
NAPOPC.CAN DA Server

User's Manual

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

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Revision & Hardware

Revision

Version	Date	Author	Description
2.1	2010/08/10	Johney	Support VxCAN v2.0
2.0	2009/12/24	Johney	Support Virtual CAN Technique
1.0	2009/7/20	T.H.	Release version

Hardware

Version	Supported Hardware
2.1	<ol style="list-style-type: none">1. PISO-CAN 200/4002. PISO-CAN 200U/400U3. PEX-CAN 200i4. I-7530(A)5. I-7530-FT6. I-7540D7. I-75658. I-7565-H1/H2
2.0	<ol style="list-style-type: none">1. PISO-CAN 200/4002. PISO-CAN 200U/400U3. PISO-CAN 200E4. I-7530(A)5. I-7540D6. I-7565
1.0	<ol style="list-style-type: none">1. PISO-CAN 200/4002. PISO-CAN 200U/400U3. PISO-CAN 200E

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1. General Information

1.1 NAPOPC.CAN Introduction

NAPOPC.CAN supports OPC server for the virtual CAN port. Users just plug the CAN card or the CAN converter in the IPC and make some simple configuration in the friendly interface of NAPOPC.CAN, and they can apply any software(iFix, InduSoft, Citect, LabView...) which supports OPC protocol to communication with CAN devices by ICPDAS CAN card and converter. Therefore, users can easily to achieve different CAN application through a variety of CAN bus product lines of ICPDAS by NAPOPC.CAN.

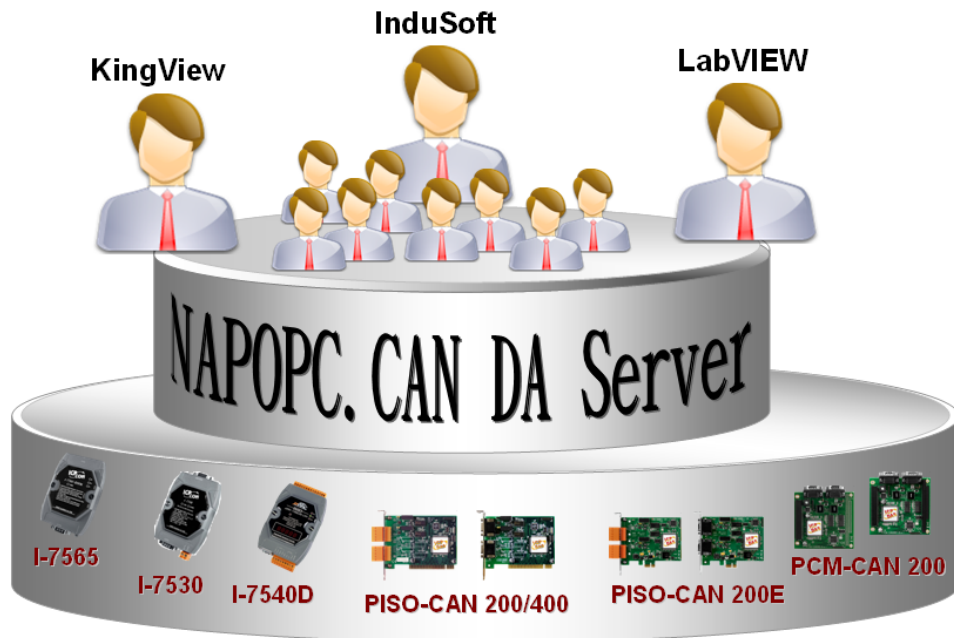


Figure 1.1 Application structure of the NAPOPC.CAN DA Server

1.2 Software Installation of NAPOPC.CAN DA Server

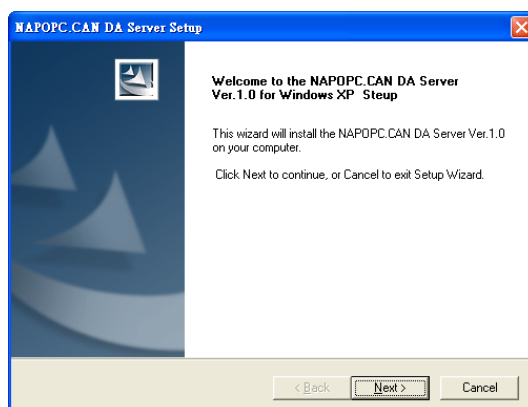
The software Installation for NAPOPC.CAN DA Server is demonstrated in the following descriptions. After finishing the procedure, the software, demos and manual will be in your PC.

The software of NAPOPC.CAN DA Server can be used in Windows 2000 / XP environments. For these Windows operation systems, the recommended installation procedure is given as follows:

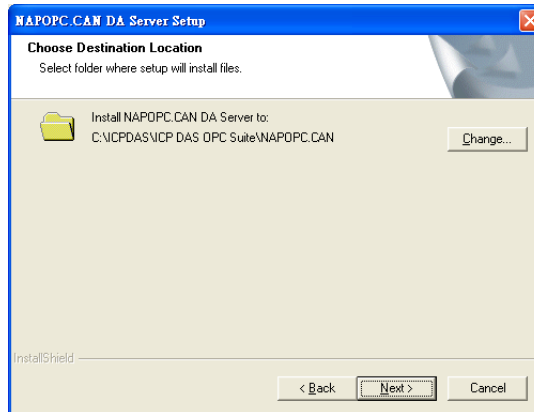
Step 1: You can get the Installing software “NAPOPC.CANServer2.0.exe” from the “[CD:\fieldbus_cd\can\pci\piso-can200_400\CAN_OPC_Server\NAPOPC.CANServer2.0.exe](#)” or you can download it from http://ftp.icpdas.com/pub/cd/fieldbus_cd/can/pci/piso-can200_400/can_opc_server/napopc.canserver1.0.exe

Step 2: Please double-click “NAPOPC.CANServer2.0.exe” to run the setup.

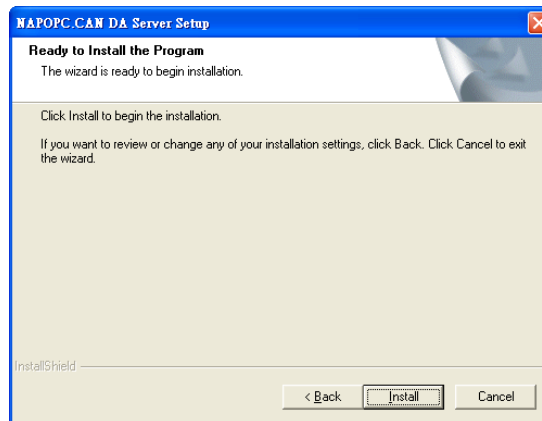
Step 3: The first screenshot of setup is shown as follows, please press “Next” button to continue the process.



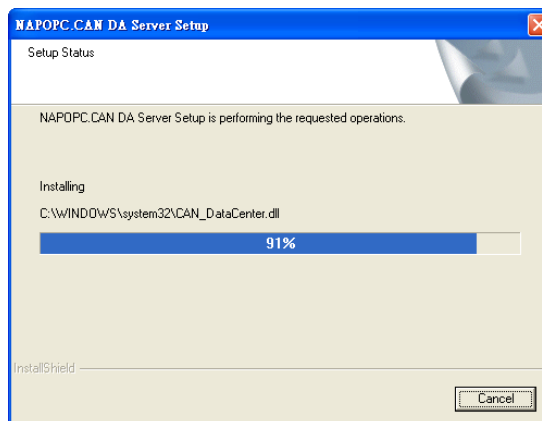
Step 4: After confirm the Installation path, please press “Next” button.



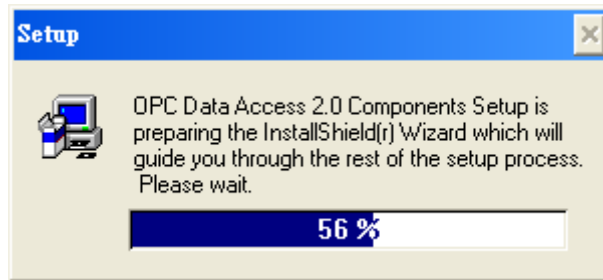
Step 5: Please press “Install” button. The setup process will start.



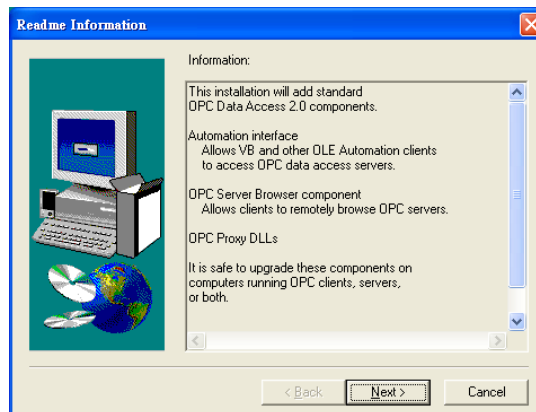
Step 6: The setup process is running.



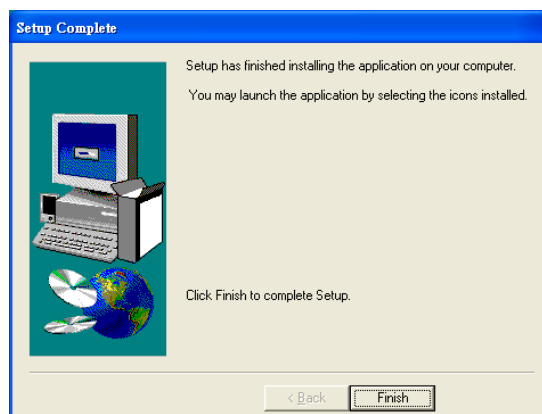
Step 7: When finishing the setup process of NAPOPC.CAN DA Server, it will automatically install the OPC Data Access 2.0 Components software.



Step 8: Please press “Next” button to start setup process.



Step 9: Please press “Finish” button to finish the setup process.

