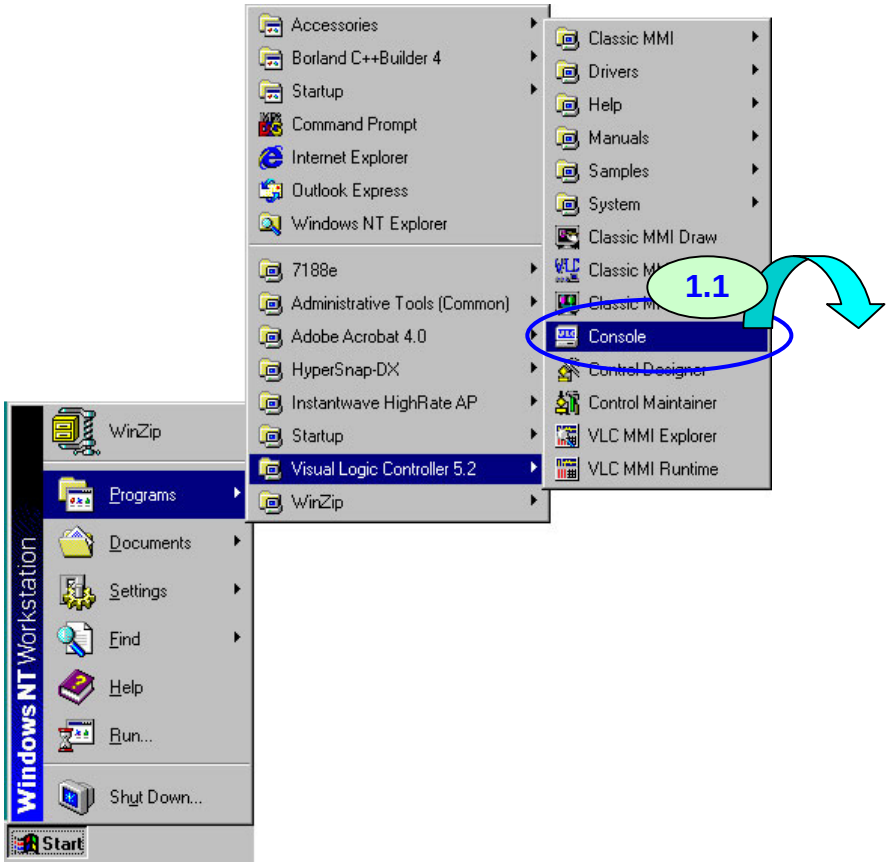
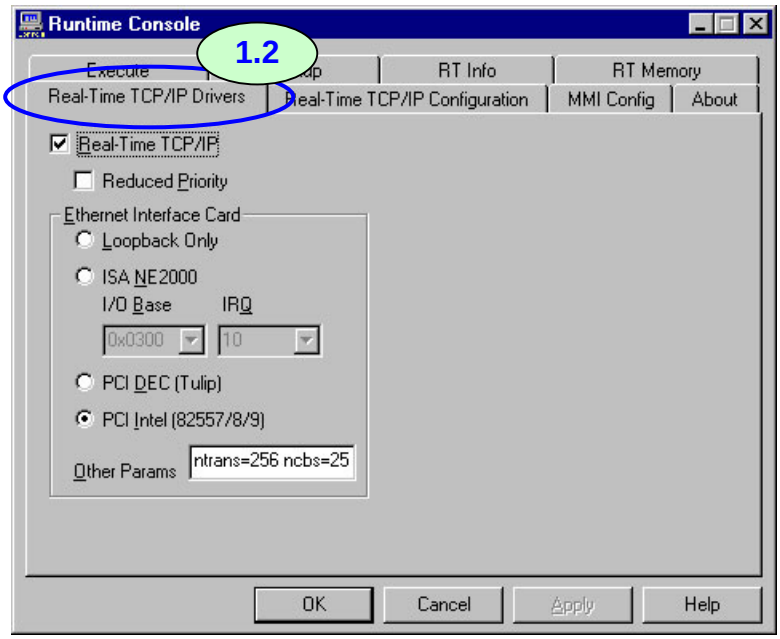
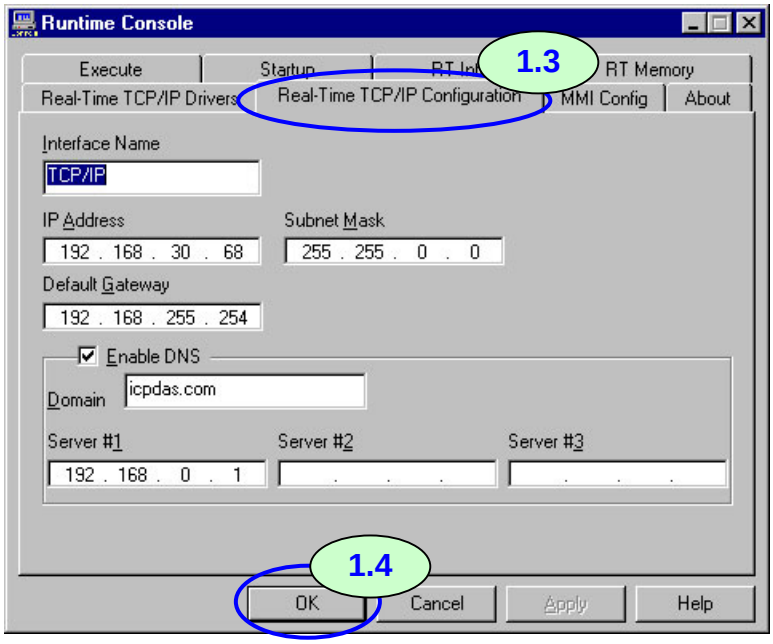
SteepleChase VLC Linking to Modbus/TCP

Relative drivers installation

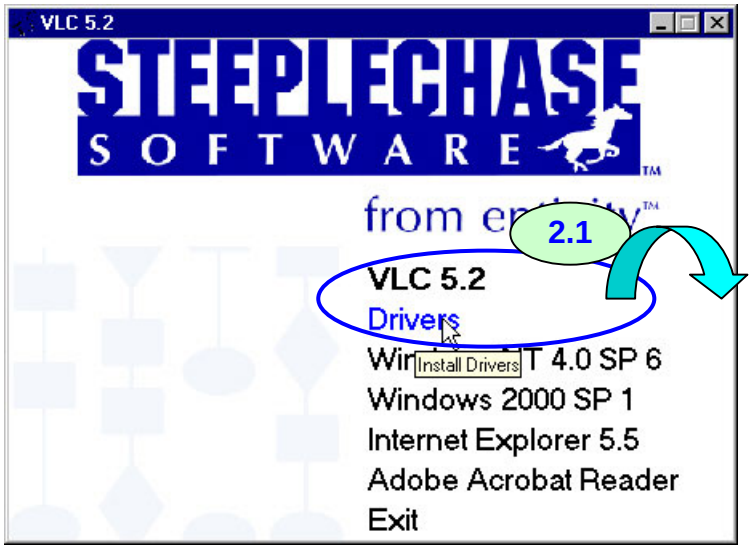
Step 1. Configure Ethernet adapter cards.

