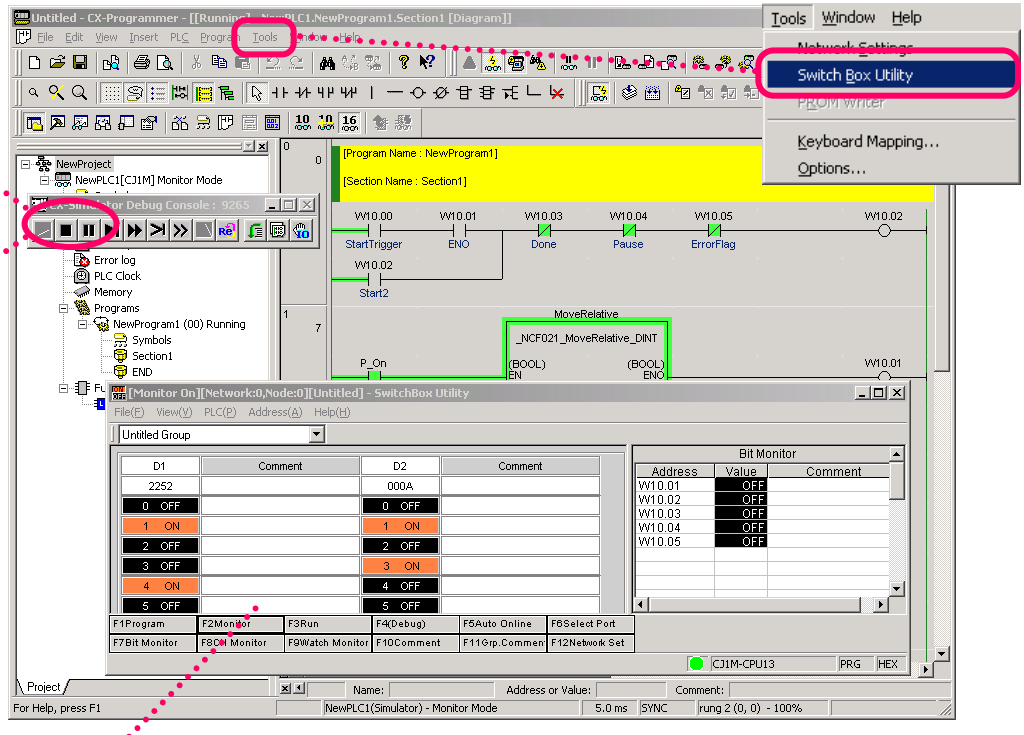


Screen when online

CX-Simulator debug console is starts

Starting Switch Box Utility
Select [Tools] > [SwitchBox Utility]

Run PLC



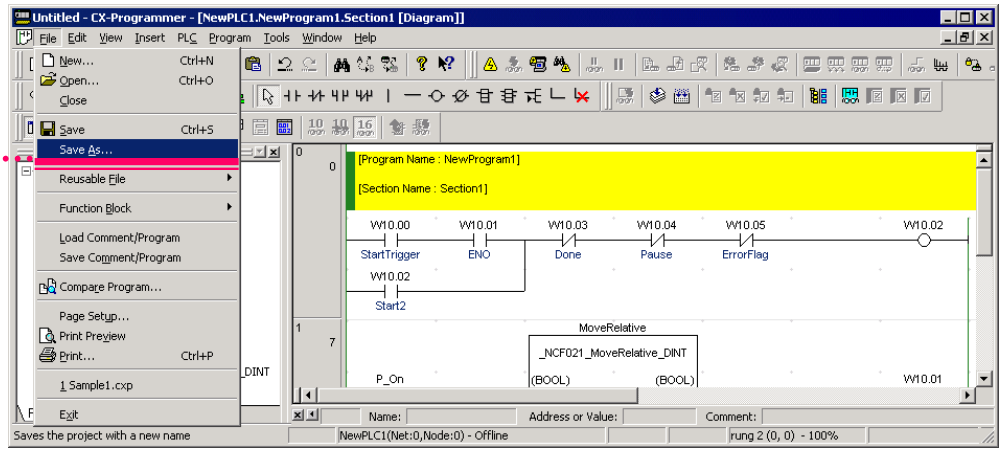
Switch Box Utility
It is useful not only for virtual input by simulator but also for debugging while checking the PLC's wiring or setting the DM and other initial values.