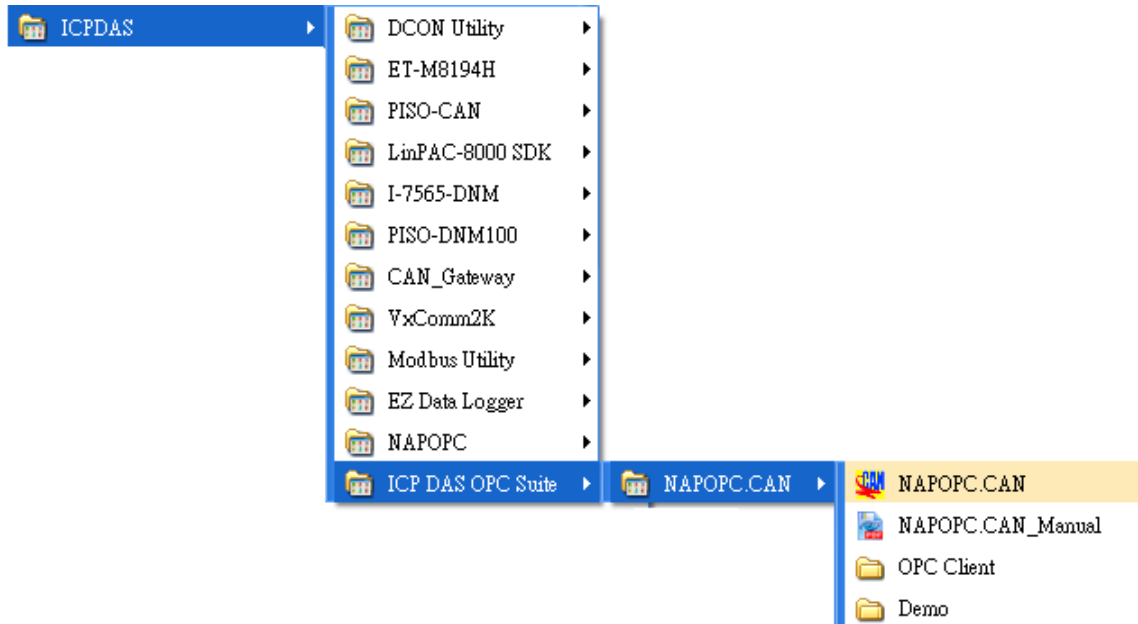


The installing folder is in the following directory:

“C:\ICPDAS\ICP DAS OPC Suite\NAPOPC.CAN”

Step 10: Launch the OPC server from the start menu [Start]-[Programs]-[ICPDAS]-[IPC DAS OPC Suite]-[NAPOPC.CAN].

The program files picture is shown as follows.



1.3 NAPOPC.CAN DA Server Interface Introduction

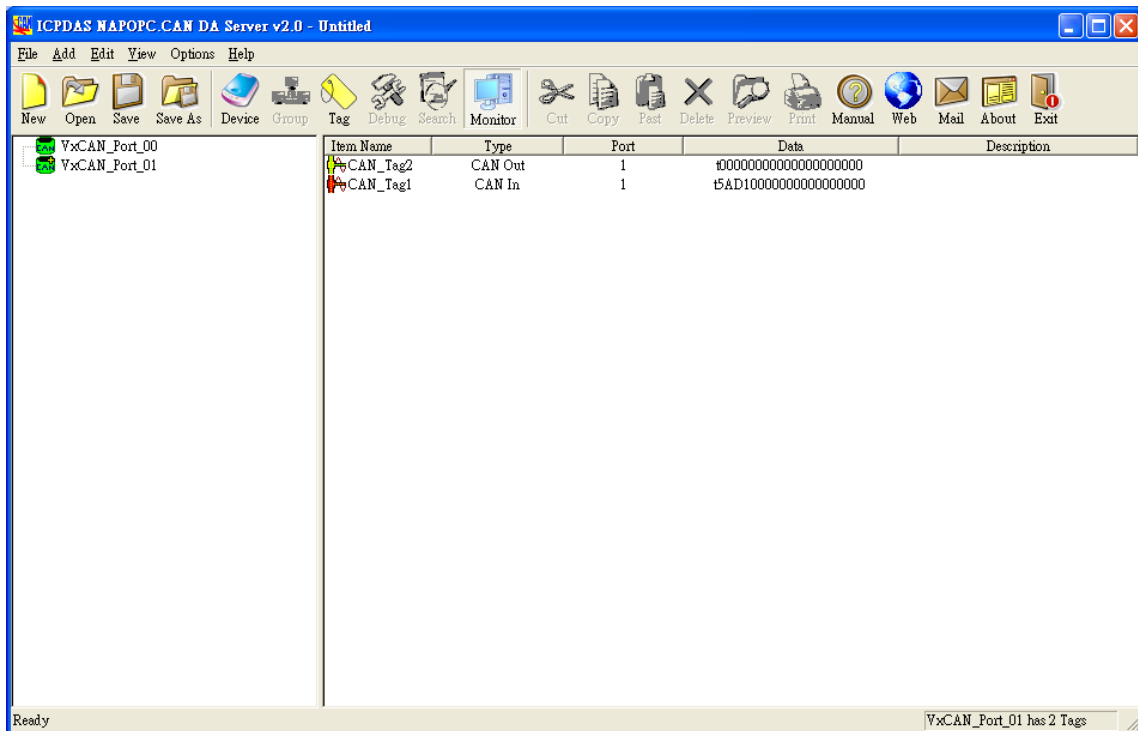
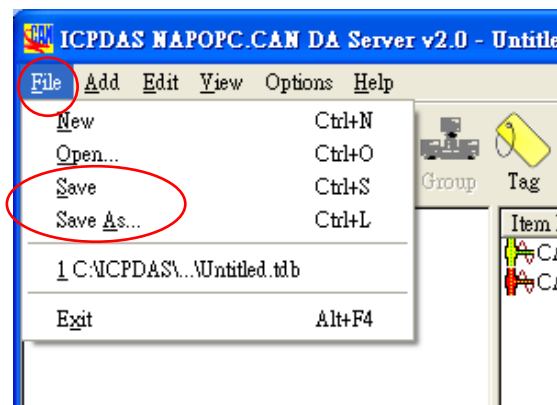


Figure 1.1 Software main screen

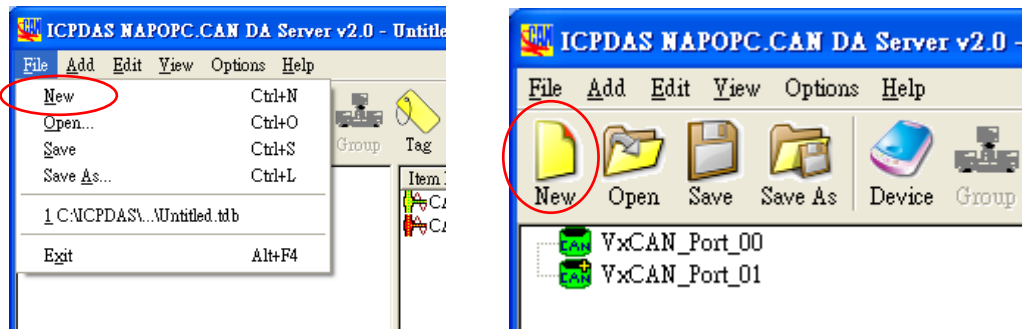
1.3.1 Screen Features – File

All configuration settings can be saved into configuration file by clicking the "File/ Save" or "File/ Save As ..." menu item. The OPC server will automatically load the last configuration file with every launch.



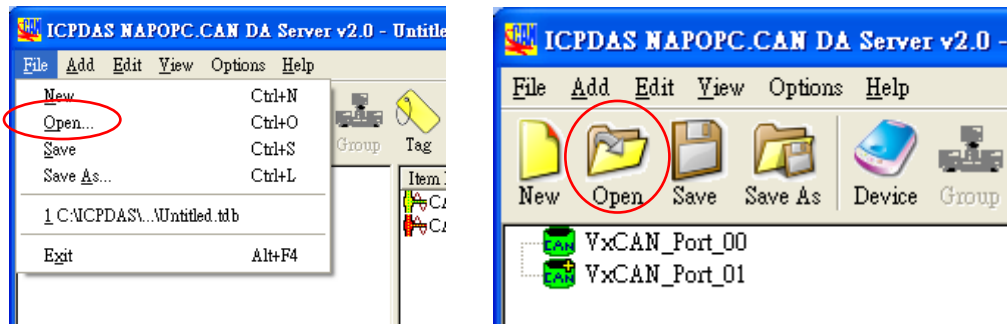
1. New

Clean current project and create a new project

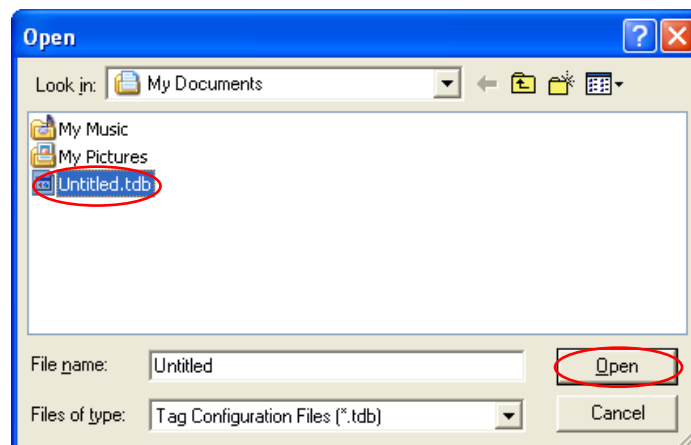


2. Open

Load old NAPOPC.CAN project.