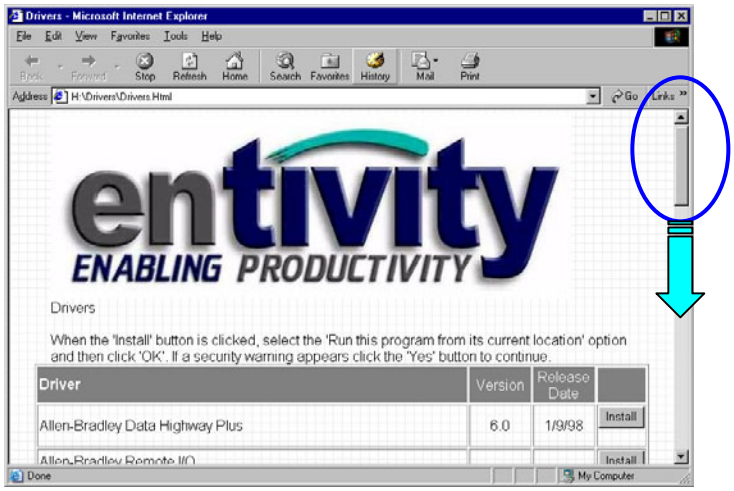


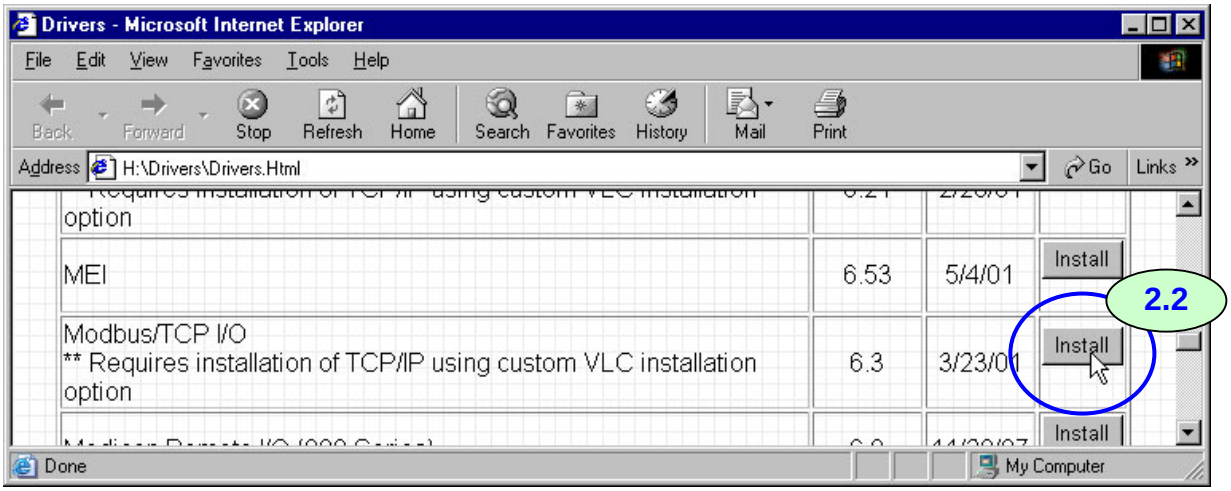




Step 2. Install Modbus/TCP driver from SteepleChase CD.

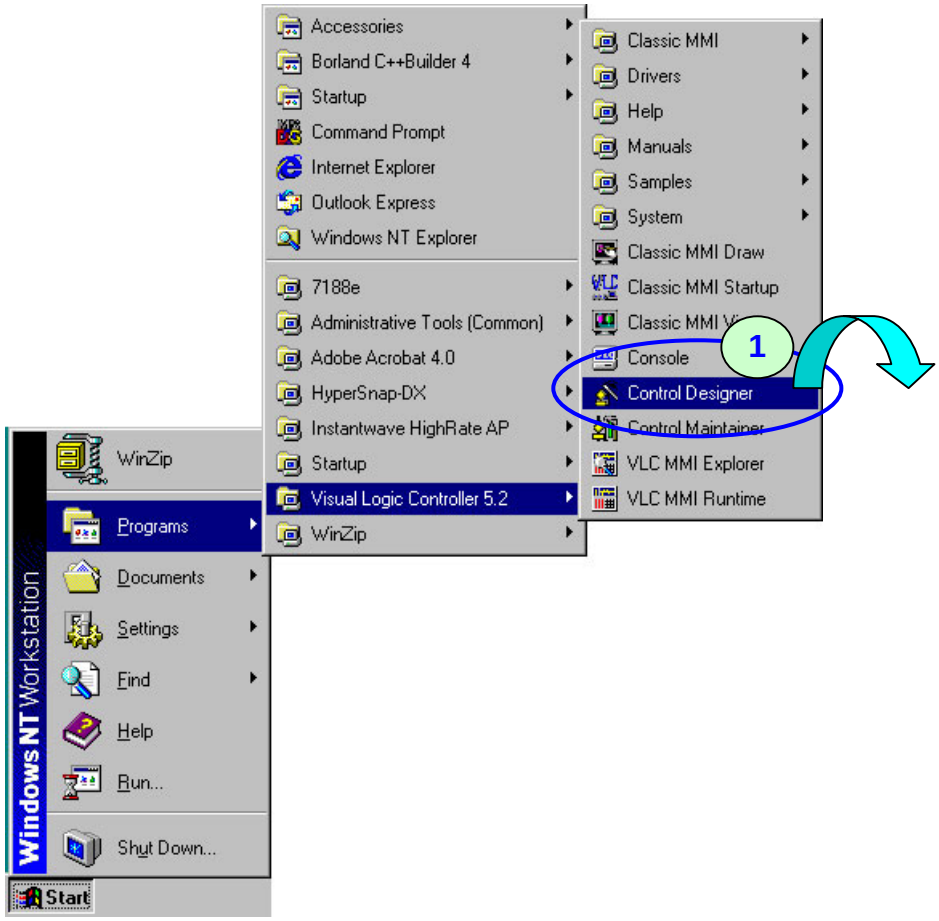



Drivers - Microsoft Internet Explorer
entivity
ENABLING PRODUCTIVITY
Drivers
When the 'Install' button is clicked, select the 'Run this program from its current location' option and then click 'OK'. If a security warning appears click the 'Yes' button to continue.
Driver
Version
Release Date
Allen-Bradley Data Highway Plus
6.0
1/9/98
Install