Saving a Project

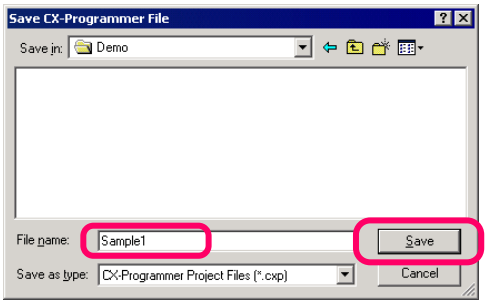
Saving a CX-Programmer file

Unit setting, Unit parameter setting, and programs using the CX-Programmer can be saved all at once.

From the [File] menu, select [Save As…]



Save it with a name. In this example save as “Sample1”.

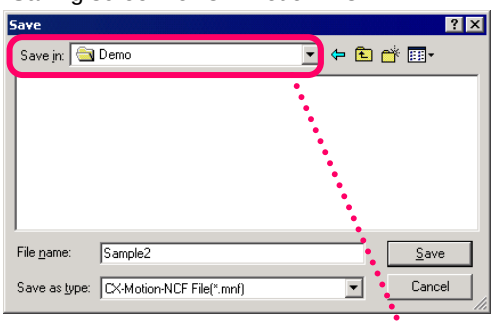


Click

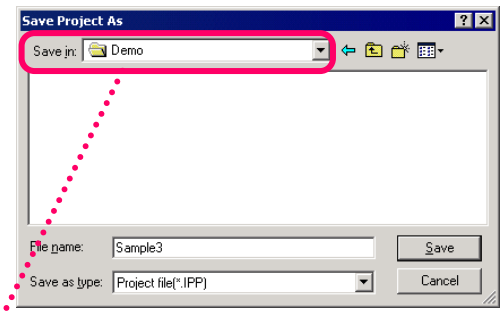
Saving CX-Designer and CX-Motion-NCF/MCH files

Created data can be saved for CX-Designer and CX-Motion-NCF/MCH.
Save CX-Motion-NCF as “Sample2.mnf” (CX-Motion-MCH as “Sample5.mnh”), and CX-Designer as “Sample3.ipp”.

Saving screen for CX-Motion-NCF



Saving screen for CX-Designer



If you run a dedicated Support Software such as CX-Motion-NCF or CX-Designer when CX-Programmer is started, the same default folder location as that of CX-Programmer is used for reading and saving files. It allows easier CX-One Support Software file management.

This section describes connection to the machine, transfer of programs, creating Unit settings offline, and how to debug.

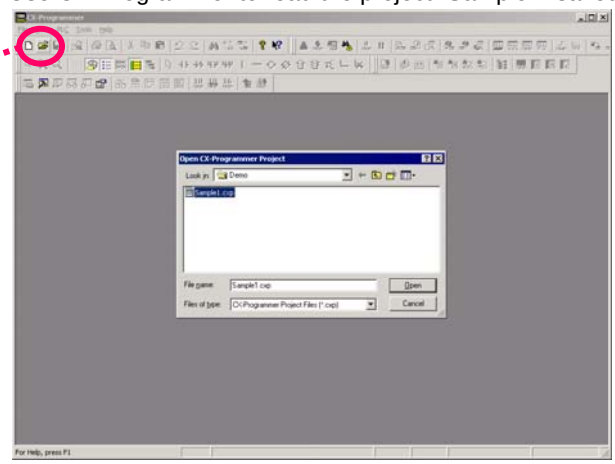
Reading a Project

From [File] > [Open], select the file name “Sample1”

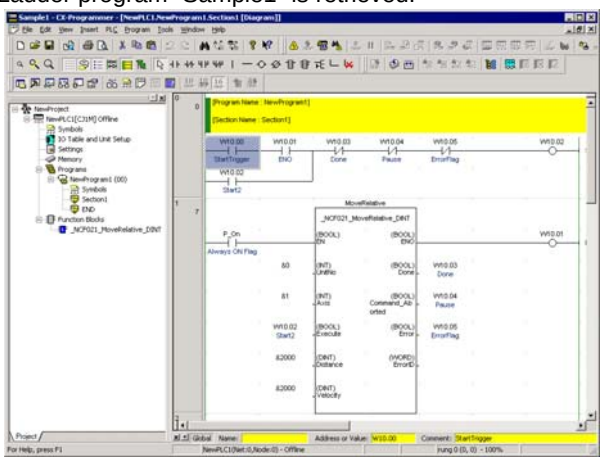
or

Click 

Use CX-Programmer to read the project “Sample1” saved in the previous section.



Ladder program “Sample1” is retrieved.



In I/O Table Unit setting function, the Unit parameter setting configured in the previous section is also retrieved.

Double-click the I/O Table Unit setting