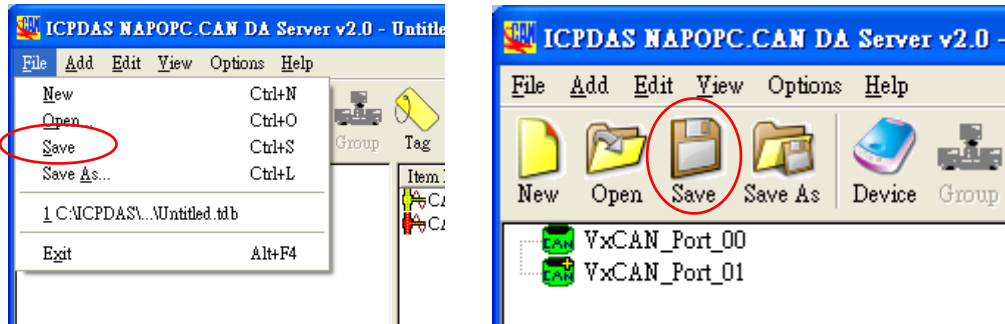


Select the project file you want, and then open.



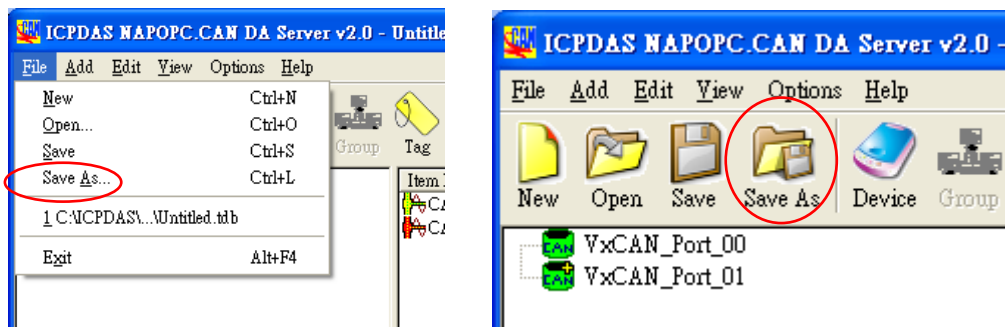
3. Save

Save current NAPOPC.CAN project

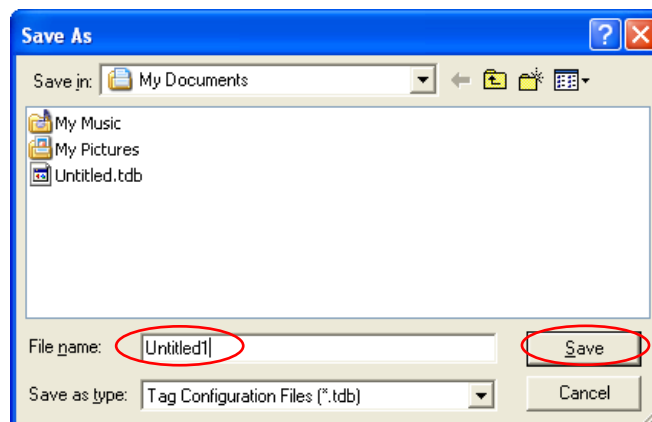


4. Save As...

Save NAPOPC.CAN project as a new one

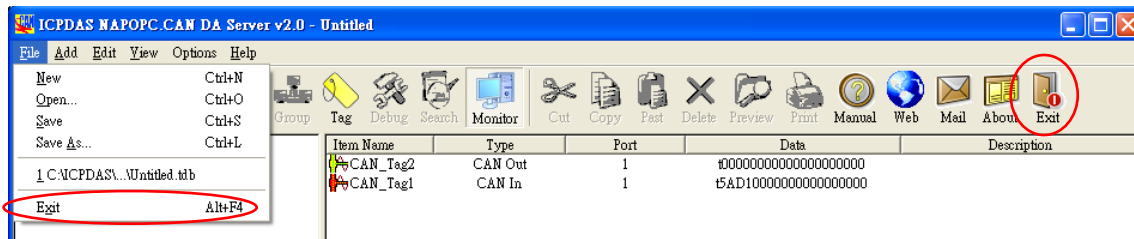


Give a new file name, and then save.

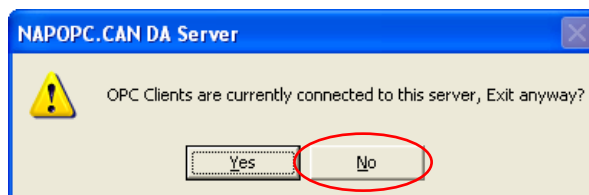


5. Exit

Click on the "File/ Exit " menu item or the "Exit" Toolbar to exit the NAPOPC.CAN DA Server.



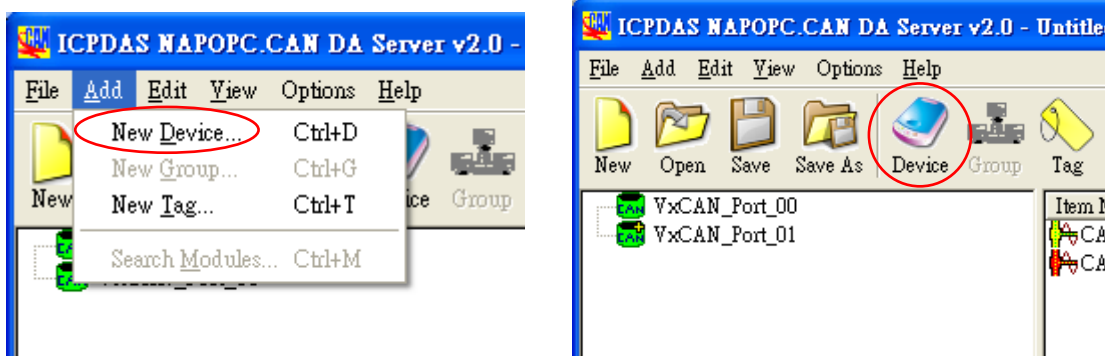
If some OPC clients are connecting to this server, it will show this warning message box to remind user to disconnect the OCP clients before closing the server.

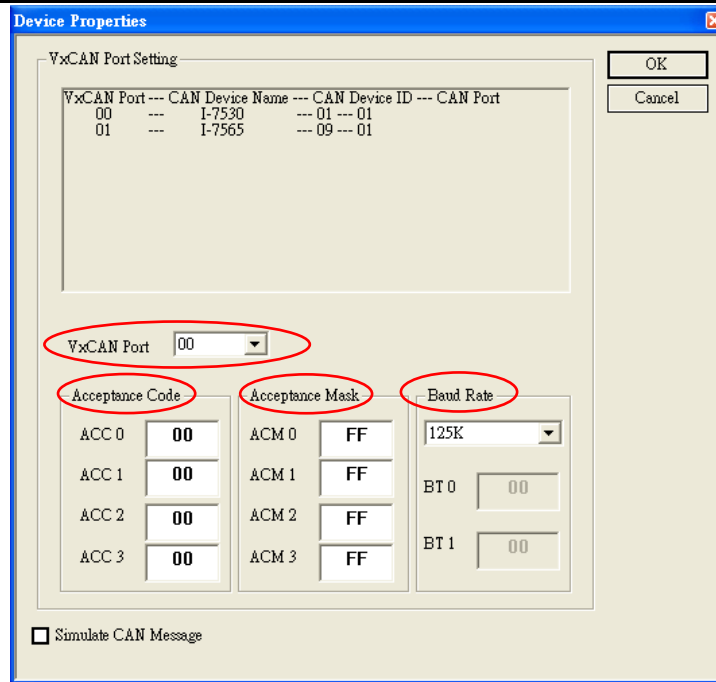


1.3.2 Screen Features – Add

1. New Device

Create new device in NAPOPC.CAN DA Server





VxCAN Port :

Selecting the CAN port which is shown in the table.

Acceptance Code :

Define Acceptance Code.

Acceptance Mask :

Define Acceptance Mask.

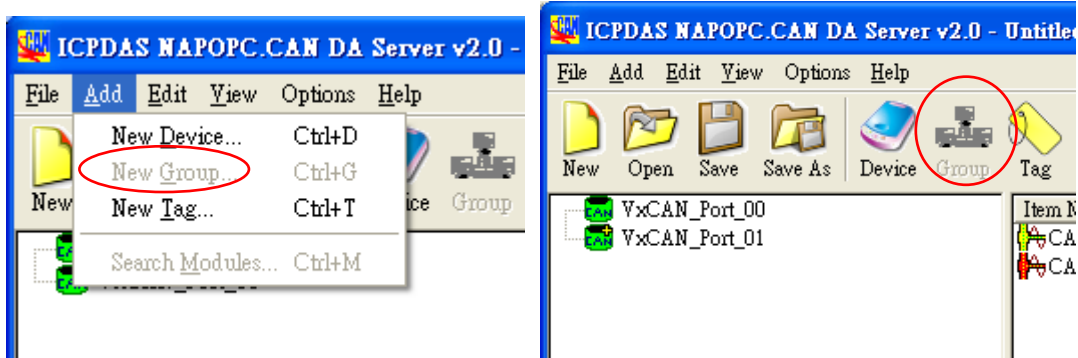
Baud Rate :

The Baud Rate combo box has eight kinds of baud rate, 10K, 20K, 50K, 125K, 250K, 500K, 800K, and 1M. (This version is not supported "User Define" baud rate)