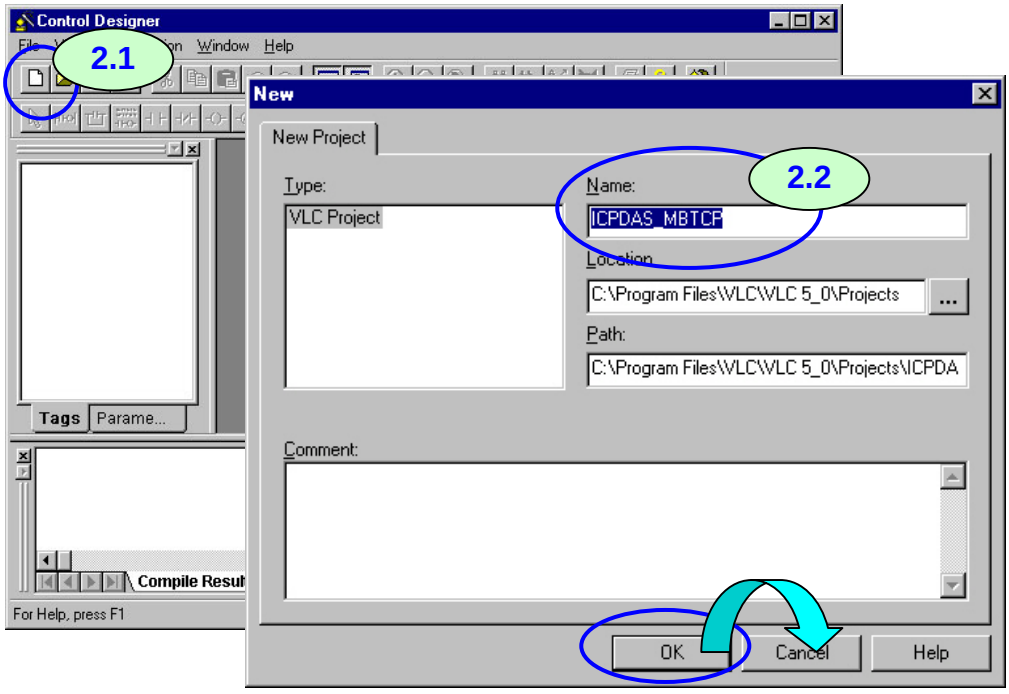

Drivers - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print
Address H:\Drivers\Drivers.Html
Go Links
option
MEI
6.53
5/4/01
Install
Modbus/TCP I/O
** Requires installation of TCP/IP using custom VLC installation option
6.3
3/23/01
Install
Install
2.2
Done
My Computer

Launch Modbus/TCP Devices

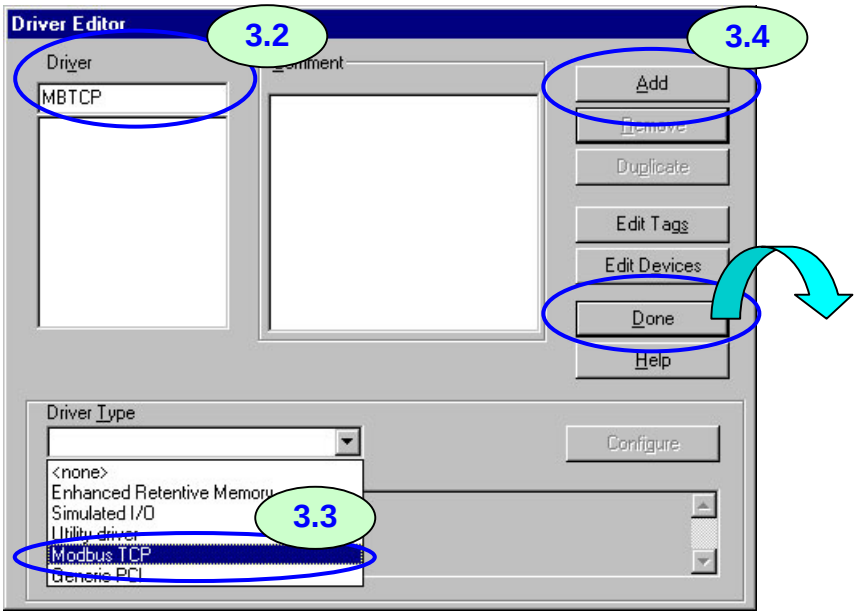
Step 1. Run SteepleChase Control Designer.



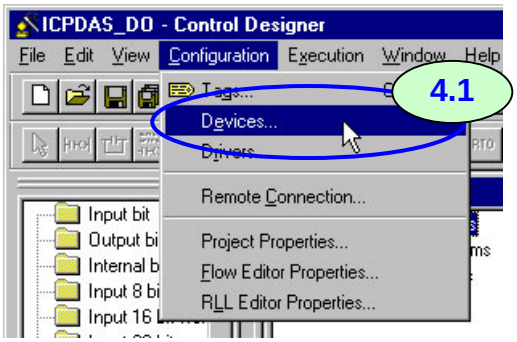
Step 2. Create a new project file. For example, named as **ICPDAS_MBTCP**.

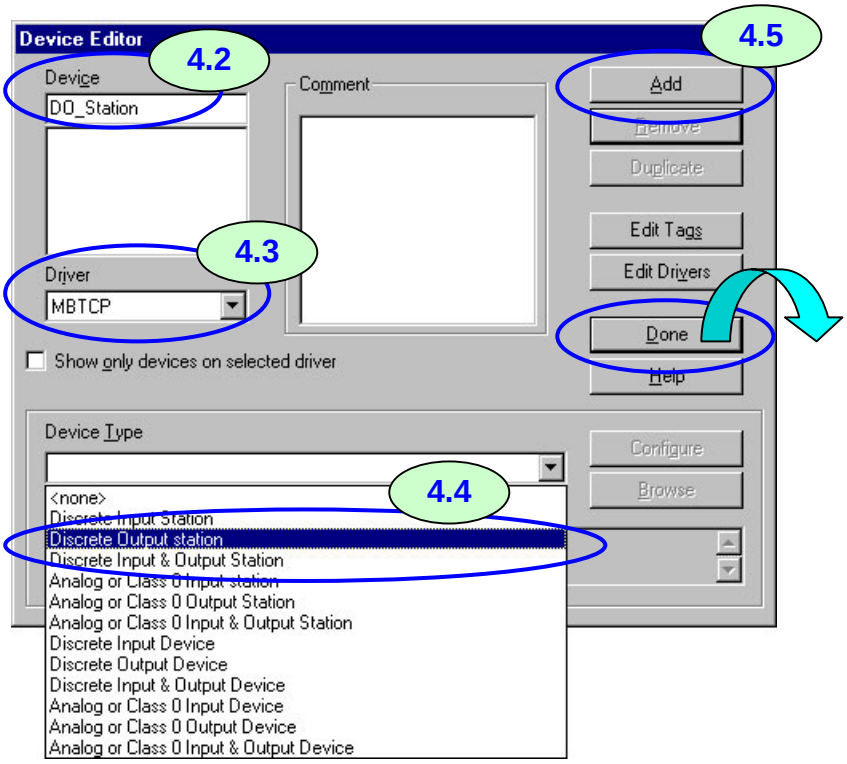


Step 3. Add a Modbus/TCP driver. For example, named as **MBTCP**.