2. New Group

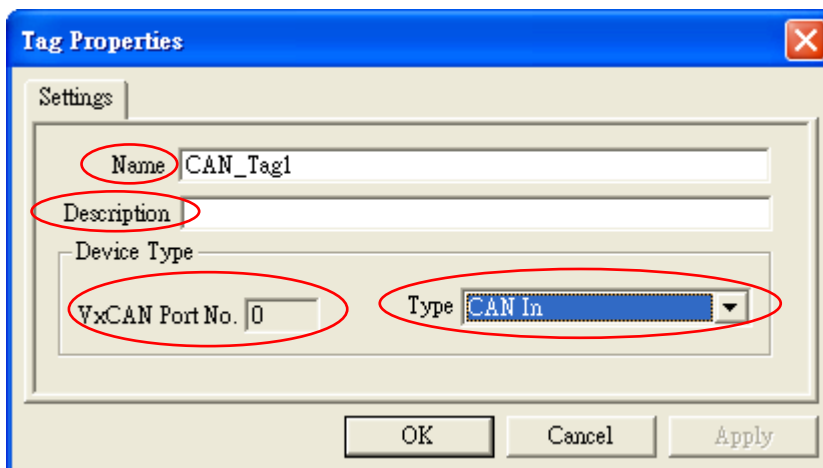
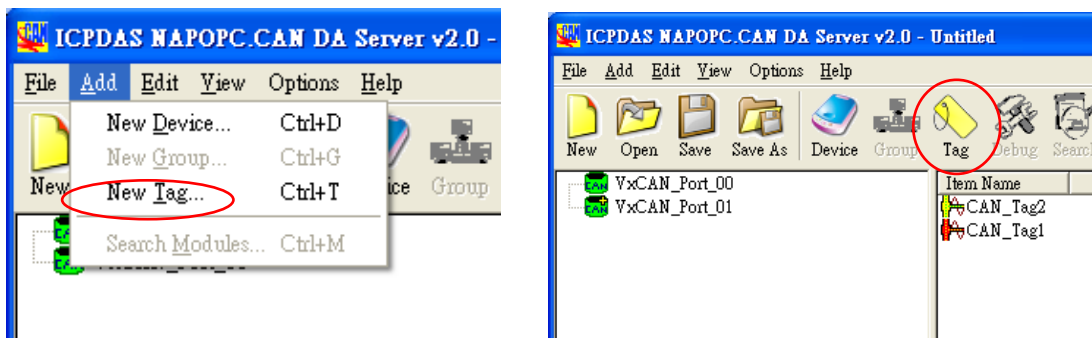
Create new group in NAPOPC.CAN DA Server

(This version is not supported)



3. New Tag

Create new tag in the NAPOPC.CAN DA Server



Name :

Any "Tag Name" may be used, but avoid names with spaces or punctuation such as "!", ".", ". The clients will use the "Device Name" and "Tags" to access its value. Hence the "Tag Name" cannot be a duplicate of another tag in the same group.

Description :

Users can specify the description text for this tag. This can be blank.

Type :

To specify the command to be used for this tag, it can select “CAN_In” or “CAN_Out” to define the CAN Port type.

Type	Description
CAN_In	OPC server has received from the CAN network data stored in this data item. The data can only be read
CAN_Out	Client sends the data to write in this data item, OPC server put this data item which extracted from the data sent to the CAN network, the client can not read data from this data item.

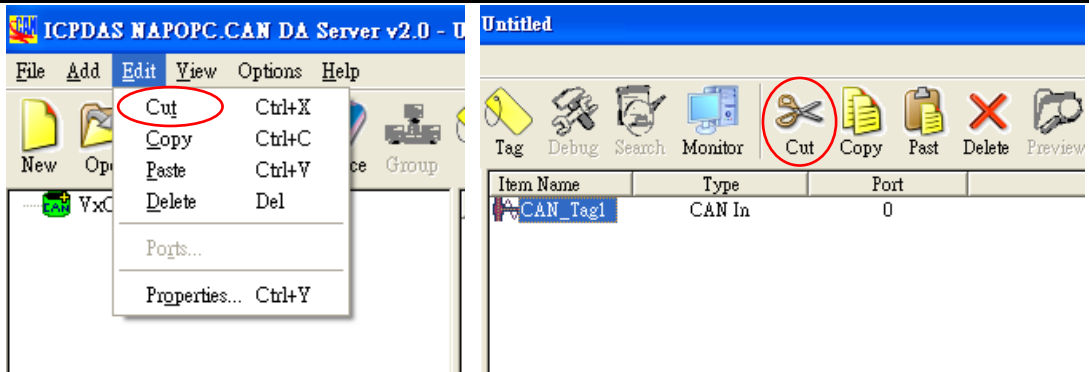
VxCAN Port No. :

Indicating the VxCAN port number which the user is setting.

1.3.3 Screen Features – Edit

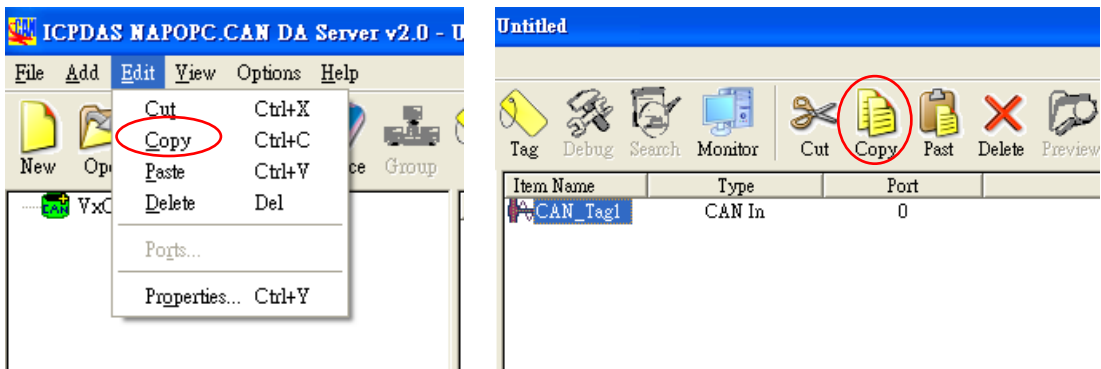
1. Cut

Cut the tag in NAPOPC.CAN DA Server



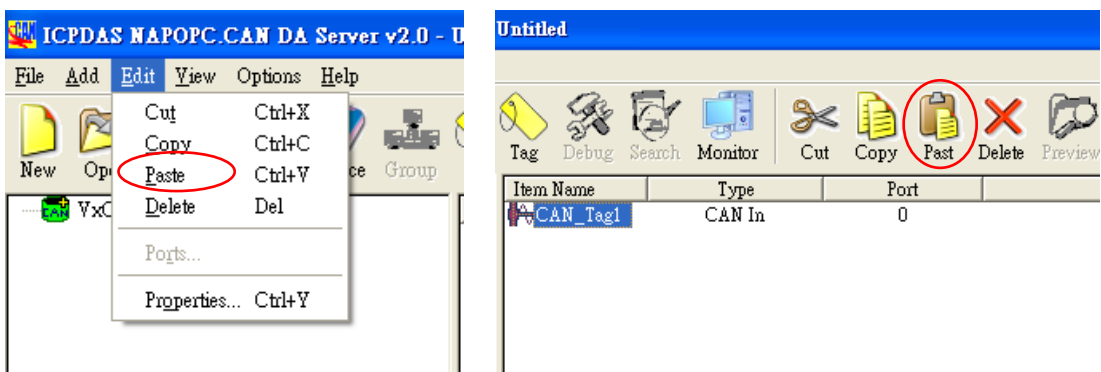
2. Copy

Copy the Tag in NAPOPC.CAN DA Server



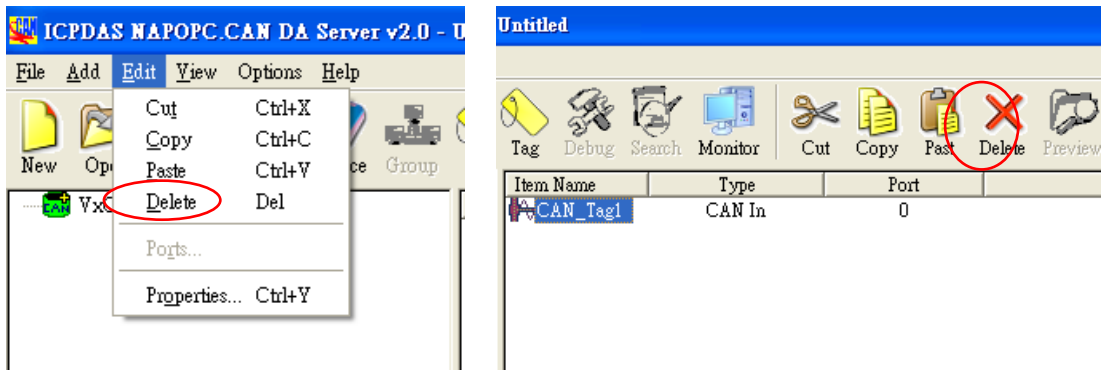
3. Paste

Paste the Tag in NAPOPC.CAN DA Server



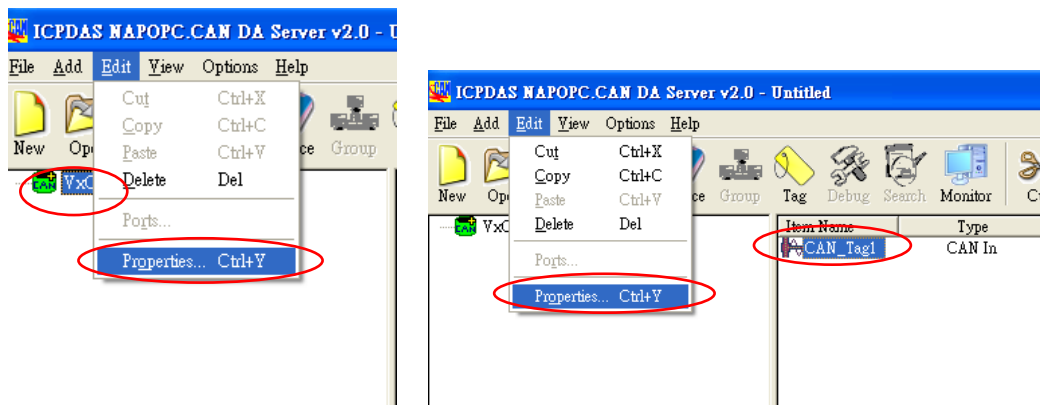
4. Delete

Delete the Device / Group / Tag in NAPOPC.CAN DA Server

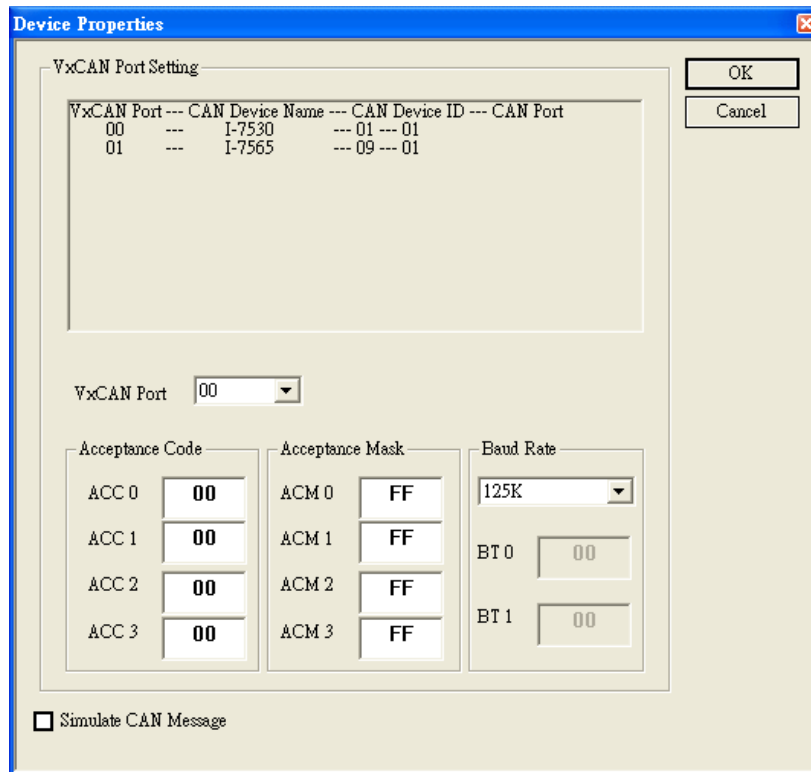


5. Properties

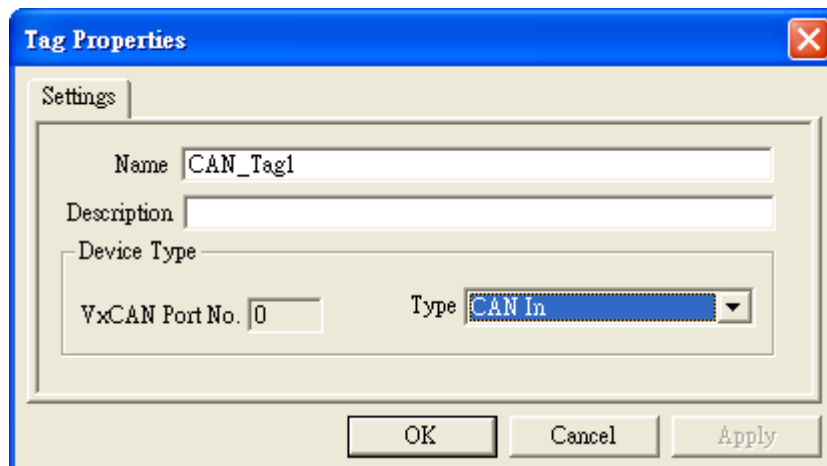
Clicking the "Properties" menu item or double click the Device or Tag to edit the Device's or Tag's properties in NAPOPC.CAN DA Server



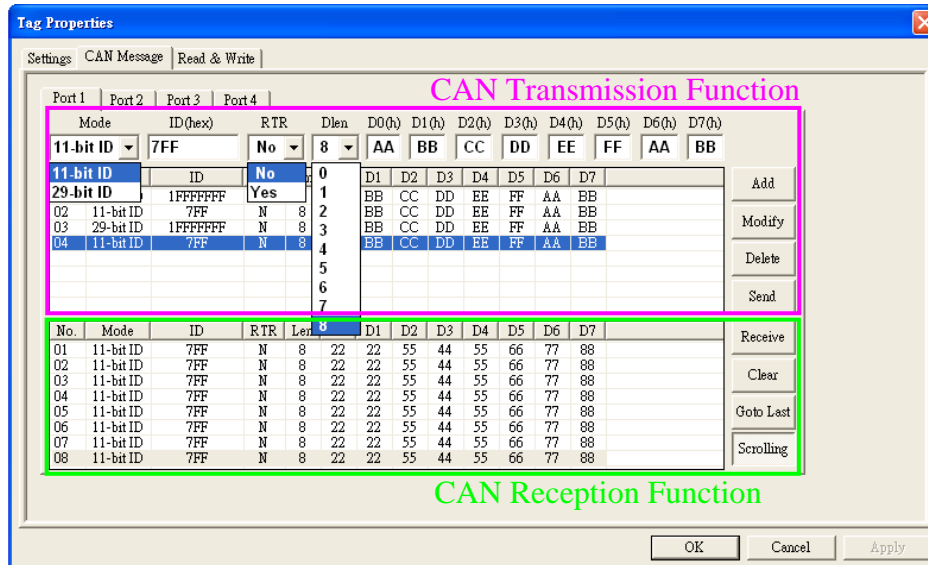
Configure CAN Device (for the detail, refer to “1.3.2”)



Configure CAN Tag (for the detail, refer to “1.3.2”)



CAN message transmission and reception dialog



We provide a friendly CAN bus dialog to allow users to send/receive the CAN messages to/from CAN network easily. This dialog can test CAN devices on the CAN network. It supplies several functions, such as sending CAN messages, receiving CAN messages, storing CAN messages, and so forth.

The operation features will show as follows.

Add :

Users can key in the CAN message into the text boxes above the transmission list, then click "add" button to insert this CAN message into the transmission list.

Modify :

To modify the content of some CAN message in the transmission list, select this CAN messages in the transmission list firstly. Then, this CAN message information will be shown in the text boxes above the transmission list. Users can modify the CAN message in these text boxes directly. Finally, click "Modify" button to save the modification in the transmission list.

Delete :

If some CAN message in the transmission list is useless, users can select it and click "Delete" button to delete this CAN message from the transmission list.

Send :

After users select one CAN message from the transmission list, click "Send" button to send this CAN message once from the selected CAN port.

Receive :

Click this button to receive the CAN message from the specific CAN port.

Clear :

Click this button to clear all CAN messages shown in the reception list.

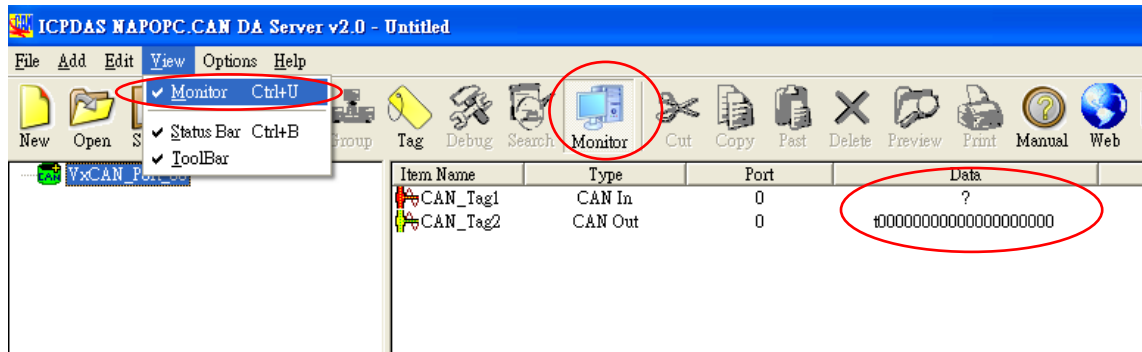
Goto Last :

Click this button to show the last received CAN message.

Scrolling :

The reception list is always scrolled automatically to the last received CAN message.

1.3.4 Screen Features – View



Monitor :

Use the "Monitor" function to see values of tags by checking the "View/ Monitor" menu item. Uncheck the item to stop monitoring.

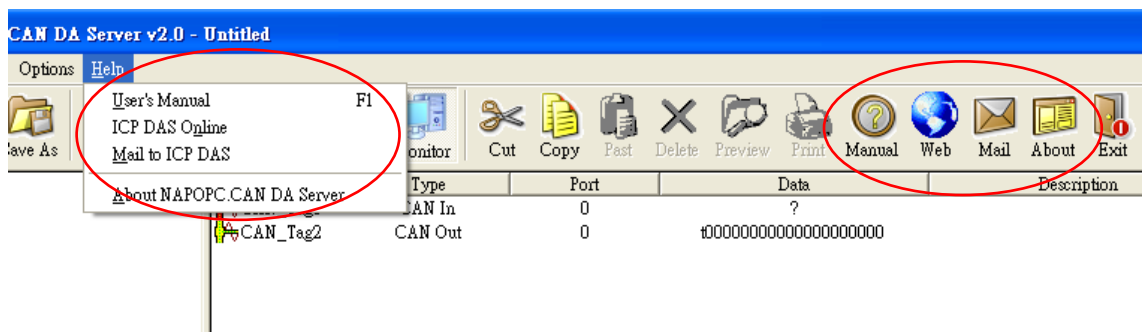
Status Bar :

To show or not show the Status Bar

Tool Bar :

To show or not show the Tool Bar

1.3.5 Screen Features – Help



User's Manual / Help :

Click on the "Help/User's Manual" menu item or the "Help" Toolbar refer to the user's manual.

ICP DAS Online :

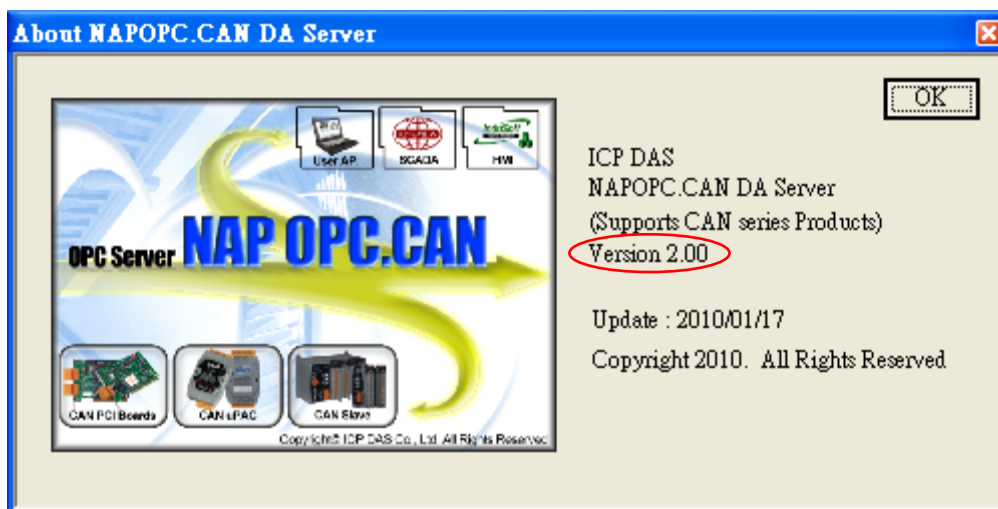
Click on the "Help/ ICP DAS Online" menu item or the "Wed" Toolbar to browse our web.