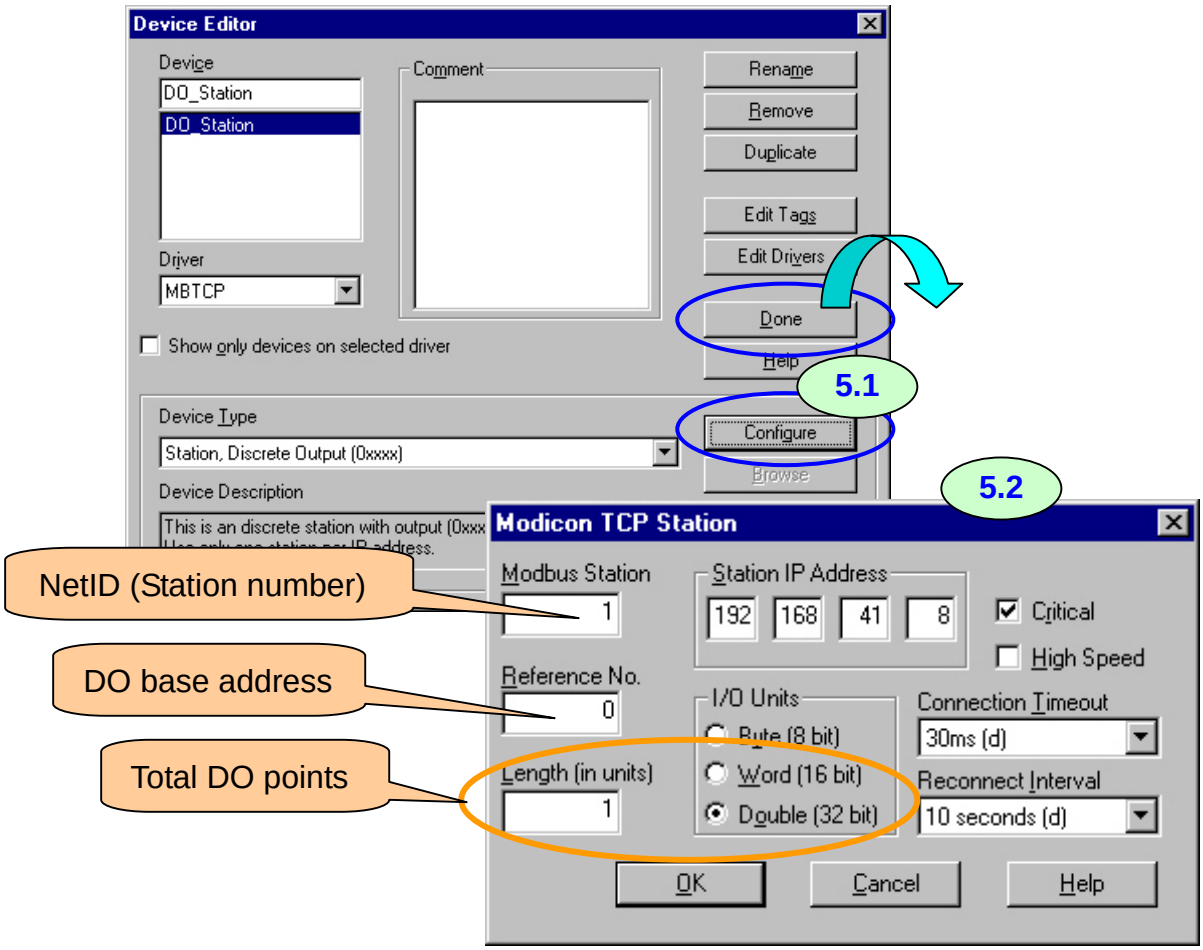


Step 4. Add all DOs as a Modbus/TCP station device. For example, named as **DO_Station**.

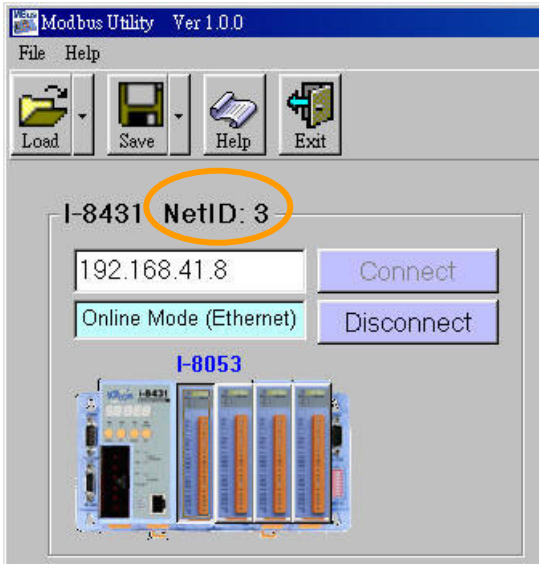




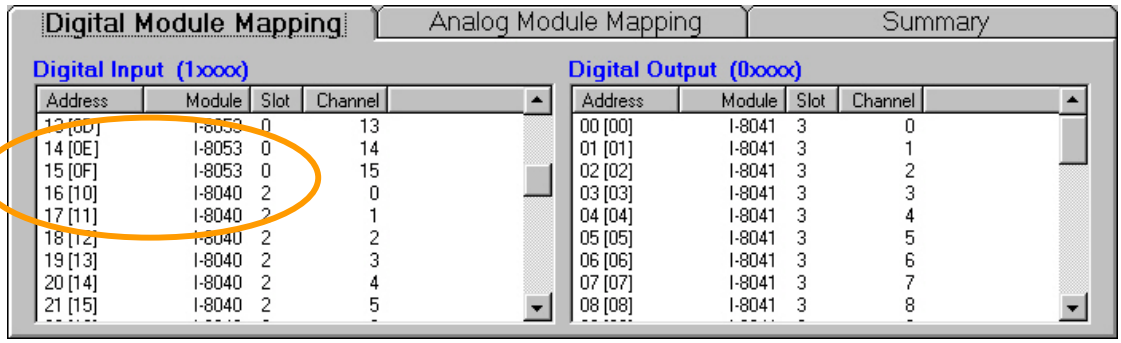
Step 5. Configure the Modbus/TCP station device.



Modbus Station: also called NetID, for I-8000 controllers, you can find a dipswitch (at right side of controllers) to set the station number. After changing the station number, you must reboot the I-8000 controller.

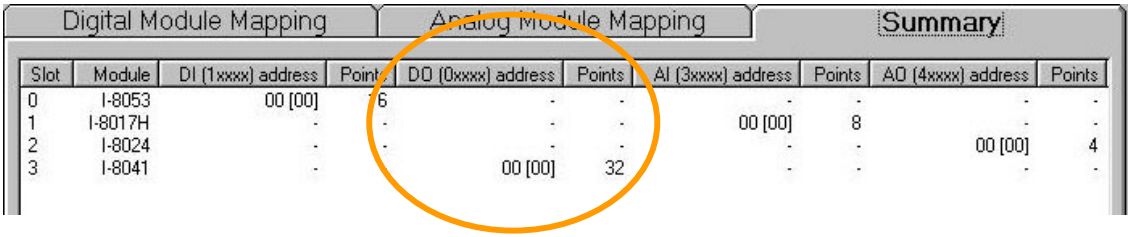


Reference No: you could plug several DO modules in one I-8000 controller. These addresses of points are continually. For getting best performance, you better group all DO modules, and only add one DO Modbus station or Modbus device to one VLC project. That VLC Modbus/TCP driver can set all DOs with one execution action.