Mail to ICP DAS :

Click on the "Help/ Mail ICP DAS" menu item or the "Mail" Toolbar to contact us by Outlook Express.

About NAPOPC.CAN DA Server :

Click on the "Help/ About NAPOPC.CAN DA Server" menu item or the About Toolbar to see the "About NAPOPC.CAN DA Server" dialog box.



2. CAN Data Item Description

On the server for each device of PCI Interface CAN card and each CAN port, there are two fixed data types : “CAN_In” and “CAN_Out”.

Type	Description
CAN_In	OPC server has received from the CAN network data stored in this data item. The data can only be read
CAN_Out	Client sends the data to write in this data item, OPC server put this data item which extracted from the data sent to the CAN network, the client can not read data from this data item.

Both “CAN_In” and “CAN_Out” are stored as a string format.

2.1 Analysis of CAN message format

This data item will be display at four modes, which represent the meaning of the following.

Mode	ID	RTR
t	2.0A(11 bit)	0
T	2.0A(11 bit)	1
e	2.0B(29 bit)	0
E	2.0B(29 bit)	1

Four CAN message formats are shown below.

Mode	ID	Dlen	D0	D1	D2	D3	D4	D5	D6	D7
t	7FF(11 bit)	1~8	00	11	22	33	44	55	66	77
T	7FF(11 bit)	1~8	00	11	22	33	44	55	66	77
e	1FFFFFFF(29 bit)	1~8	00	11	22	33	44	55	66	77
E	1FFFFFFF(29 bit)	1~8	00	11	22	33	44	55	66	77

Example :

t 7FF 8 00 11 22 33 44 55 66 77

Items	Description
t	Standard frame, Data frame
7FF	CAN frame ID
8	CAN data Length
00	CAN Data byte 1
11	CAN Data byte 2
22	CAN Data byte 3
33	CAN Data byte 4
44	CAN Data byte 5
55	CAN Data byte 6
66	CAN Data byte 7
77	CAN Data byte 8

Example :

T 7FF 8

Items	Description
T	Standard frame, Remote frame
7FF	CAN frame ID
8	CAN data Length

Example :

e 1FFFFFFF 8 00 11 22 33 44 55 66 77

Items	Description
e	Extended frame, Data frame
1FFFFFFF	CAN frame ID
8	CAN data Length
00	CAN Data byte 1
11	CAN Data byte 2
22	CAN Data byte 3
33	CAN Data byte 4
44	CAN Data byte 5
55	CAN Data byte 6
66	CAN Data byte 7
77	CAN Data byte 8

Example :

E 1FFFFFFF 8

Items	Description
E	Extended frame, Remote frame
1FFFFFFF	CAN frame ID
8	CAN data Length

3. Quick Start

3.1 Operational Guidelines for the initial

Step 1. Install the CAN PCI interface card driver first

http://ftp.icpdas.com/pub/cd/fieldbus_cd/can/pci/piso-can200_400/win2k_xp/setup/piso-can_2k_xp.exe

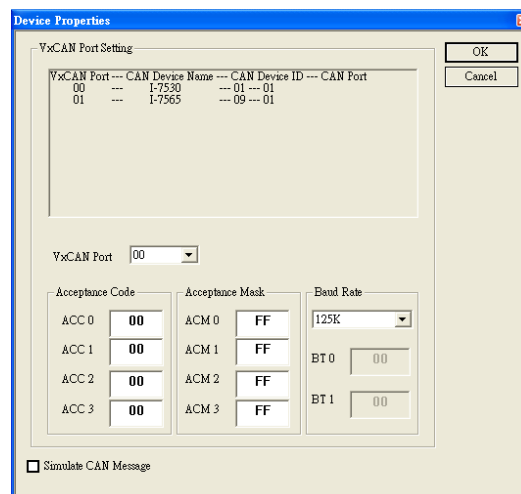
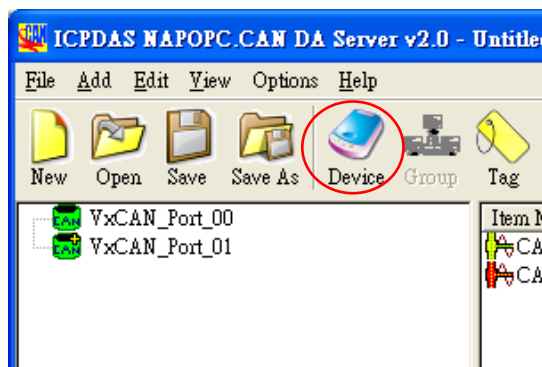
Step 2. Install the NAPOPC.CAN DA server

http://ftp.icpdas.com/pub/cd/fieldbus_cd/can/pci/piso-can200_400/CAN_OPC_Server/NAPOPC.CANServer2.0.exe

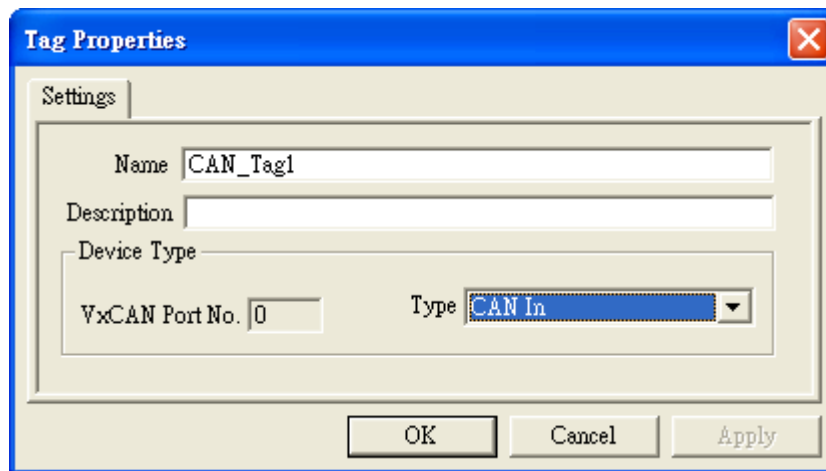
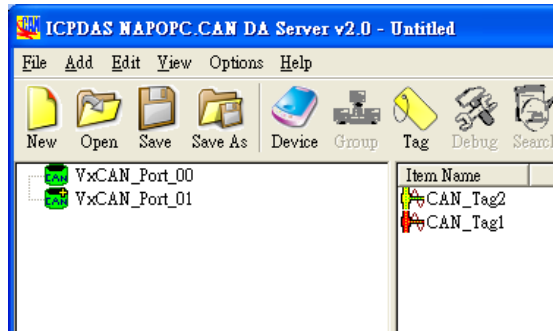
Step 3. Launch the OPC server by executing

"C:\ICPDAS\ICP DAS OPC Suite\NAPOPC.CAN\NAPOPC.CAN.exe".

Step 4. Search Modules. Refer to the "1.3.2 Screen Features – Add – New Device" to add VxCAN port and configure CAN device.



Step 5. Add tags for the VxCAN port. Refer to the "1.3.2 Screen Features – Add – New Tag" for more information.



Step 6. Save the Configuration. Save the configuration by clicking "File/Save" menu item.

Step 7. Close OPC server. Close NAPOPC.CAN DA server by clicking "File/Exit" menu item.

Step 8. Connect to NAPOPC.CAN DA server. Users can run the OPC client program to connect to the OPC server by linking the name of "NAPOPC.CAN".

Step 9. When an OPC Client connects to "NAPOPC.CAN", the NAPOPC.CAN DA server will be executed automatically and minimized to the system tray.



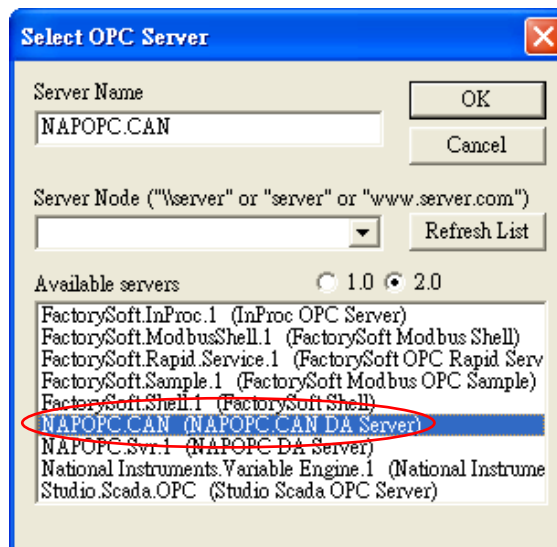
3.2 Connect to NAPOPC.CAN DA Server

This OPC is defined by the OPC Foundation, so any client program supporting OPC can connect to the NAPOPC.CAN server.

3.2.1 FactorySoft OPC Client Program

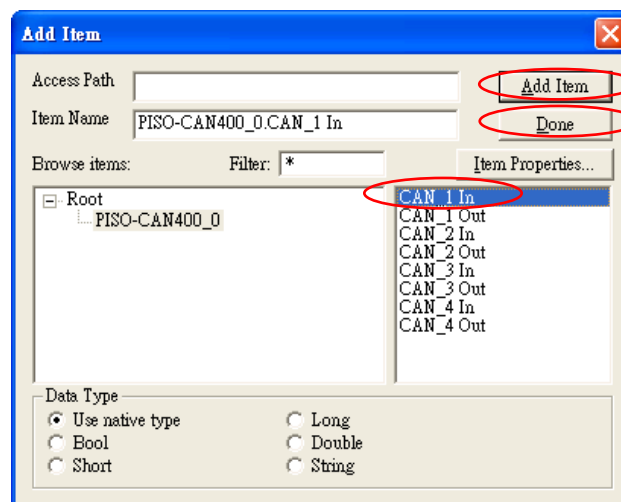
Step 1: Click on the "OPC/ Connect..." menu item.