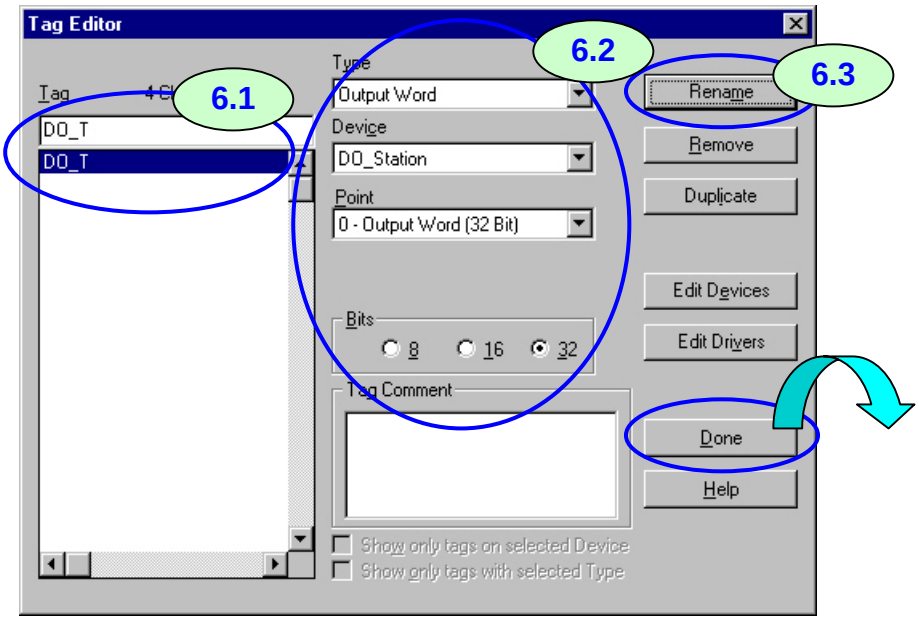


I/O Unit & Length: Choose the most convenient I/O unit, and calculate how many units do total DOs need.

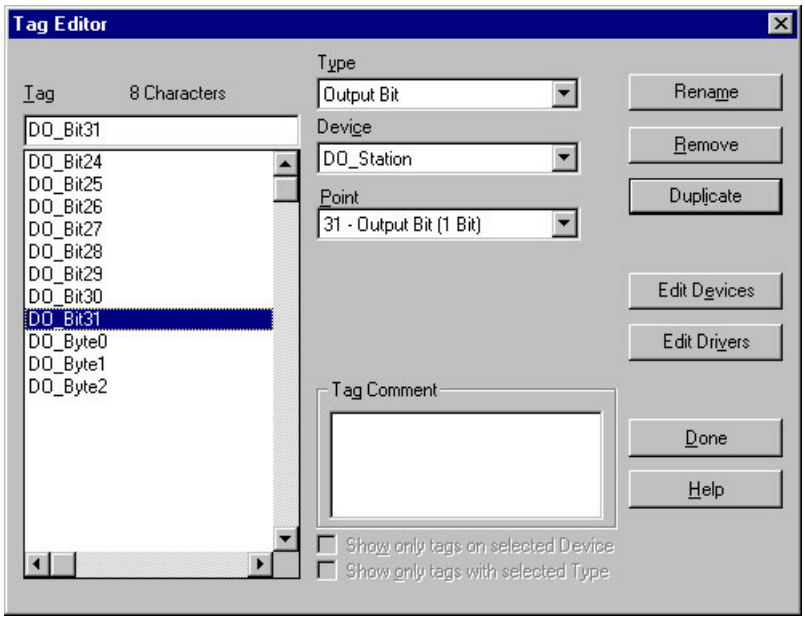
The most convenient way is reference the Summary in Modbus Utility (of ICPDAS). The first address is always 0.



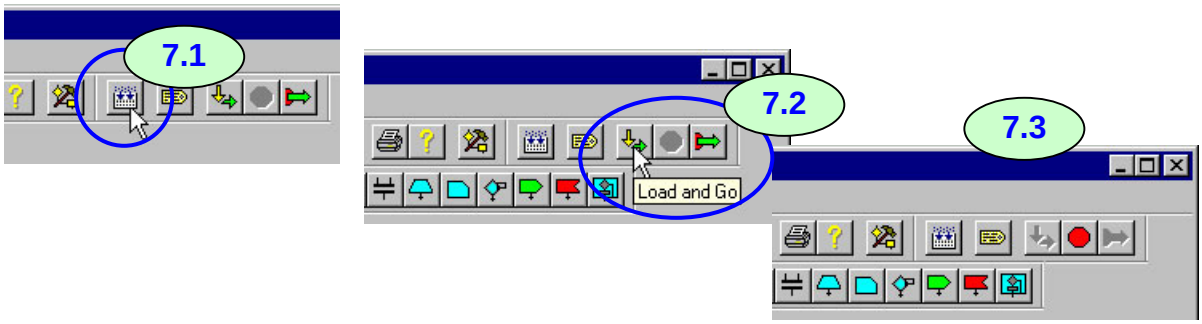
Step 6. Add tags of DOs. For example, named as **DO_T**.



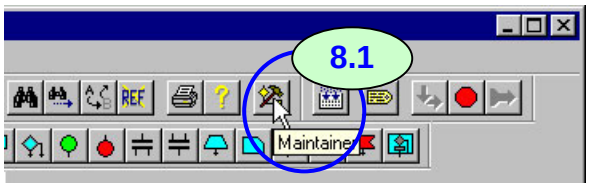
You can also mix several tag types. For example, byte tags and bit tags.

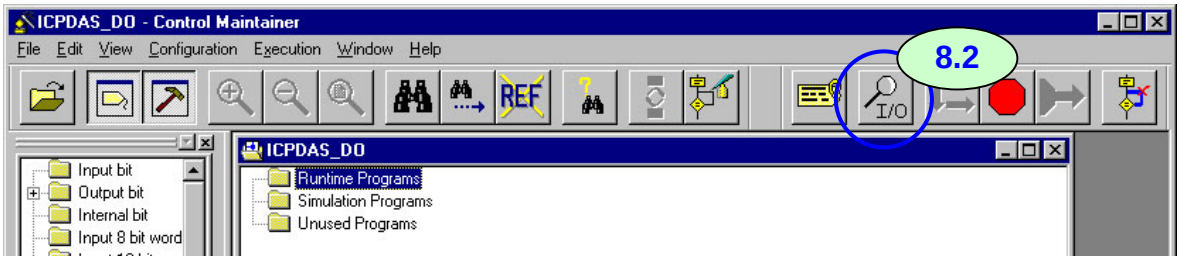


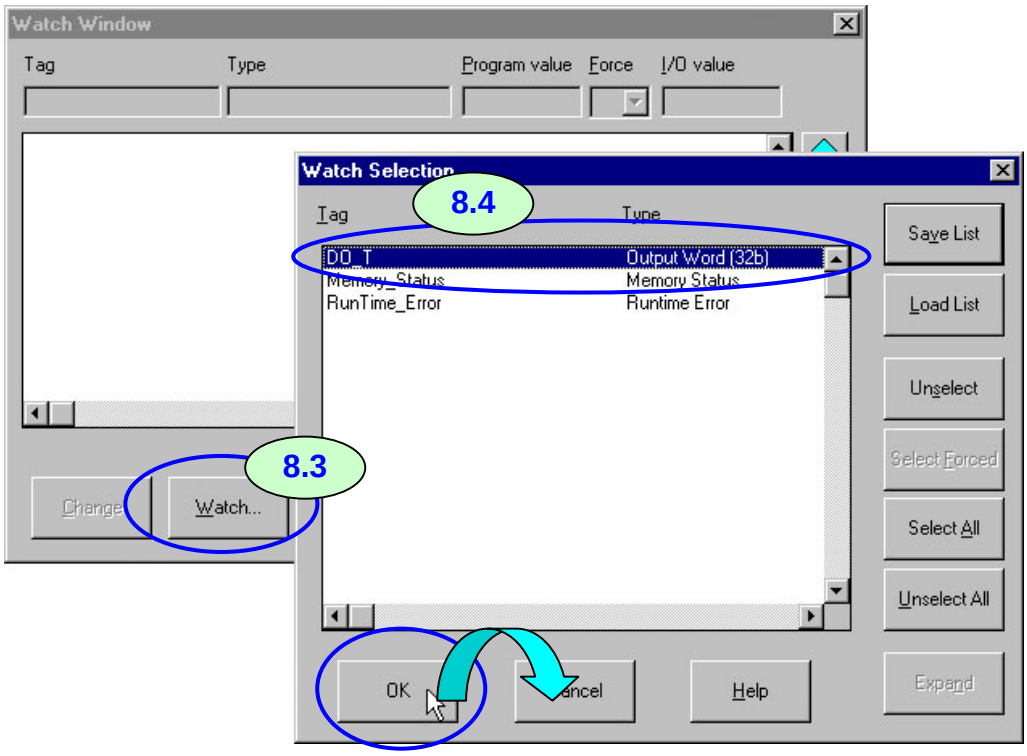
Step 7. Compile, download and run the project.