Step 2: Select the "NAPOPC.CAN (NAPOPC.CAN DA Server)" OPC server.



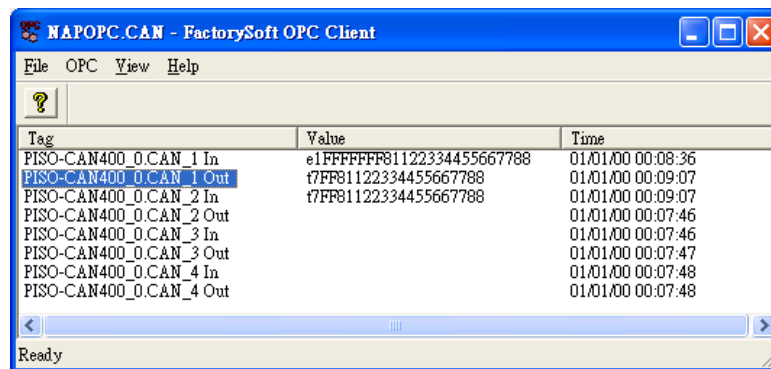
Step 3: Click on the "OPC/ Add Item" menu item to add existing tags.

Step 4: Browse the tree list, then double-click on the tag or click the Add Item button to add.



Step 5: Click on the "Done" button to close.

Step 6: The window shows the values of selected tags.

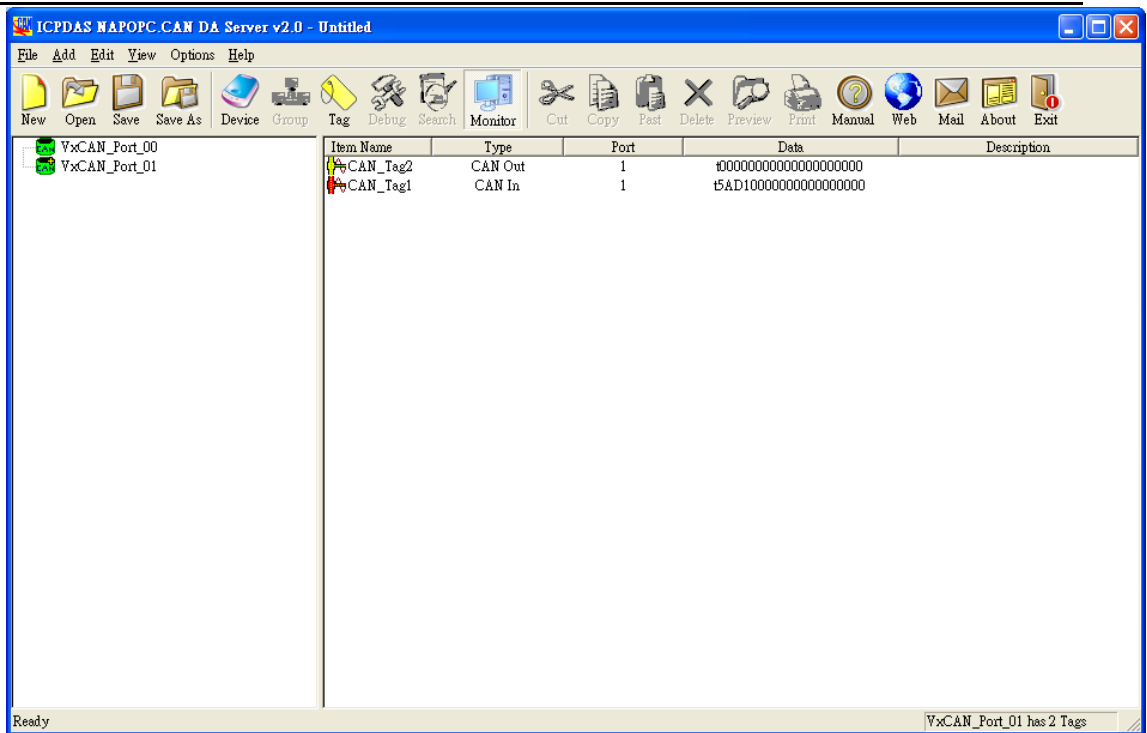


The screenshot shows a window titled "NAPOPC.CAN - FactorySoft OPC Client" with a menu bar (File, OPC, View, Help) and a toolbar with a help icon. Below is a table with three columns: Tag, Value, and Time. The tag "PISO-CAN400_0.CAN_1 Out" is highlighted in blue. The status bar at the bottom shows "Ready".

Tag	Value	Time
PISO-CAN400_0.CAN_1 In	e1FFFFFFF81122334455667788	01.01.00 00:08:36
PISO-CAN400_0.CAN_1 Out	t7FF81122334455667788	01.01.00 00:09:07
PISO-CAN400_0.CAN_2 In	t7FF81122334455667788	01.01.00 00:09:07
PISO-CAN400_0.CAN_2 Out		01.01.00 00:07:46
PISO-CAN400_0.CAN_3 In		01.01.00 00:07:46
PISO-CAN400_0.CAN_3 Out		01.01.00 00:07:47
PISO-CAN400_0.CAN_4 In		01.01.00 00:07:48
PISO-CAN400_0.CAN_4 Out		01.01.00 00:07:48

3.2.2 InduSoft

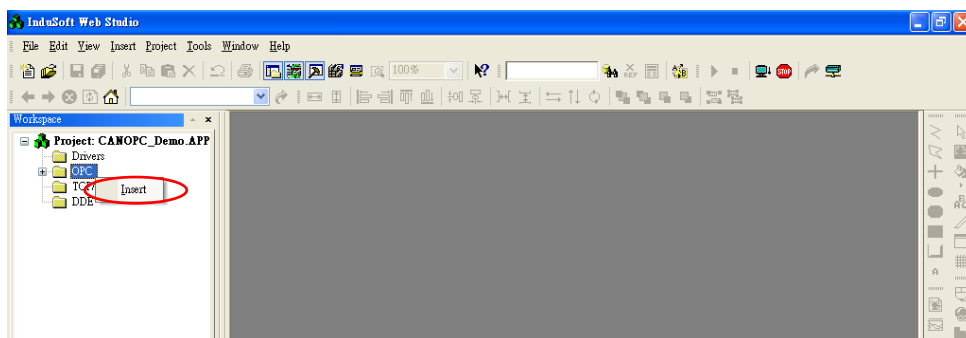
Step 1: Before using the InduSoft OPC Client module, you need to install and configure the NAPOPC.CAN DA server in the machines you will run it.



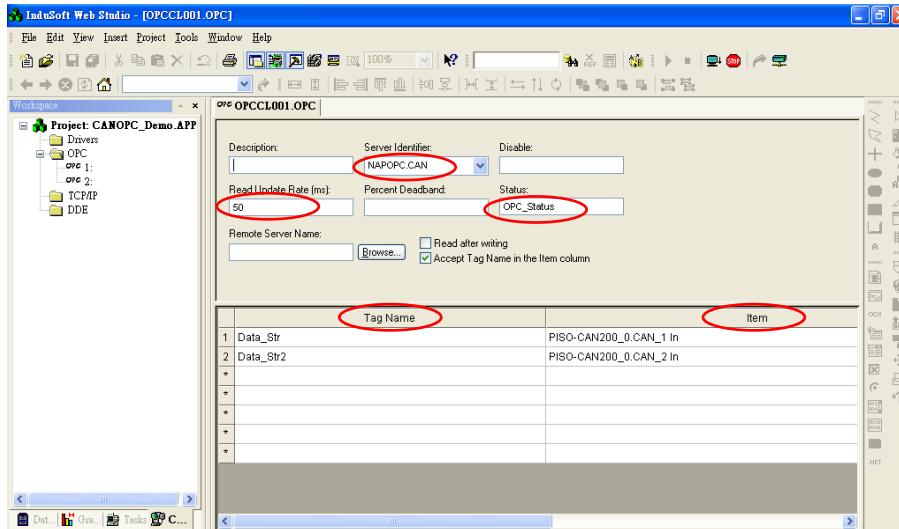
Step 2: Run the InduSoft.



Step 4: In the Studio Workspace window, click the Comm tab, right-click the OPC folder, and click "Insert".



Step 6: Click on the Server Identifier: drop-down menu and select the “NAPOPC.CAN”, or key in “NAPOPC.CAN”.



The configuration table for OPC has the following entries:

Server Identifier: this field should contain the name of the server you want to connect to. If the server is installed in the computer, its name can be selected through the list box.

Disable: this field should contain a tag or a constant. If its value is different from zero, the communication with the OPC server is disabled.

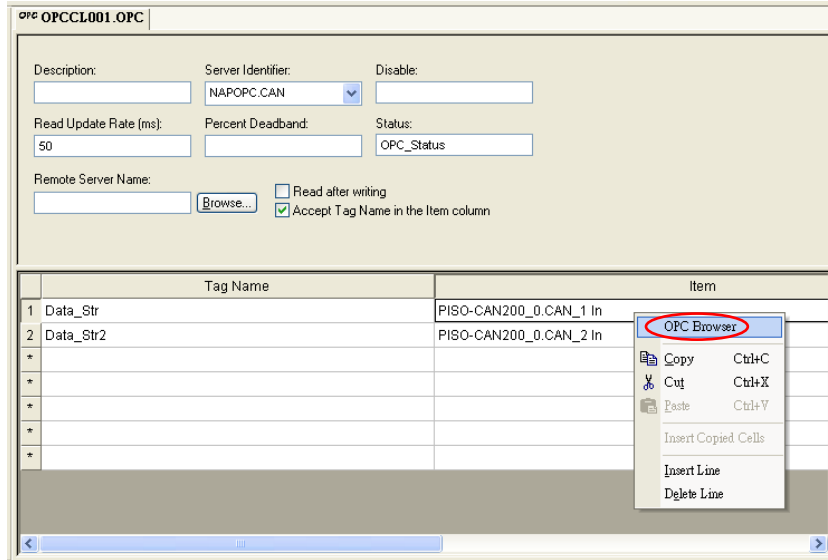
Update Rate: this field indicates how often the server will update this group in milliseconds. If it is zero, the server will use the fastest practical rate.