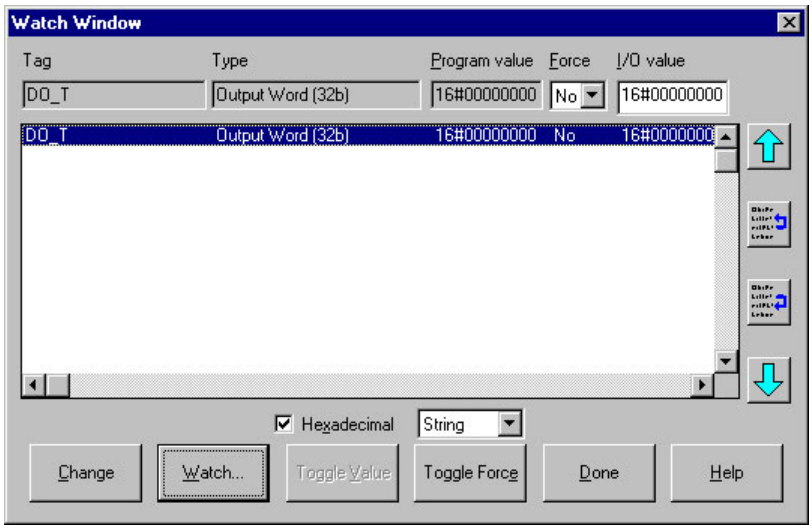


Step 8. View the DO_T tag.



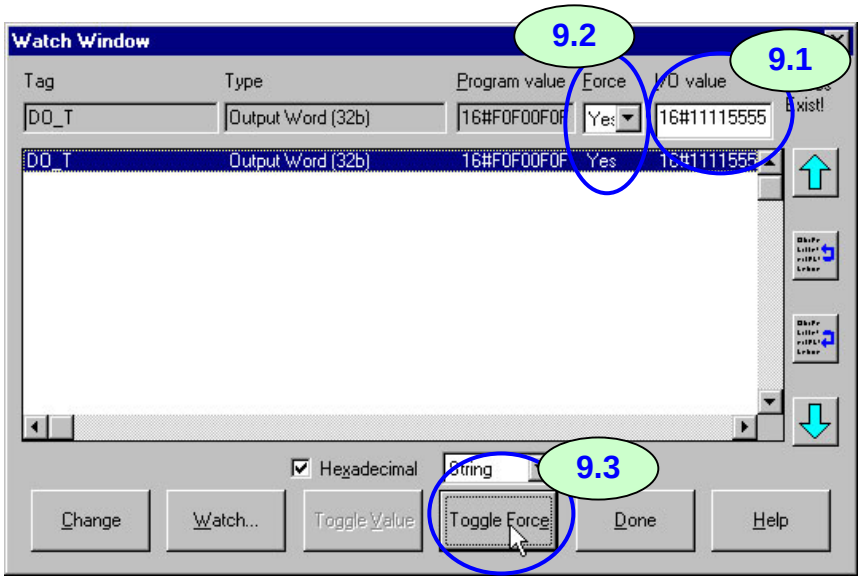




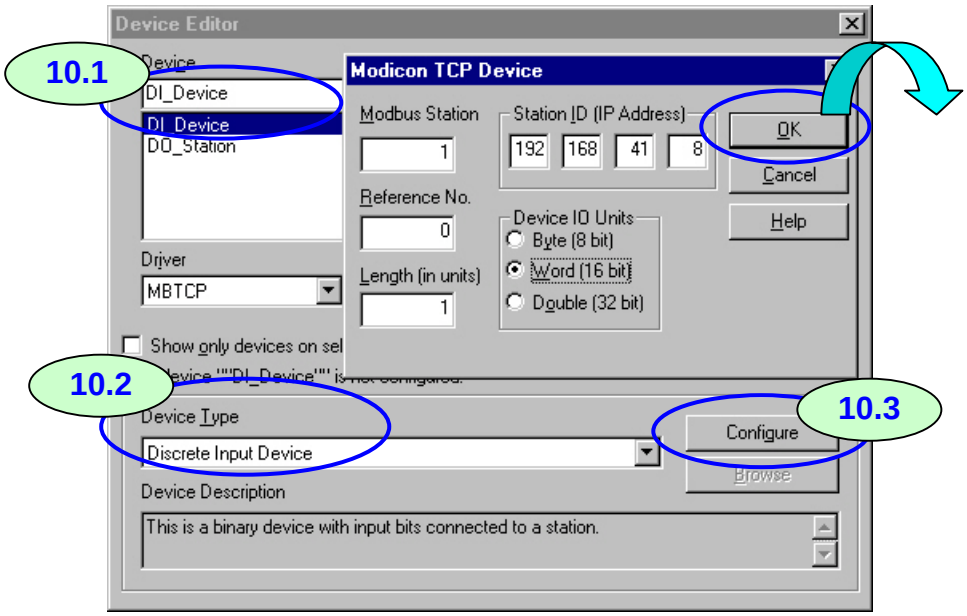


Step 9. Test the DO_T tag.

By using Controller Maintainer, you can input different values to easily test the DOs without program code.

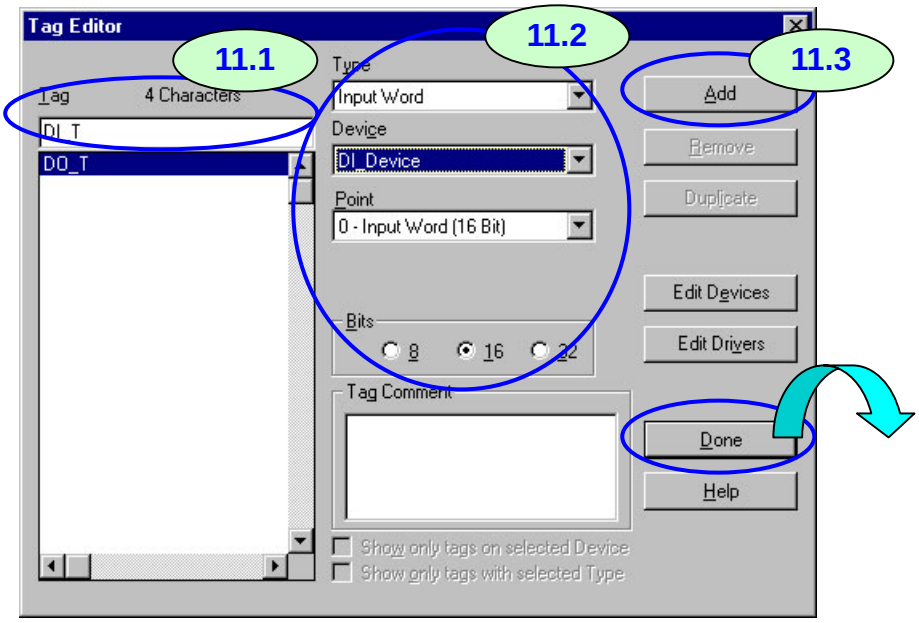


Step 10. Add all DIs as a Modbus/TCP device. For example, named as **DI_Device**.



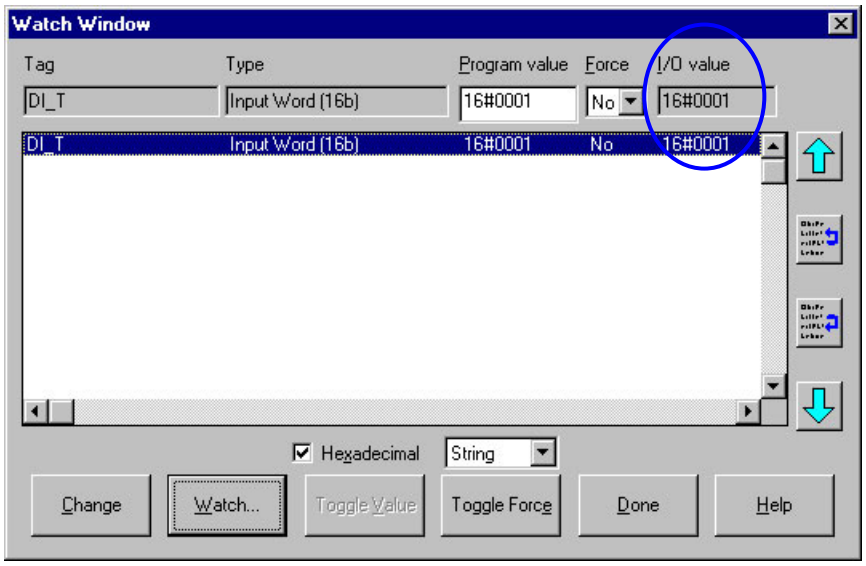
Note: You can mix different device type modules in one I-8000 controller. When you add the I-8000 controller to VLC, the first device type should be **Station**, and others should be **Devices**. That's why in step 5, the Device type I chose is Station, and here, I set it as Device.

Step 11. Add tags of DIs. For example, named as **DI_T**.

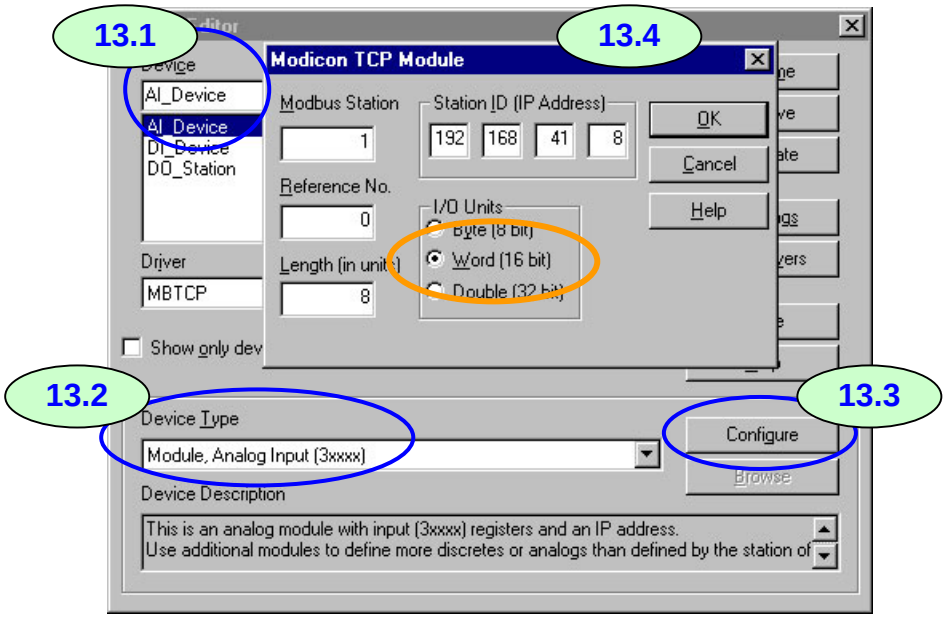


Repeat Step 7 and Step 8 to view the DI_T tag.

Step 12. TestTurn on hardware DI channels and view if the VLC sense the change.
For example, turn on the first channel.

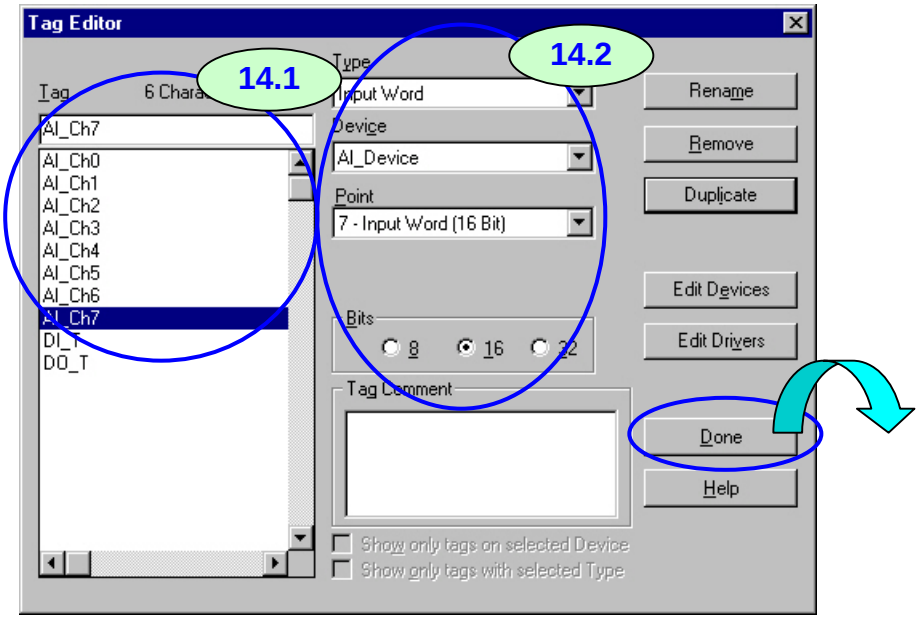


Step 13. Add all AIs as a Modbus/TCP device. For example, named as **AI_Device**.



Note: every analog (AI and AO) register occupy 2 bytes, the I/O Unit must set to Word (16 Bits).