Tag Name: these fields should contain the tags linked to the server items.

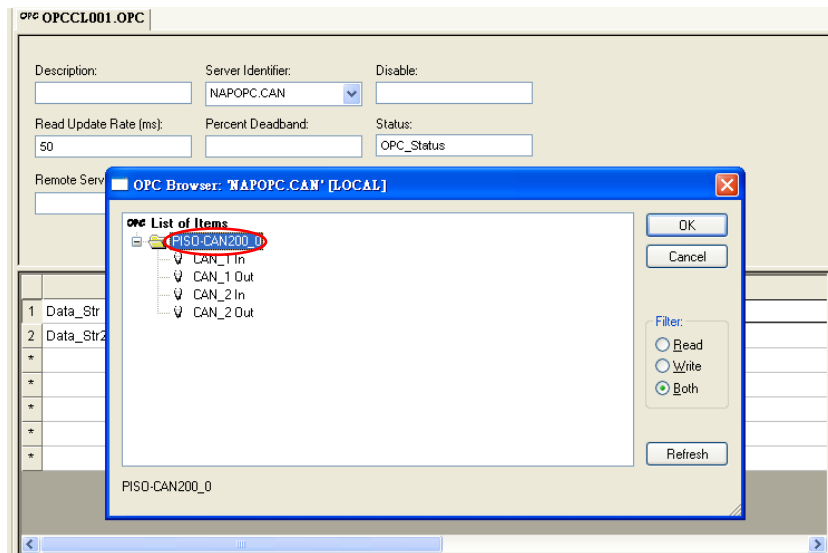
Item: these fields should contain the name of the server's items

Step 7: In the first cell of the Tag Name column type the tag name created in database.

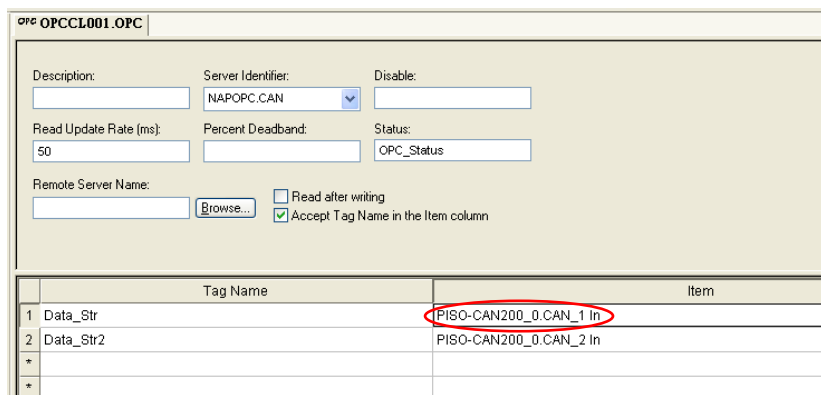
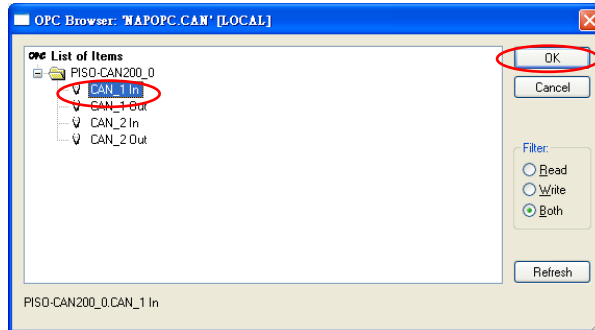
Step 8: Right-click the first cell of the item column and select “OPC Browser” in the pop-up menu to get the OPC browser window.



Step 9: Double click the PISO-CAN200_0 to appear the CAN Port(tag) in the tree-view.

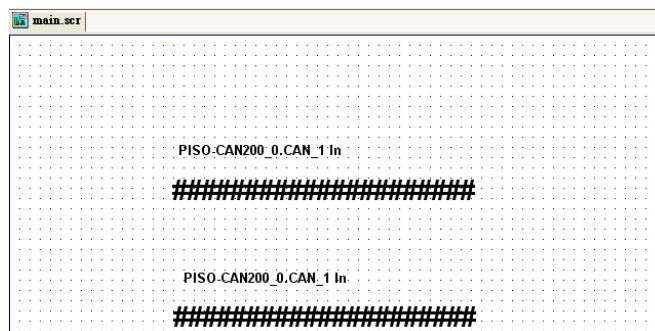


Step 11: Select a tag in the tree-view, and click the “OK” button or double click the tag to add this one.

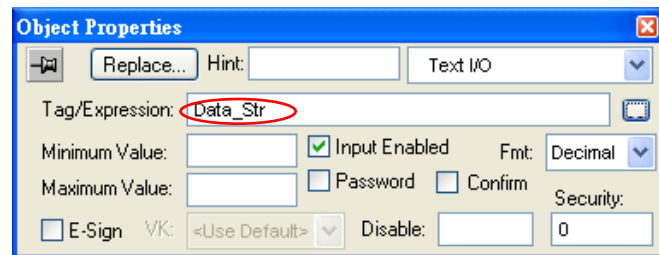
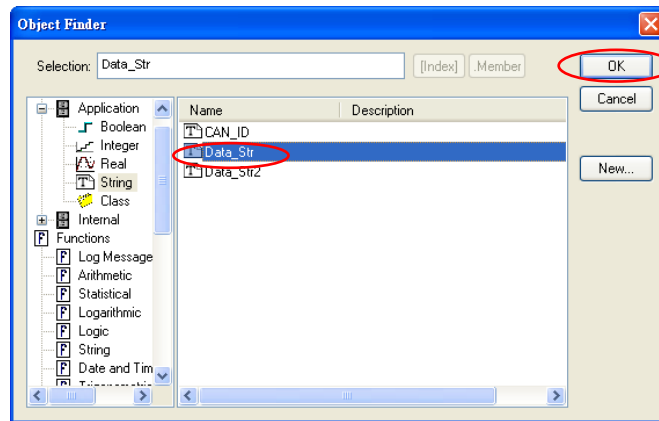
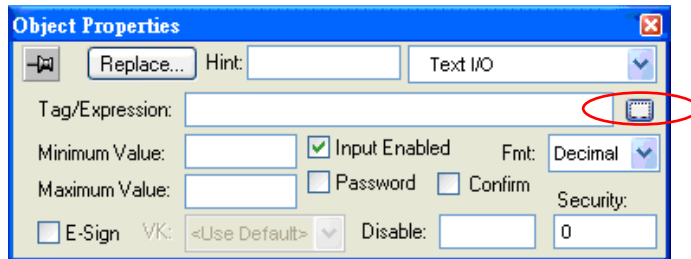


Step 12: Repeat the step 7 ~ 11 to add more tags.

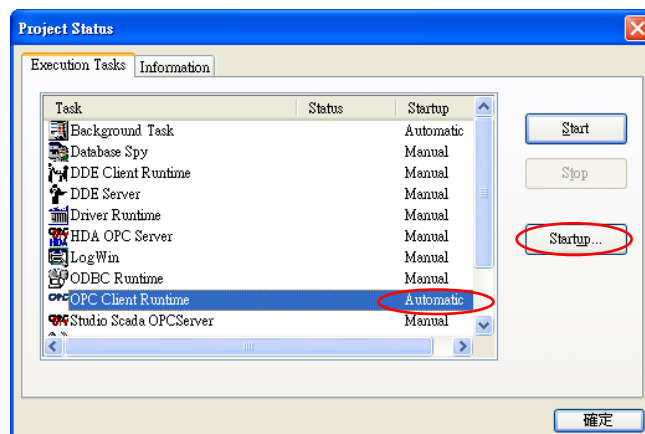
Step 13: Creating a Text String for the Input/Output Dynamic. Click the Text icon on the Object Editing toolbar. Position the crosshairs in the main.scr. Press the “#” to display “###” in the gray square..



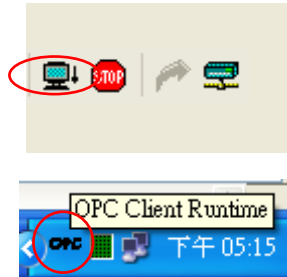
Step 14: Double Click the “###” text, it will appear a menu of the Object Properties window. In the Tag/Expression field type the tag name you want to link.



Step 15: From the project select status, and then select the “OPC Client Runtime” in “Execution Tasks” tab. Click on the Startup button to setup the Startup as Automatic.



Step 16: Run the program InduSoft OPC Client, after running this program, a small icon will appear in your system tray, main screen will show as below.



PISO-CAN200_0.CAN_1 In

e1FFFFFFFF81122334455667788

PISO-CAN200_0.CAN_1 In

e1FFFFFFFF81122334455667788

4. Error Message

NAPOPC.CAN DA Server may show some error messages below.

It means there are some error status in the system.



Detailed error code is as follows.

Error Code	Description	Error Code	Description
1	CAN_DriverError	16	CAN_TransmitBufferLocked
2	CAN_ActiveBoardError	17	CAN_TransmitIncomplete
3	CAN_BoardNumberError	18	CAN_ReceiveBufferEmpty
4	CAN_PortNumberError	19	CAN_DataOverrun
5	CAN_ResetError	20	CAN_ReceiveError
6	CAN_SoftResetError	21	CAN_SoftBufferIsEmpty
7	CAN_InitError	22	CAN_SoftBufferIsFull
8	CAN_ConfigError	23	CAN_TimeOut
9	CAN_SetACRError	24	CAN_InstallIsrError
10	CAN_SetAMRError		
11	CAN_SetBaudRateError		
12	CAN_EnableRxIrqFailure		
13	CAN_DisableRxIrqFailure		
14	CAN_InstallIrqFailure		