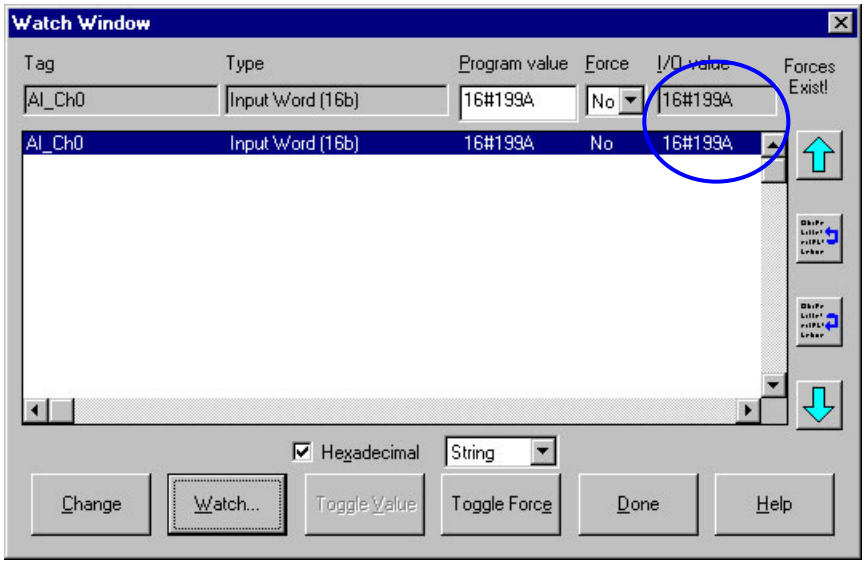
Step 14. Add tags of AIs. For example, named as **AI_Ch0 ~ AI_Ch7**.



Repeat Step 7 and Step 8 to view the AI_Ch0 tag.

Step 15. Test AI_Ch0.

Input analog input to hardware AI channels and view if the VLC sense the change. For example, intput 2.0 V to AI_Ch0.



The value is 16#199A (6554). To get the actual voltage, you need to converter it.

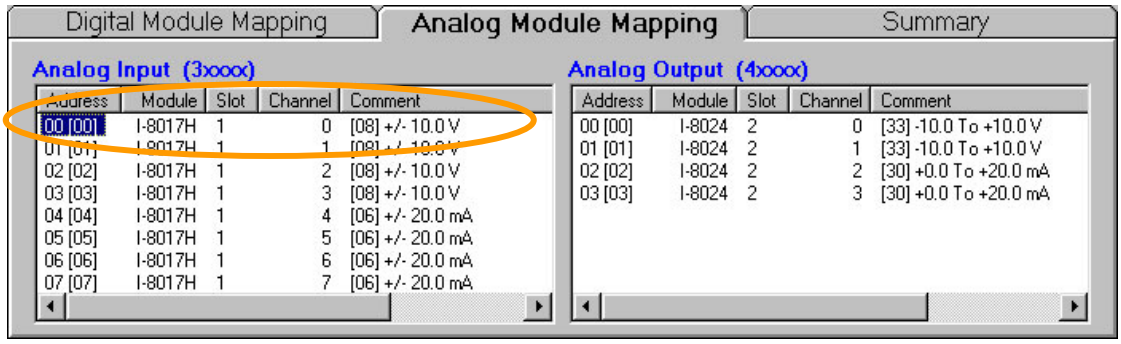
Converter formula is:

analog input value = VLC value / 32767 * Span

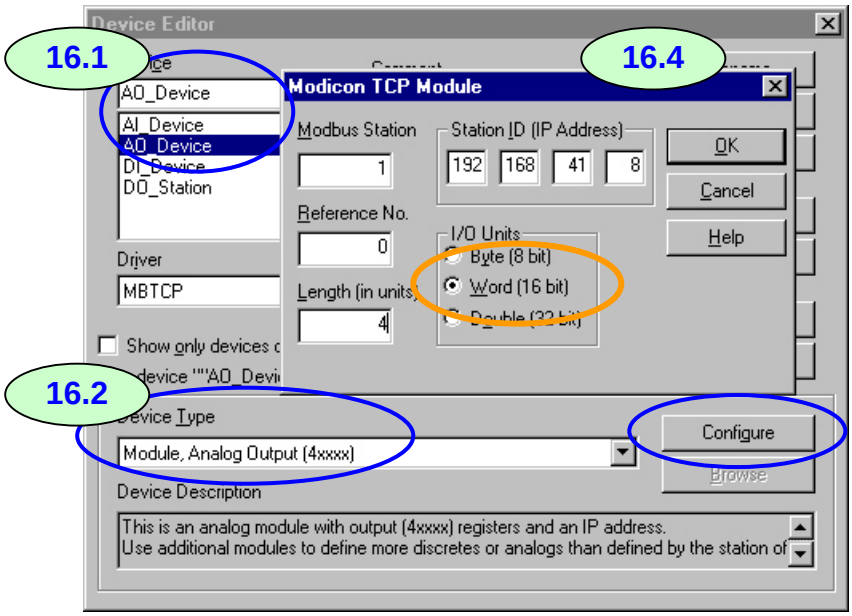
Span = analog input maximum value - 0

In this case, the Span is 10.0.

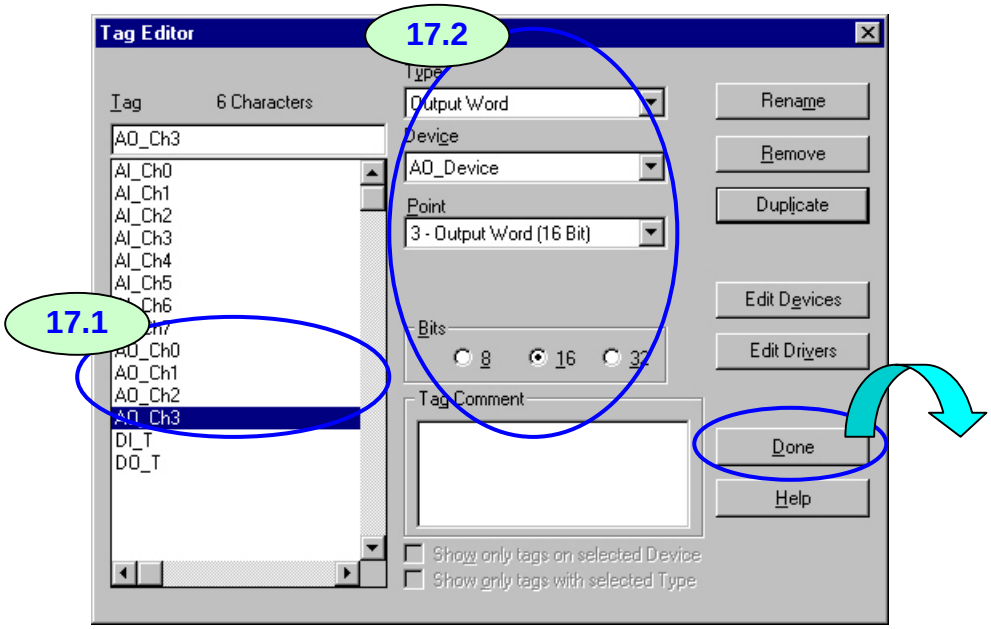
Analog input value = 6554 / 32767 * 10.0 = 2.000 (V)



Step 16. Add all AOs as a Modbus/TCP device. For example, named as **AO_Device**.



Step 17. Add tags of AOs. For example, named as **AO_Ch0 ~ AO_Ch3**.



Repeat Step 7 and Step 8 to view the AO_Ch0 tag.

Step 18. Test AO_Ch0.

Force hardware AO channels and view if the VLC sense the change. For example, output 5.0 V to first channel. In VLC, you need input VLC value

Converter formula is:

VLC value = analog output value / Span * 32767

Span = analog out maximum value - 0

VLC value = 5.0 / 10.0 * 32767

= 16383 (16#3FFF)